Creating a shared 2030 vision and change map

for the merging neonatology departments of Amsterdam UMC

Master Thesis
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Creating a shared 2030 vision and change map for the merging ICN departments of Amsterdam UMC

Combining visioning, roadmapping, strategic- and change management to help ICN Amsterdam UMC prepare for a shared future with fully integrated family-centric services .

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Creating a shared 2030 vision and change map for the merging ICN departments of Amsterdam UMC

How a shared vision and road of change for the future can create unity and shared understanding for two merging hospital departments at the Amsterdam UMC

Master thesis
February 2020
by Martha Kuijpers

Preface

Dear reader,

In front of you lies the final thesis of my MSc degree in Strategic Product Design at Delft University of Technology. The past five months I have been diving into the field of the smallest newborns at one of the largest hospitals in the Netherlands. I am happy, proud and thankful to have contributed to a vision and shared road to the future for the neonatology department and thankful that the outcomes are being used. I think having your results implemented is one of the best outcomes to a graduate student. I had a lot of freedom to explore different views, also from other study fields such as strategic and change management. **Though most valuable to me were the contacts I have made with people in my graduation project. Without your willingness to openly share your thoughts, I would have been nowhere.**

First of all I would like to thank Lara, my graduation mentor from Amsterdam UMC. You have brought me in first contact with the people I needed to talk to and gave me valuable tips to push through when I was stuck.
Secondly, I would like to thank Bart and Lianne, my supervisory team from the TU Delft. You have helped me a lot with believing in the value of my project and helped me in my perseverence, also at some difficult times.
Third I would like to thank Dirk, for being one of the first believing in the value of this project, sharing thoughts about visions, and pushing it forward to improve the current vision. I would like to thank Anton for approving this assignment, despite first skepticism still believing in the value of the project
Fourth, and most importantly, I would like to thank everyone involved in this project. Thanks to all the nurses and doctors who were enthousiastic to share their thoughts in the days that I got showed around at the NICU, the brownpaper sessions and in many meetings. I would especially like to thank Anita, who was very involved in the project, enthousiastic and gave me the chance to join events and other hospital visits. It was a joy to share thoughts and insights with you.
Also many, many thanks to Frank, Ine, Margot, Barbarella, Letty and Marjo. Thank you for the meetings, assessing ideas, honesty and openness helping me move along the process. Also a thank you to Joyce, being enthousiastic about this project and helping me to bring it further and making most use of it at the kitchen table meetings. That is the real value and potential of the project: getting everyone along. Without your help I could not have pursued that. Also Marjo, thank you for doing this at the AMC side, organising time to hold interactive sessions with nurses from the AMC. Thank you for your enthousiasm and openness concerning the new vision and this project.
I also want to thank the parents who have had the great courage to openly share with me their experiences of a difficult time. Without you I could not have fully understood the situation and create valuable concepts. I hope you are happy with the results and your input will now be used to improve new parent experiences at the hospital.
Last but not least, I want to thank my housemates for cheering me up. Most importantly I want to thank my family and friends for their support throughout the project. You helped me a lot with my perseverance and sharing thoughts. I also want to thank Bas for the hugs and your endurance when I was frustrated or being perfectionistic. You always cheered me up.

Enjoy reading!

Martha Kuijpers

Executive summary

‘Sharing the same vision and wanting to achieve a common goal with employees are key elements for succesful change’ (Gill, 2002). As change is ahead for the Amsterdam UMC neonatology, having a shared vision with all employees (management, doctors, nurses, assistants and care support from both sides AMC and VUmc) is key to have a common goal and common ground. This graduation thesis aims to create a shared understanding of the future that lies ahead.

This thesis proposes a shared vision of 2030 and change map of the recently merged neonatology department. The vision shows that the department wants to be a place with the best care which is child and family-centred. This can be accomplished via the four pillars proposed in the vision: content and involved employees, family integrated and developmental care, top multidisciplinary (quality of) care and cooperation in the care chain and birthcare. It shows a plan to reach this potential via a change map, showing current change propositions that lay ahead and proposed innovations in an innovation strategy.
The vision has been developed through an analysis of the internal environment (stakeholders and their needs), talking and connecting to all stakeholders, and the external environment (developments and talking to external experts). These have been combined to create future themes. Through extensive co-creation with doctors, nurses and management, a shared corporate vision has been concluded. Apart from the vision, also a change map has been created, to show a possible road towards the future, to reach this future vision. Quite some change is already ahead for the neonatology department, this has been mapped out. Next to the current change ahead, an innovation strategy has been created via the design roadmapping technique. An innovation vision of family-centred services shows the end-goal of innovations for 2030. In three horizons, ideas have been created from earlier insights (from stakeholder research) and then validated with the relevant stakeholders: doctors, nurses, management and parents of prematures. Out of this design roadmap, the most promising ideas had been chosen to be shown in the change map. The change map thus shows current change and proposed change in a timeline to be able to reach the shared department vision.

This study has resulted in:
-**a shared vision of 2030** for IC neonatology validated by nurses, doctors and management
-**a shared road to 2030** for IC neonatology with planned change and proposed change
-**an innovation strategy** with several ideas (proposed change) that are validated internally with several caretakers and parents of prematures

With this strategy, IC neonatology can become a department with the best child- and family-centred care. The strategy is one of value creation: delivering increased value to families in the care and service provided towards them (managing their expectations and needs) and increased value in work for employees. Making this change desirable for all employees is priority number one, whereafter propositions follow to improve parents experiences at the new perinatal center. This is key to make the new perinatal center a success at the opening and beyond.

> “Sharing the same vision and wanting to achieve a common goal with employees are key elements for succesful change”
>
> -Gill (2002)

Abbreviations

Amsterdam-UMC	Amsterdam University Medical Centres
VKC	Woman and Child Centre
PNC	Perinatal Centre
AMC	Amsterdam Medical Centre
VUmc	VU medical centre
IC	Intensive Care
ICN	Intensive Care Neonatology
NICU	Neonatal Intensive Care Unit
SBU	Single Bed Unit
CC	Couplet Care unit
VOSMOS	Nurse and Medic Alarm System
FIC	Family Integrated Care
RMCD	Ronald McDonald House
VOC	Association for Parents of Prematures
PTSS	Post-Traumatic Stress Syndrome
DESTEP	Demographic, Economical, Socio-cultural, Technological, Ecological and Political changes used in development research
PXO	Patient Experience Officer
EX	Employee Experience
NIDCAP	Newborn Individualised Developmental Care and Assessment Programme
DINAMO	Diagnostics Inventory for the Assessment of the willingness to change among Management in Organisations
OLVG	Onze Lieve Vrouwen Gasthuis

Report structure

This report consists out of two main parts:

Vision creation

Internal and external research to create a grounded vision

Internal research and external research has been done to create a grounded basis for the vision. Through insights from research and cocreation with employees, a vision is created. This part consists out of the chapters two, three, four and five.

Change map creation

Creating a proposed road ahead

There is a lot of change ahead for the neonatology department already. How to create a red thread through all change and enhance the change further with proposed innovations? This is shown in chapter six, seven and eight.

Table of contents

Reading guide

Insights, summaries and conclusions

Each chapter ends with a blue page or blue block which summarizes the chapter or gives main insights

Examples, case studies or expert interviews

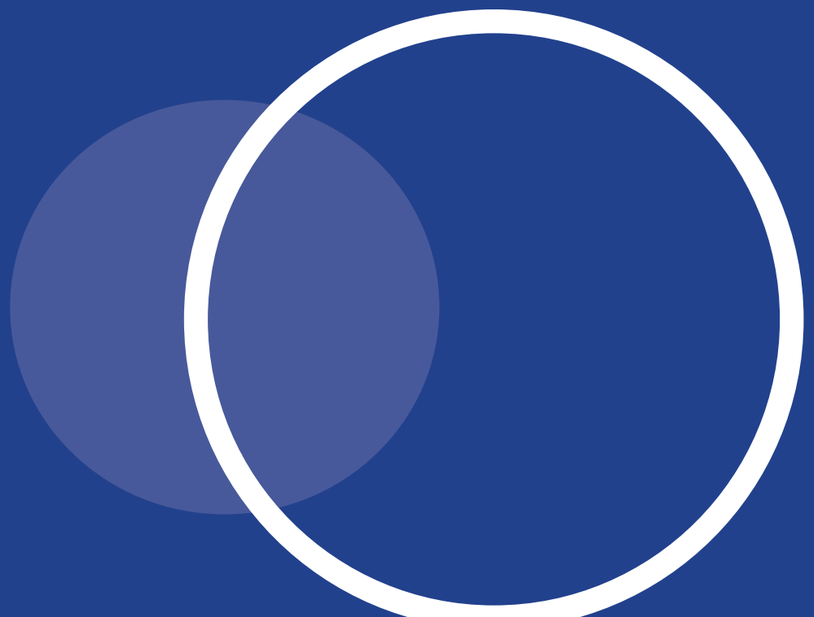
Extra sidesteps for deeper understanding such as case studies or expert interviews are shown on green pages or green blocks.

THIS REPRESENTS EXTRA INFORMATION (THAT CAN BE FOUND IN THE APPENDIX FOR EXAMPLE)

In chapter five, the new corporate vision is defined. This vision is being reached by four pillars, all represented in the succeeding chapters by their corresponding coloured dot.

1

Introduction



This chapter gives an introduction to the thesis context, motivation, assignment, deliverables, approach and its relevance.

In this chapter:

1.1 Introduction

Project context
The two hospitals AMC (Amsterdam Medical Centre) and the VUmc (VU medical centre) are merging to one hospital called the Amsterdam UMC. It is now one of the largest hospitals in the Netherlands. One of the first departments to merge is neonatology. A new perinatal center (PNC) will be built at the AMC location, this new center will include Obstetrics and Neonatology. At this new centre, there will be changes in the architectural design and way of working. Where currently doctors, nurses, care and feeding assistants work in an open ward with multiple incubators, the future PNC will hold Single Bed Units (SBUs) and Couplet Care rooms (CC).

How this project came to be
Being interested in healthcare and service design, this project started with the topic of improving information provision towards parents of prematures at the new perinatal center. From earlier research of a service design studio it appeared that information provision towards parents could be improved. However, whilst working the first week at the department, it appeared that a few years ago the information provision was improved by an application developed for parents. There seemed to be a larger need for a shared vision and overview of change ahead for the department. By talking to different stakeholders, creating a shared vision and roadmap was a more valuable assignment to the department. According to the subhead of neonatology, a multiannual plan was missing. The alliance project leader for VKC stated that an overview of change was missing. One of the nurse teamleaders mentioned that there could be a lot of improvement in the vision. The vision is sometimes ambiguous and not known amongst nurses. There is a need for an overview, greater goal, and how projects can contribute to the larger goal(s).

Project assignment
Therefore, the new project assignment was stated as follows: create a shared vision and road towards 2030 for the neonatology department of Amsterdam UMC.

Project deliverables
In this graduation thesis, a vision and strategy for the neonatology department of 2030 have been created, consisting of the following:
1) A corporate vision
A corporate department vision is created which contains the shared goals of the Amsterdam UMC (AMC and VUmc nurses, doctors, management, feeding and care assistants), where the Amsterdam UMC delivers value to its employees and families.
2) An innovation vision and strategy
Next to the corporate vision, a related innovation vision and innovation roadmap have been created to show how to reach the family-centred vision through (design) innovations.
3) A department strategy in a 'change map'
Innovations from the design innovation roadmap have been extracted and combined with the planned change to show a possible road to 2030, in a so-called 'change map'.

Personal motivation for this project
Previous patient, employee and parent experience projects
There have been quite some projects concerning patient, employee and parent experience in healthcare and hospitals, executed by design professionals such as service or user experience designers and by design students. The question arises how these (patient journey) projects add up to the greater goal of a department or hospital. Are such innovation projects embedded in the multiannual plans or strategy of the departments? What happens with these projects after delivery? In this project it is tried to give a larger meaning to service design in healthcare.
A growing body of evidence indicates that a patient-centred approach to the design, delivery and evaluation of services brings benefits both to the patient and the organisation. Despite this, quite some organisations struggle to place families central at what they do. While it is well-known in academia and policy circles that patient experience is not just a nice to have, healthcare organisations have been struggling to make it a measure of their organisation's performance and a driver of improvement (KPMG, 2017).

1.2 Problem Definition

The new project assignment was stated as folllows: create a shared vision and road towards 2030 for the neonatology department of Amsterdam UMC.

During a further exploration of the current vision with different stakeholders, it appeared that most nurses do not know the current vision at all. On top, it is not clear to everyone how the current vision is being reached (whilst there are plans, an overview is missing). Having a vision without showing a plan of execution does not make sense. 'Vision without execution is hallucination, as Edison once said.' (Inc., 2012).

Figure 1: Current vision missing awareness and a plan to reach the vision

1.3 Approach

To be able to create a shared vision and an overview of a proposed road towards 2030 for the neonatology department, several methods have been combined in this research and design graduation project.

The project approach is based on the Double Diamond process (Design Council, 2019), Roadmapping (Simonse, 2018), and several design thinking methods and change management models. A design approach was used by doing extensive user-centred research and using strategic foresight methods, evaluation and co-creation with caretakers and parents, and having an iterative approach.

The Double Diamond approach usually exists out of four phases: the Discover Phase (doing explorative research), the define phase (defining the problem scope, design goal or future vision), the develop phase (developing ideas to solve the problem or get to the future vision), and a deliver phase. In this graduation project an in between phase has been added to evaluate current projects being done to reach the vision.

The first design phase of this thesis the 'Discover' phase', see figure 2. During this phase, the Amsterdam UMC neonatology departments' internal and external environment were analysed and insights were created on insight cards. Internally, the stakeholders needs, context, organisation and current visions and missions were explored. External interviews and desk research was done to discover expert opinions and trends and developments influencing the future of the ICN department.

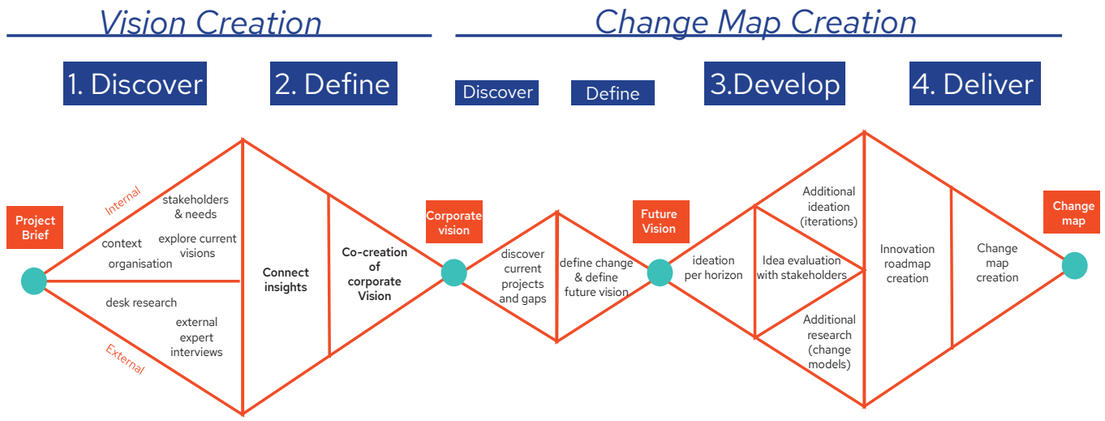


Figure 2: The process of this thesis based on the Double Diamond process

In the second design phase 'Define', insights were analysed and connected to create future themes. These are opportunity areas for improvement and focus of the ICN department in the next ten years. Afterwards, the corporate vision was co-created in several sessions with nurses, doctors and management in an iterative approach from first concept to final proposal.The corporate vision acted as a starting point for the innovation vision, concept creation, roadmap and change map.

After the second design phase a short 'extra' discover and define phase was held. To get insight in how the department is currently going to change and what projects are already happening. The goal was to be able to extend the path of change that is already taken. In this phase current projects to reach the vision were mapped out, which formed the basis of the 'current change' in the change map. Though also it gave insights in what employees were missing, gaps that show potential for improvement to reach the corporate vision. Lastly, a future vision was created by evaluating the new corporate vision compared to the previous corporate vision.

The third design phase, the 'Develop' phase ideas were generated from individual brainstorming and a brainstorm with students. The ideas were evaluated with nurses, doctors, parents and management. Via multiple iterations, ideas were improved and chosen.

The fourth design phase ('Deliver'), contained creating an innovation (design) roadmap with several concepts and a change map which contains the planned change and several concept propositions to further extend the planned change for the years ahead.

1.4 Corporate vision & innovation vision

The assignment of this thesis is to create a shared vision and overview of change as a starting point for a multi-annual plan. In this thesis a shared corporate vision and an innovation vision are created. In this section it is explained what a corporate and innovation vision are and its differences and similarities.

What is a vision?
The terms mission, vision and strategy are often differently interpreted and used. A vision describes a desired future state. This future state can have an organisational scope such as a company or department (corporate vision) or the smaller scope of innovation for a certain department or organisation (innovation vision). A good vision defines a timeframe, is inspiring to all employees and easy to understand (not too wordy). A vision describes what you want to do differently or improve from the current state, it shows an 'ideal yet realisable' future world.

Corporate vision
A corporate vision describes the desired future state of a department or company. 'The vision is a concise statement that defines the mid- to long-term (three to ten-year) goals of an organization. The vision should be external and market-oriented and should express how the organization wants to be perceived by the world' (Kaplan, Norton & Barrows, 2008). In the book of Van der Loo, Geelhoed & Samhoud, a corporate vision is described by four elements: the core values, core qualities, higher goal and bold goal.
The core values and core qualities are internally focused. What are our current strong points as employees and who do we want to be or represent in the future? The bold goal and higher goal are output focused: why do we exist and where do we want to go or should we go (Van der Loo, Geelhoed & Samhoud, 2008).
In this project core values, a mission (higher goal) and vision (bold goal) have been created.

Corporate vision creation
A corporate vision can be created by organising sessions with multiple stakeholders, as many employees as possible, on what the department wants to be in the future. A shared vision is extracted from combining strategic foresight factors (what are external developments and trends influencing our department?) and what stakeholders want to achieve, knowing these external factors will influence the future of the department. Core values can then be created by looking at the larger vision and linking what teams need to know and how they should act to be able to realise the vision.

Innovation vision
An innovation vision describes the desired state of what a company offers to its customers or a certain stakeholder or multiple stakeholders. Like a corporate vision, it takes into account external trends and developments and how a company wants to play into it in terms of innovations. How to make use of trends and (future) user needs to differentiate (from competitors) in the product or service portfolio? A design roadmap's future vision is focused on future inovations, while a corporate vision is about the overall positioning of the company or department. A future innovation vision has four distinguishing properties according to research: (1) clarity (it is directly understandable), (2) value (the vision resolves for example an unmet need), (3) an artifact (through two- or three-dimensional images the vision is communicated) and (4) magnetism (the attractiveness that can inspire others) (Simonse, 2018).

The link between a corporate vision and an innovation vision
A design roadmap's vision is different due to its focus on innovation and future desired experiences. Though, corporate visions and innovation visions of roadmaps can be related. An innovation vision can be embedded in the corporate vision, for example (Simonse, 2018). See table 1 for similarities and differences.

Innovation vision creation
An innovation vision was created in this project by analysing the change in the new corporate vision compared to the previous vision. This new vision should be supported with like-minded innovations. This is to be seen in the innovation roadmap.

	Corporate vision	Innovation vision
Properties	A mission, vision, core values (and qualities) that describe a desired future state as goals of the company	A vision that describes a future state on what should be offered to customers or stakeholder(s).
Usage	A corporate vision is used as a red thread in the organisation for linking projects, strategic goals and performance to this vision.	An innovation vision is used to envision a future goal and be able to compose a red thread for innovations
Context	Used in corporate settings in all kinds of companies.	Used in innovation departments or innovation projects. Often linked to the larger corporate vision.

Table 1: Similarities and differences between a corporate vision and innovation vision

A corporate vision is focused on the future state of a company, an innovation vision is focused on the future state of what should be offered to the customer.

1.5 Strategic design

How the project is linked to strategic and service design

What is strategic design?
'Strategic design refers to the professional field in which designers use their principles, tools and methods to influence strategic decision-making within an organization' (Calabretta, Gemser & Karpen, 2016). For example, strategic design can include formulation of an innovation vision and identification of business opportunities related to this innovation vision. 'The designers' role becomes even more strategic if he or she is involved not only in the innovation strategy, but also in a broader range of strategic decisions like the company's overarching vision, corporate strategy and organizational culture' (Calabretta, Gemser & Karpen, 2016). In this project, a departments' overarching vision has been created, being thus a highly strategic project.
Dúron, Simonse and Kleinsmann (2019) describe that strategic designers can offer great value in healthcare where an integrated approach is often missing. Future visioning is seen as one of the four strategic design abilities which can be valuable in the healthcare challenges of today.

What is service design?
'Service design is all about making services usable, easy and desirable. To design a great service, it's important to have service users in mind. Using design tools and methods can deliver an in-depth understanding of user behaviours, their likes and their needs, which can enable new solutions to be developed' (UK Design Council, 2010). The customer or patient journey is often seen as one of the important methods in service design.

Using service design tools as a means to reach the corporate and innovation vision
Increasingly healthcare systems are looking to change towards more person-centred care models. It is not clear how to support this transition. In the research of Malmberg et al. (2019), service design is proposed as a key driver to aid in catalysing this transformation. In this project, service design tools have been used to create concepts to reach the new innovation vision and corporate vision that revolve around family-centred care.

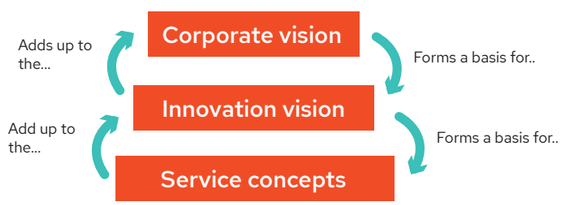


Figure 3: Link between corporate vision, innovation vision and service concepts

> "The designers' role becomes even more strategic if he or she is involved not only in the innovation strategy, but also in a broader range of strategic decisions like the company's overarching vision."
>
> -Calabretta, Gemser & Karpen (2016)

1.6 Relevance

Why is it relevant to create a shared vision and road towards the future for a merging department in the health sector? Multiple designers and health professionals have asked, and rightly so. In this chapter the reason to be for this graduation topic is explained.

Vision and strategy forming in healthcare
Whilst in corporate sectors visions and strategies are often created due to competitive rivalry, in the public (health) sector visions and strategies are formed to react on external developments or come from intrinsic motivation to change. According to Mintzberg (2012), strategy forming in healthcare should be something that happens from the ground up (not top-down), as professionals on the ground are often responsible for most of the new initiatives in health care. In line with this theory, all stakeholders have been included in the visioning and strategy process. Stakeholder needs have been combined with external developments to create a shared vision.

Mergers and change management
The VUmc and AMC are currently merging, things are changing for management, doctors, nurses and assistants. First of all, the employees of AMC and VUmc will be colleagues together forming the Amsterdam UMC, where a mix of work cultures will be experienced. Next to this, employees will be working at a new department, with different rooms, different settings, different ways of working and protocols. A merger is a form of change and needs decent management and leadership to lead the change into the right direction.

The relevance of having a shared vision in times of change
'In a world of change a connection between people and something larger can create a future so compelling that it lifts people from their preoccupation with minor difficulties and refocuses them on the path ahead'. 'Small inconveniences and other distractions might have little impact when people see the larger overview and know what to work towards'. This is what is called the vision (Daft & Lengel, 1998). Literature shows that sharing the same vision and wanting to achieve a common goal with employees are the two elements for succesfully implementing organisational change (Graetz, 2000; Gill, 2002). 'A shared vision is key to successful change', according to Gill. However, Hayes (2018, p. 172) argued that 'visioning can be an inclusive process'- only. This means that the needs and rights of all stakeholders should be respected. Ideally a vision is thus created together with all stakeholders.

The importance of communicating a vision and strategy effectively to all layers of a department during periods of change
Developing a vision and strategy and communicating it through all layers of a company or department is important when a lot of change is ahead. 'A good vision is one that creates an image of a realistic, credible , and appealing future for the organisation that energizes people, inspires commitment, gives meaning to work, and establishes a standard of excellence.' (Gill, 2002).Thereafter, a strategy is developed to achieve the vision. Communicating change requires that change leaders often communicate the new vision strategy and goals to reach this vision. It is important to maintain commitment to organizational change.

The importance of having an innovation focus linked to the corporate vision and strategy
Next to the importance of a vision and strategy in change management, it also creates a shared focus for innovation projects. Instead of just improving here and there in several work groups and teams, it is important to have an overview, a red thread for innovation projects. The Amsterdam UMC wants to be innovative. To be innovative it is important to know where and when to innovate.

Developing a vision and strategy and communicating it through all layers of a company or department is important when a lot of change is ahead (Gill, 2002).

2 IC Neonatology

This chapter gives an insight into the ICN department, the current related department visions, and the stakeholders at ICN.

In this chapter:

2.1 Neonatology at the Amsterdam UMC

The organisation

The hospital Amsterdam UMC
The Amsterdam University Medical Centres (Amsterdam UMC) is a merger of the two academic hospitals VU medical centre (VUmc) and Amsterdam Medical Centre (AMC). The hospitals officially merged June 7th, in 2018. The merged hospital has around 15.000 employees and treats around 350.000 patients yearly. Besides patient care it focuses on scientific research, and student education. This is the main difference with peripheral hospitals, next to the fact that they offer more complex medical care.

Figure 4: The logos of the merging hospitals

The woman-child division (VKC)
Within the Amsterdam UMC, the Woman Child Center contains the departments related to women and child care. Both the AMC and VUmc have their own woman and child related department. The merger of those two divisions is now the Woman-Child Center (VKC). The merger of the two hospitals AMC and VUmc is official, though it will happen in phases, as the new perinatal center will first have to be built in the AMC.

The perinatal center (PNC)
This department will be created by renovation of the AMC. Both the VUmc and AMC will operate at location AMC in this new center. Currently, the architectural and interior designs of the new PNC are being finalized. The PNC will be built in 2023. The neonatology department and obstetrics department have different ways of delivering care. Where the obstetricians are focused on the health of the mother, the neonatologists are focused on the health of the child. The neonatology and the obstetrics department often work on their own, though sometimes they need to work closely together during the period of birth. A complicated birth can lead to a premature infant. A PNC-building team was set up to make sure the renovations are led into the right direction. The team is responsible for improving the floor plans, making sure the right medical and practical furniture will be available in the rooms.

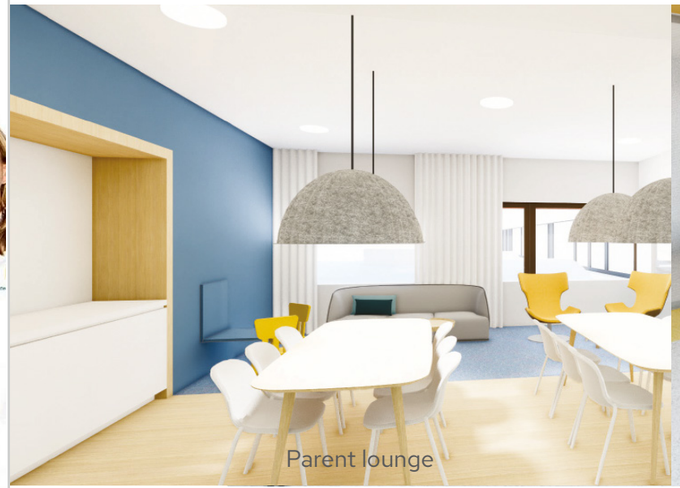
The neonatology department
The neonatology department consists out of a subhead of the neonatal intensive care unit, a chef de clinique from the VUmc and AMC side, and a nurse teamleader from the VUmc and AMC side. Next to that, multiple doctors and nurses work for either the chef de clinique or the teamleader. The neonatology department takes care of the health of premature babies, that lie in open or closed incubators. They treat babies from 24 weeks old, in comparison to a regular pregnancy of 40 weeks. The babies are hospitalized up to 100 days, depending on the situation of the premature infant.

The future Perinatal Center
The interior and architectural renovation designs of the AMC to locate both the AMC and the VUmc neonatology and obstetrics department, are currently being made. The largest changes are the shift to 'Single Bed Units'. In the current situation, the babies at the neonatology department are being taken care of in a large shared room, in an open-ward. In the future situation parents and babies will get a private room with one incubator. If both the mother and the child need special care, they will be treated at the 'Couplet Care' rooms. This is a unique concept for the Amsterdam UMC hospital.

The future ICN department in the PNC
The future department will have 32 SBUs, including four twin rooms and two triplet rooms. The SBUs include a folding bed, where one parent can sleep over. Parents are allowed to be 24/7 at the SBU. There are bathrooms and two parent rooms (a lounge and a living room). There is also a visitors lounge. Due to these changes, parents are likely to spend more time at the department. At this moment, parents usually visit a few hours in the morning and a few hours in the evening.

Figure 5: Organisational structure VKC-PNC-Neonaotology-Obstetrics

Figure 6: Impressions of the future PNC



2.2 Context

To dive into the topic and get to know the neonatology department of the VUmc and AMC hospital, a day of observations and small interviews with the nurses at the NICU of both locations was held.

Neonatal Intensive Care
At the VUmc and AMC neonatology department together work around 120 nurses. Both in the AMC and VUmc, the nurses gather in the coffee room before a shift. The nurses work in shifts: morning, afternoon and night shifts. During each shift, the baby is being cared for and monitors are being checked on several aspects. Information concerning the health of the premature is put in Epic (the medical information system). After each shift, information is handed over to the nurse that will care for the premature in the next shift. Apart from the nurses, also doctors do their rounds at the NICU in 'doctors visits'. They examine the premature and its condition. If needed, the treatment is adjusted.

Prematures and newborns with medical conditions
In the Netherlands, premature babies are treated from 24 weeks old in intensive care units. In 10 hospitals in the Netherlands there is a NICU to care for the smallest, extreme prematures. Babies born after a pregnancy of less than 28 weeks are considered extreme premature, after 32 weeks they are severely premature, and up to 37 weeks they are born premature. If the baby is born after 38 weeks, it is a regular birth, they are born at term. At the NICU, babies are treated from extreme premature to at term babies. The at term babies are treated at the hospital due to severe medical conditions such as dysmaturity, lung or heart issues, or birth defects.

The VUmc and AMC both deliver complex care at the intensive care unit. Premature infants upward of 24 weeks are being cared for.

2.3 Stakeholders

There are quite some stakeholders at the neonatology department. In this section the most important stakeholders are mentioned.

Nurses
The nurses work in a team of around 60 nurses in different shifts, also night shifts. Sometimes they have to have an overview over four different babies. There is a nurse shortage in the Netherlands, this is also noticeable at the NICU. The work of the nurses is quite intense and can also be emotionally charging. Being a helping hand to stressed parents, for example when a premature infant just arrived is also stressful for the nurses. Not all babies at the NICU survive either. Being a neonatal nurse is not just any job. Some nurses have also left due to the merger. They are also afraid that with the SBUs the overview will miss, making their work harder and less safe, as they have to walk from room to room. The team leaders are the managers of the nurses. They have similar duties, though are also responsible for management, making sure that the care can be done.

Facilitating staff
The facilitating staff act as nurse assistants to help with performing certain tasks. They help with important non-medical tasks such as preparing baby milk, cleaning the medical devices, scheduling appointments, helping with carrying the baby or turning it around. There are also breastfeeding specialists. This helps with the amount of tasks that nurses have.

Doctors, neonatologists
The neonatologists also give care to the baby, though less frequent. They walk by to see if the medical treatment is working and discuss with the nurse. They are in charge of the more complicated medical treatment and/or operations. The 'chef de cliniques' are the team leaders of the neonatologists (doctors). They have the same duties, though are also responsible for management, making sure that the patient care can be done.

Prematures
The premature infant can not speak, though does have a personality. Different babies have different needs, especially from the 'developmental care' point of view in neonatology. Some babies need a lot of stimuli while others require more rest. A baby in an incubator shows their emotions in different ways. A mad face and kicking shows a stressful situation, while the baby shows a resting face when it's sleeping or being relaxed.

Parents
A metaphor for the parent's experience of having a premature child that is often used is that it feels as if you are in a rollercoaster, not in a good way. It is a very stressful situation, as parents do not know if their child will make it. Some parents even experience post traumatic stress syndrome (PTSS). It often is experienced as a blur, and later the parents realize what actually happened. The stress of the parents has direct influence on the stress of the baby. Therefore it is important to create a stress-freeatmosphere.

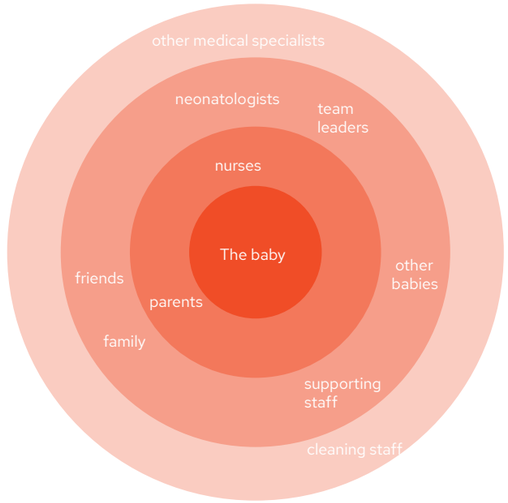


Figure 7: stakeholder map revolving around the baby (premature)

2.4 Visions and missions

Current visions and missions

With the merger of the AMC and VUmc, most departments created a shared vision. The visions of the relevant departments for this graduation report have been gathered. The full vision documents can be found in the appendix. The key takeaways can be found here.

Vision and mission Amsterdam UMC
In 2019 the Amsterdam UMC has further positioned itself and is busy with creating a new vision and strategy together. Together they want to build towards a society where disease are being prevented and patients are being healed. They are there for patients with a special medical condition and complex treatment. The strategy consists out of five building blocks:
*Cooperation
*Patient-centred care
*We are innovative
*We strive towards the top
*We are selective

The vision and mission VKC
'We deliver, together with the patient and his/her surroundings, **evidence based care**. The patient and his/her **family** are **central** in this. Our care concept is focused on joint decision making. Participation and focussing on having the patient make their own choices, is very important. Care has to be adapted to each individual situation. The vision is to work from three core values:
*Being open
*Being sensitive
*Being innovative

The vision and mission PNC
This vision was created for the building of the perinatal center. The vision on care is focused on **participation of the patient and his or her surroundings,** where the care is being given on the **best available evidence.** There are seven prioritized points:
*Family Integrated care (FIC): mother, partner and child always together.
*Single Bed Units
*Minimizing transport of patients
*PNC facilities and work climate
*Further reaching integration of neonatology and perinatology
*Integration PNC and VKC care departments and facilities
*Atmosphere and appearance new PNC

Vision and mission neonatology department
This vision and mission document is (re)created a few years ago with several doctors, nurses and management from both AMC and VUmc. Though, management has changed and it could be time for a revision, according to the subhead of neonatology.

Mission statement IC neonatology
1. Delivering top care to ill newborns and their parents with the goal of increasing chances of survival and maximising the best possible quality of life.
2. Optimizing the neonatal care and outcomes by initiating and/or participating in scientific research.
3. Educating highly qualified care professionals with the goal of delivering top care on local, regional and national level.

Vision on top care
To realise the first mission statement 'top care', there are the following starting points or principles:
*The neonatal care is preferably evidence-based and goal oriented.
*The neonatal care has an innovative character, with a short implementation time for new evidence-based diagnostics and treatments
*Developmental care is an integral part of the care process
*The parent(s) participate as a partner in the care for their newborn child(ren) via the family integrated care principle
*The child and (ill) mother are preferably not taken apart during hospitalisation
* Newborn children are taken care of in an individual room where one of the parents can be present 24/7
*Parents get adequate support during hospitalisation
*Top care is a team effort, where, next to the parents, all care professionals and supportive services play an essential role. Team interests are more important than individual interests.
* The work environment for the entire team is pleasant, safe and functional
*The care for the newborn and guidance of parents will be continued for at least 8 years via the follow-me programme.

Key elements current visions and missions

Figure 8: Keywords of current visions

Issues with the current vision ICN

The current vision, although being known amongst most doctors and management, appeared to be not known amongst nurses. It could be more concrete and alive. Goal is to make the shared vision more lively through visualisation and more known amongst employees through cocreation so they can relate to the shared vision of ICN Amsterdam UMC. See (1) in figure 9. As Mintzberg (2017) states engagement on the ground is key for great and valuable strategies.

The second issue of the current vision, is that it is not mapped out how this vision is being reached. Of course, there are plans concerning the PNC, though other plans are not put together in a multi-annual plan or roadmap. Goal is to show how the vision is ought to be reached to employees. See (2) in figure 9.

Figure 9: The two issues with the current vision

Vision creation

3

Stakeholder values

This chapter gives an insight into stakeholders' views on the merger, vision and renovations and their experiences at the ICN Amsterdam UMC

In this chapter:

3.1 Stakeholder analysis

People involved in small interviews during the discover phase of the graduation project	
Nurses VUmc + AMC	5
Teamleaders VUmc + AMC	3
Doctor AMC	1
Chef de Cliniques VUmc+AMC	2
Subhead neonatology department	1
Parents at feedback night VUmc	24
Parent Reinier de Graaf hospital	1
Total	37

Table 2: Stakeholders involved in the stakeholder analysis

The nurses view on the future

A day of observations and small interviews with the nurses at the NICU of both locations was held.

The nurses' view on the care for infants
The nurses view the department at the VUmc and AMC as very nice, with good equipment and a safe setting. They value and like working in teams. The facilitating staff is highly valued amongst the nurses. They help with important less complex nursing tasks. Also the breastfeeding and care assistants are highly valued, as the nurses can focus on the care. Though, especially at the VUmc, there is too little personnel, and some parts of the department had to be closed. The work is also quite emotional and stressful.

The nurses' view on the merger
The nurses of the AMC view the merger and change as something that can bring good things along. Though, they do wonder what the differences are between the AMC and VUmc, and what the differences will be. Alltogether most of the nurses believe it will be a nice department together. Though, there is a sense that the VUmc and AMC are currently quite different, with different cultures and ways of working. The common belief is that rotation of personnel at the two hospitals will help. Though, others do have the feeling that more things are being decided and done in the AMC way, and the VUmc being overtaken.

The nurses' view on the renovations
The common belief is that changing to SBUs is very good for the parents and the care, and also a new challenge. There's more privacy and parents can sleep over. There are also worries. Is there enough personnel? Will we need more personnel? Is there enough overview for the nurses when every premature has a single room? Currently, you can more easily watch four infants with one nurse, when there is little personnel.
Some nurses worry if it will be safe enough for the patients. How will it work with the beepers? Will it go off every time that an alarm goes off? Will there be more alarm fatigue? The nurses also expect that it will feel less like working in a team. They do have heard about nursing stations though, that would be a bit of teamwork, they do like that.

The nurses' view on the current vision
None of the nurses had seen the current vision of the neonatology department, neither at the VUmc nor the AMC. They do admit that they might also not read everything in emails. Regarding the future, some nurses feel there are still quite some uncertainties. When will which things happen? When are the renovations finished? The nurses state that parents can be more taken along in the care. Parents should be able to be at the doctors' visit. Developmental and family integrated care is very important. The 'feeling side of the vision' is missed. It is a bit businesslike. What will FIC look like at the workfloor? Though also a small improvement such as the Zorgpunt application available in English can already help. Next to this, nurses don't have time for their own development and doing or reading research. Some of the nurses would like to have time for doing so.

Doctors view on the future

Doctors view on the vision
The doctors view on the vision is that the current vision is good. The doctor that was spoken to in this research mentioned that the vision has been created around ten years ago and is continously adapted. He mentioned that he does know the current vision and he thinks it is good. He sees neonatology in the future as a hectic, busy job. Though in the future at the new place there is hopefully also more place for rest for parents and the premature. Also digitisation is important for the future. Lastly, ethically seen he thinks the age of prematures might drop to 22 weeks like in the United States.

The doctors' view on the merger
The doctors (pediatrician-neonatologists) have largely already merged and are not having many issues around this topic.

Managements' view on the future

Management view on the vision
Within the management there are different opinions on whether the current vision (top care) is good. Some mentioned it is good, some mentioned that it can be improved. The teamleaders mentioned that also for the team the vision can be made more inspiring and insightful. Also action points and vision points are merged and some were missing core values. Who do we want to be in the future? And how to get there? The subhead mentioned that there is no multi-annual plan to reach the vision and the composition of the management team has changed so an updated vision could be useful.

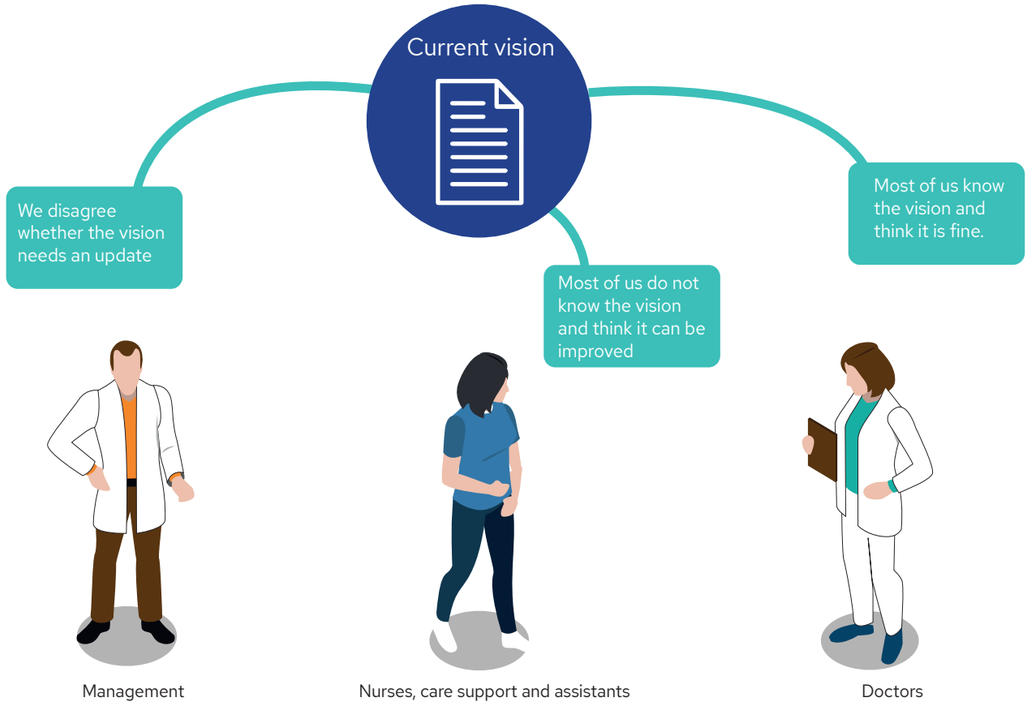


Figure 10: The views of the internal key stakeholders on the current vision

Parents experiences

A feedback night at VUmc was visited. What do parents experience? What do they think of the care and service? Next to this meeting, the minutes of previously held feedback nights at AMC have been studied. Lastly, a parent was interviewed that gave birth to a premature at a hospital where SBUs are already presen, namely the Reinier de Graaf hospital.

Feedback nights for parents
There are feedback nights for parents of prematures that have been hospitalised at VUmc or AMC to share and give feedback. Several nurses and a volunteer of the association for parents of premature infants (VOC) lead the session that is held four times a year. The topics are: experiences of having a premature delivery, hospitalisation at the department (from the delivery room to the NICU), communication with nurses and care coordinators, communication with doctors, and transfer.

Parents' experiences
The experience of having a premature child is a very stressful situation, as parents do not know if their child will make it. Some parents experience post traumatic stress syndrome (PTSS). Most parents have contact with a social worker for their psychological processing. All to all though, the parents are extremely thankful to the care professionals for all the care and in most cases saving the life of their child.

Parents view on nurses and doctors
Parents indicate that they hold most on to the nurses. They see the doctors less often. They appreciate being taken along in getting to know their child.

Parents view on information exchange between the maternity ward and neonatology
The information exchange between maternity ward and neonatology has not always been optimal, according to parents.

Parents view on information provision and service at Obstetrics
Parents receive a lot of information during hospitalisation. Though, lot of information is also being forgotten in the first few days. A father told in one of the feedback nights that he caught the child himself while it was being born, there was no one in the room. He was not traumatised but it is still unclear why there was no one in the room at that point. Also, the mothers experience that after birth they are quickly discharged from the hospital, without much support. Also at the recovery room for mothers, quite some mothers experience that they don't know if their child is healthy and whether it is a boy or a girl. Another father did not know where he had to be for the delivery. The woman could go in the ambulance, the father did not. When he arrived at the hospital, he could not park there. He did not know where to go or where to be at which room.

Parents view on information provision at Neonatology
An example is that it was unclear to parents that they could get maternity care in the RMCD. Some parents also did not know that the costs of the RMCD can be claimed, dependent on the health insurance. The nurses think this information can possibly be put in the Zorgpunt application in the future. Some parents also did not know that donor milk can only be given up to 32 weeks.

Parents view on tone of voice and attitude
As a parent, you receive many folders and forms. One of the parents told that there was someone to give an explanation, but the mother did not remember it all too well. The care professional told her: 'I already gave it to you'. The mother did not like this, she had gotten so many forms that she did not know anymore. Another example of an experience of a mother, was that an alarm was ringing at the NICU, though there was no reaction of the nurses. They were all three behind the nurse station watching their phone. Though usually things go well, these kinds of happenings can have a large impact on the parents view on care. Another woman had the following experience at a delivery room. A care professional told her that they were there to pick up her bed. She asked: 'what about me?' She felt kicked out, 'next'. When you are not an emergency you are kicked out as soon as possible. Though there is a lack of beds at the IC, the way of dealing with a mother can be more tactful, according to this mother. Another mother felt like she got reprimanded for not having enough breast milk. It feels very bad, you are already doing so much, as much as you can.

Parents view on communication between care professionals
There was also an example of a case where a doctor used the term 'BPD', as if the parents already knew that their child had this medical condition. The parents did not know yet that their child had BPD.

Parents view on facilities for pumping breast milk
The parents do not like pumping breast milk. There are too little facilities, especially in the RMCD. Some parents really noticed that pumping breast milk is seen as important in the VUmc and AMC. 'It is like breast milk mafia, though, in a good way.' The parents realise that it is good for the health of the child.

Parents view on alarms
Alarms at the open ward was something that parents had to get used to. At a certain moment they understood better where and which alarm goes off and for what reason. Parents do not like the alarms at all, but they see it as something they have to accept.

Figure 11: Themes of main subjects mentioned in parent feedback nights and the parent interview.

Parents view on information around transfer
There is more need for information around transfer. A concrete list of the differences between hospitals would already be nice. Many parents experience uncertainties around transfer, when and what will happen. Parents also have the feeling of having to leave. Having to go home is difficult for parents. 'Help, we have to do it alone now. And we don't know how she will develop further on.'

Parents' experiences at SBUs and other hospitals
Parents love to have a single bed unit. They like having their own space and more privacy. They like that in SBUs they can really help in the care for their baby and be a parent. Other parents did suggest that they felt like it took a long time before a care professional had a look at their child. One of the parents' children was treated at the hospital in Zwolle. There were less alarms and they experienced this as very nice. There are also a few disadvantages for parents to SBUs: there is less contact with other parents, it is sometimes good to put your situation and needs in perspective compared to other parents at the NICU, there is also less overview on care and nurses. The parent at the hospital in the Reinier de Graaf found it difficult when to ring the alarm. When is an issue high priority? Should the care professionals be here quickly or not? Apart from the NICU SBUs, also single bed units at the obtetrics department/maternity rooms would be appreciated.

Homeliness of the NICU
The interviewed parent stated that the hospital doesnt really feel like a home and the beds are awful. There was some room to hang personal stuff but not so much. It could make it feel more comfortable.

Parents view on involving the family
Parents like being involved. They would also like to be more involved in the doctors visits. It is important. The nurses stated that it will happen, but how and when has to be further examined. The goal is to have more 'family centred rounds'.

Parents view on webcams
The parents liked the webcams, they thought it was a pity they did not work at the VUmc. At the AMC they liked them, but they did not like that they have to call the hospital to put them on.

Parents view on the 'incubator diary'
The parents liked getting a diary, that was very nice. Not everyone got this diary. There is now a diary in the Zorgpunt application. Writing something in the application every day is unfortunately not the reality for nurses now. It is too busy and it is really seen as something extra.

In a debrief with the nurses, it was discussed what parents had told during the feedback night. The nurses use the feedback to improve their care. A lack of personnel also had a large influence on some of the experiences

> "A negative point of single rooms is that you have less contact with other parents. That would have been valuable to me."
>
> -parent Reinier de Graaf hospital-

3.2 Stakeholder values summary

The key insights and needs of stakeholders are described below in an overview of the stakeholders values.

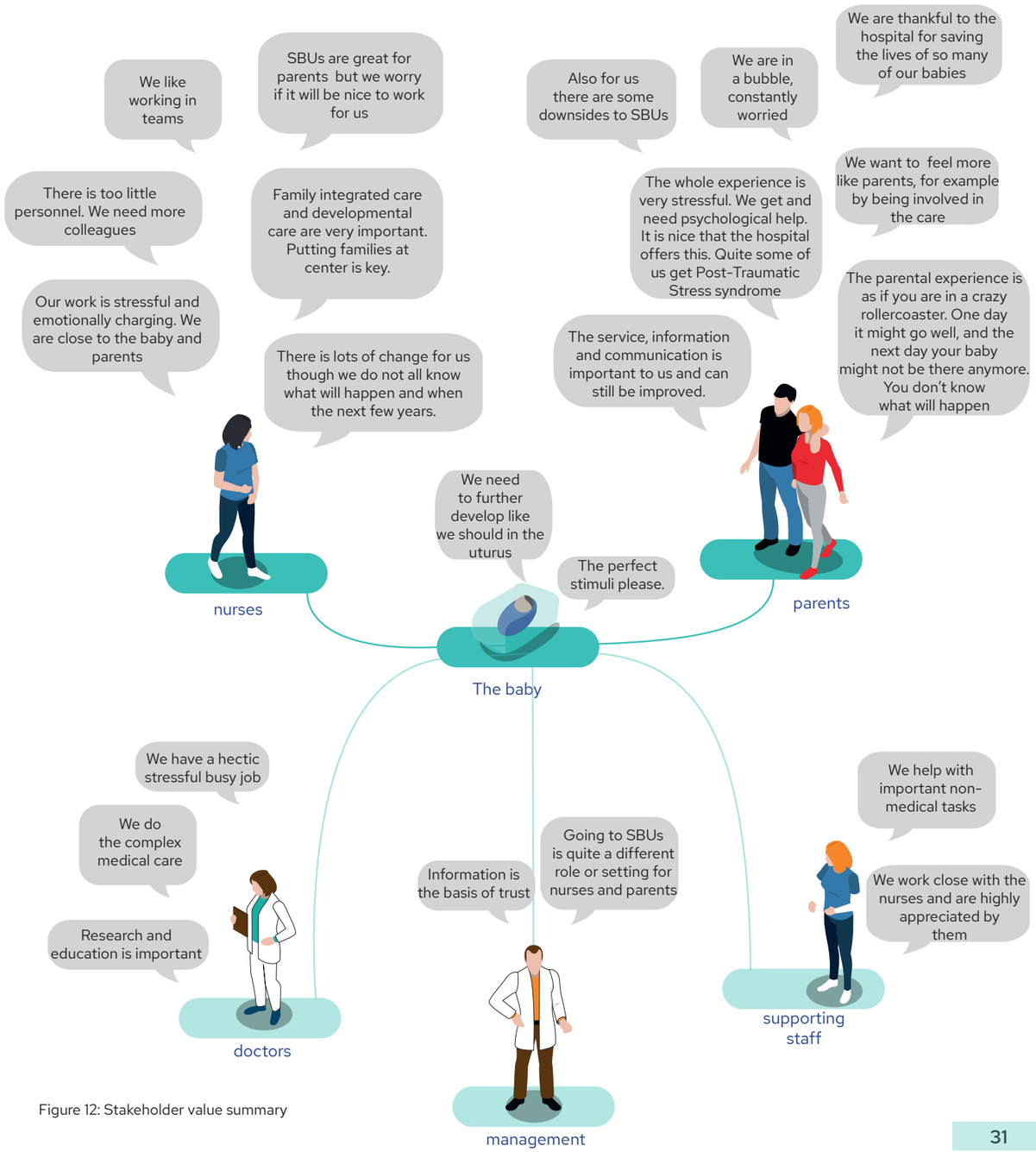


Figure 12: Stakeholder value summary

Vision creation

4

Developments

This chapter gives an insight into developments affecting healthcare and ICN. Elements from the DESTEP method were combined with health-related developments.

In this chapter:

4.1 Developments in neonatal care

Within academic research and in the medical practice there is more and more attention to the surroundings of the premature and the comfort of monitoring. Though the medical discipline has become increasingly good at saving prematures lives, we are more and more conscious of the surroundings where prematures reside and the effect of the surroundings on their neurological development and quality of life. The NICU is a very different surrounding than a safe, protective uterus, where a premature should have been. (Jacobs, 2019)

Developmental care
This is the theory also behind developmental care. Developmental care is the use of a range of medical and nursing interventions to decrease the stress of preterm neonates in neonatal intensive care units (Shizun & Westrup, 2004). Developmental care is often given via the 'NIDCAP' programme. Health professionals such as neonatalogists and neonatal nurses can use behavioral observations of the baby to continuously provide individual, developmental supportive care (Als, 2009). Even though babies don't have a voice, their stress levels can be very much influenced by medical procedures such as feeding, changing the tubes. In developmental care, a care provider would wait with these procedures until the baby is awake, to prevent stress. This is more and more being implemented, in contrast to strict feeding times, in earlier decades of neonatal care.

Family integrated care (FIC)
Family Integrated Care is considered important at the VUmc and AMC. Though different work groups have been started, the philosophy of family integrated care could be further implemented. FIC means involving the family in the care process. 'The family should be allowed to participate to the best of their ability in the care of their infant', according to Karel O'Brien (neonatologist in Toronto). 'It is really to support parental presence and parental engagement in their baby's care.' The parents and care providers decide together on certain procedures and care options (FiCare, 2017).

Helping the parents being able to feel a parent, instead of a visitor at the hospital, is part of family integrated care too. SBUs are also part of the family integrated care philosophy, as they provide the opportunity to parents to rest and sleep near the baby and be together as a family more often. Results of pilot studies demonstrate that parents had less stress when they were in family integrated care, and the babies grew better (Galarza-Winton, 2013).

The neonatal IDC model
The Neonatal Integrative Developmental Care Model (IDC) (Philips Healthcare Andover, MA. USA) identifies seven distinct core measures that provide clinical guidance for NICU staff in delivering neuroprotective family-centered developmental care to preterm infants and their families in the NICU, see figure 13. It provides insight into how to create an optimal healing environment for the baby. It is a model that combines developmental and FIC care principles. (Craig et al., 2015)

Demographic developments
The new perinatal center will hold more beds for premature infants with a need for intensive care. This is in line with the demographic trends and the acute need for place at NICUs. However, a need for personnel is essential to be able to fill all beds that are expected to be needed in the future. The full demographic developments analysis can be found in appendix 2.

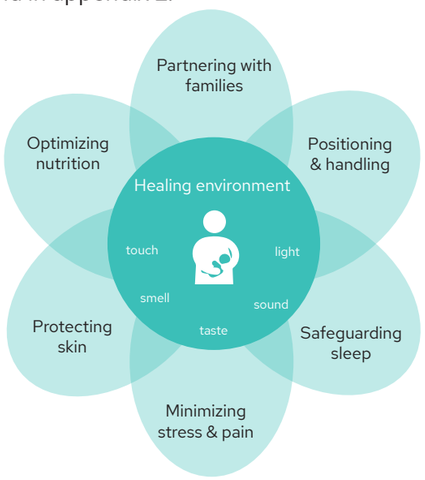


Figure 13: The neonatal IDC model (By Koninklijke Philips N.V. (2014))

4.2 Developments in people-centred care

Patient experience
'Patient-centred care' is a phrase often used but less frequently delivered on', according to Edward Fitzgerald, Global Healthcare executive at KPMG. While being busy with day-to-day challenges of operations, workforce and finances, healthcare providers need to remember that these are not directly high quality care by themselves. Understanding patients and **delivering a good patient and carer experience should be a core objective for health organisations,** according to Fitzgerald. Healthcare consists out of the direct medical care, and how a patient perceives the care as a service that is delivered. Is the patient satisfied or not, is a crucial question to care providers. (Fitzgerald, 2019). The Amsterdam UMC has had a 'patient experience officer' (PXO) for two years to improve patient experience and satisfaction. This is a role that in the United States of America (USA) is well-known to be used to improve the patient-centricity in hospitals. In the USA patients more easily switch health care providers, and this is often more due to logistics of the practice, such as communication or interactions, than due to the medical care. In the Amsterdam UMC, there is currently not one person directly responsible for the patient experience, everyone could possibly improve it with innovations or improvements.

Parent experience at neonatology
The experiences at the NICU have a strong influence on the wellbeing of parents. It can potentially lead to Post Traumatic Stress Disorder (PTSD)(Lefkowitz,Baxt & Evans, 2010). Not only the parents wellbeing is being affected, the parental stress also affects the baby. Literature shows that during hospitalisation of a newborn at a NICU, **the emotional state of parents can influence the condition of the baby on short and long term.** (Civic & Holt, 2000;Manning, 2012). An earlier research and design project has been done at the NICU of the Amsterdam UMC hospital, to improve the parental experience and trying to reduce stress levels, via parent-centred design (Alphenaar, 2019).

Employee experience at neonatology
Job satisfaction is considered to have an important role in the quality of care for patients. (Lu, 2019). Good quality of care by having better job satisfaction can improve health and wellbeing of the parents and the baby. Via employee journey mapping, improvements in the employee experience have been proposed by an earlier research and design project at the neonatology department of the Amsterdam UMC (Titulaer, 2019).

Expert interviews

Emile Elsbeek, former PXO at Amsterdam UMC was interviewed to talk about his experiences in improving the patient experience in the hospital, and his view on the future of neonatology and the hospital.
He mentioned that he has built a patient journey mapping tool for employees at the hospital. It is not clear whether it is extensively being used. Next to this, he believes there can still be large improvements concerning the experiences of care. Of course, a hospital revolves around medical care. Still, a place can be created that makes it at least a little nicer to be in a hospital. **In a hotel for example, the guest is really the centrepoint around whom everything revolves, in a hospital not yet.**

Jette Stuyt, Service designer at Koos Service Design was interviewed to talk about her experience doing qualitative research with parents of prematures at the Amsterdam UMC for the new perinatal center. The stress of parents cannot only be improved to improve the experience but also for the health of the child. One of the main questions that is not yet an answer to is 'how to improve the feeling that action is taken amongst parents in the new SBU situation?'

4.3 Technology developments

Apart from people-centred healthcare and developments in neonatal care, there are also many technology developments that are relevant to healthcare, and might also be relevant to neonatology in the nearby or further future. Below, several emerging technologies that can be relevant for healthcare or specifically neonatology are described.

Tele-health
Telehealth means delivering healthcare outside of the healthcare facility such as a hospital, by using telecommunication or virtual technology. It can be done via videocalling or camera monitoring for example (World Health Organisation, 2019).

Augmented reality (AR), virtual reality (VR)
VR and AR are still in the early days of adoption, but show several use cases in healthcare. VR is being used for training of surgeons, for example. AR can be used to show veins in a better way, with the product of AccuVein, a medical device company (Porter & Heppelmann, 2017). Virtual reality is also being used for helping veterans or patients with post-traumatic stress disorders (Morgan, 2019).

Big data, machine learning and artificial intelligence (AI)
AI is great at performing repetitive tasks. There are repetitive tasks in healthcare, and some of them could be improved by using AI as a helping hand to the caregiver. Using big data, machine learning and AI can have a great impact also on financial savings for hospitals. AI can have impact across the entire healthcare industry, but is often used for the following goals: patient wellbeing, early detection, diagnosis, decision-making, treatment, research and training (Saveski, 2019). The following are examples of uses in neonatology.

Detection: machine learning and big data for dection of neurological problems
IBM has announced it is working with the Irish Centre for Fetal and Neonatal Translational Research (INFANT) at University College Cork (UCC) to help improve long-term outcomes for babies in neonatal intensive care through early and accurate detection of neurological problems (IBM, 2015).

Wellbeing: machine learning and AI to decrease non-actionable alarms
Biomedical engineer Rohan Joshi is promoted in 2019 at the Eindhoven University of Technology with his research on algorithms to decrease the amount of alarms at the NICUs. Contactless, reliable monitoring, with less alarms, can have great impact on the wellbeing and health of premature babies. Joshi found out that currently three quarters of the alarms are irrelevant (non-actionable) for nurses, and this can be decreased by machine learning algorithms. (Jacobs, 2019)

Detection: proactively treating, preventing or predicting infection with data analysis
'Big data for small babies', was one of multiple projects initiated by the executive board of the University Medical Center Utrecht. Daniel Vijlbrief and two other engineers from Finaps developed a smart algorithm that can confirm or deny the suspicion of an infection in premature babies (SAS, 2019).

Comfortable and contactless monitoring
Matress monitoring
Joshi also examined contactless monitoring of vital functions at the NICU. The current way of monitoring is not always comfortable for the baby. Sticky electrodes are being put on the sensitive skin. As an improvement to the comfort of the baby, Joshi developed an alternative, contactfree monitor system that utilizes a foil like pressure sensor that can be placed in the matrass of the incubator (TU/e Press Team, 2019).

Camera monitoring
At Philips Healthcare, much research and development is done on camera technology for monitoring babies as a replacement for regular wires. Measuring heart rate, breathing and oxygen levels. Also for observations and monitoring the sleep and wake state.

Connection between mother and child
Several product designs have been created, such as the Hugsy and the Oti, to improve the bond between mother and child while they are being detached from eachother at the neonatology department (de Hooge, 2017) (KanaalZ, 2019).

Expert interview and visit

PHILIPS Healthcare

Philips is one of the largest technology companies in the Netherlands that focuses mainly on healthcare. To get insight in the latest technological developments and validate the desk research, a visit at Philips was held. The Experience Lab was shown, including the 'NICU of the Future', and an interview with Mohammed Meftah, Senior Scientist and Project leader at Philips in Eindhoven.

Experience Lab and 'NICU of the future'
At the Experience Lab, Philips built a NICU of the Future. This is a physical space that shows the vision of 2025, which was created about 6 years ago by cocreation between parents, physicians, and Philips researchers. The NICU of the future is based on the IDC model, based on family integrated and developmental care. At the entrance of the room, a screen is present. It shows the premature infants name and information concerning heartrate, oxygen level, and breathing. This way the nurse and parents can directly see the most important information also outside the room. While entering the room, the sink lights up. This helps with not forgetting to desinfect the hands. In the room there is a bed for one of the parents, an incubator of a different design than usual and a large screen. The incubator can also be turned around and put above the bed of the mother. In the incubator a camera is mounted that can measure heart rate. There is also a large screen which acts as a platform of interaction for parents, doctors and nurses concerning information. This information can also be viewed at home. Parents can do care trainings at home as well. Next to this, nurses can keep an overview of the rooms via an iPad, having a camera overview of the children and seeing which alarm goes off and why. This room can be transformed from intensive care to high care and then to medium care. Less transport is needed this way.

Figure 14: Own photograph of Philips visit

Where Hugsy is a smart blanket that helps to improve bonding by imitating scent and heartrate of the mother near the child, Oti creates the feeling of having the child near the mother when she is at home.

Digital communication
Digital communication in hospitals has gained ground. Also at the ICN at the Amsterdam UMC, an application called Zorgpunt has been created to communicate information to parents. Digital communication between parents, patients and caregivers is on the rise as it can increase efficient communication. Also communication via screens has been shown in Philips future NICU.

Artificial uterus
Lastly, there is research going on to create an artificial uterus. Already in the 1950s it was thought of as the most ideal way for premature babies to grow, as the organs can further mature. More recently, an experiment in the United States with small lambs has been successful to make the lungs mature. The ethical question arises is if it is desirable to parents (Nieuwsuur, 2019).

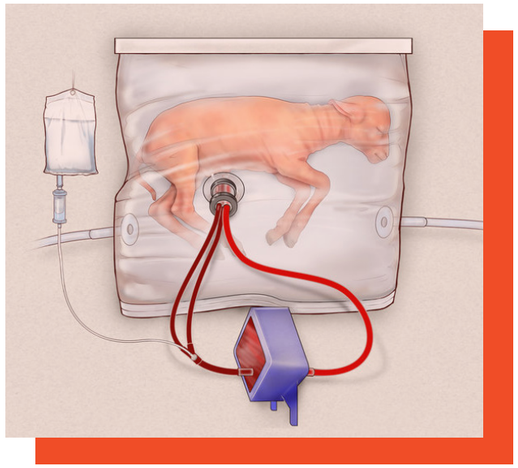


Figure 15: Artificial uterus

4.4 Ethics developments

Ethics is an important part of neonatology. There is always the question of quality of life and keeping a child alive. There are people specialised in medical ethics that help in these discussions. There is a medical commission that decides the minimum age of prematures. As though there are arguments to lower the minimum age, there are also arguments to not do so due to quality of life in later stages of life and effects of prematurity. The minimum age is not expected to change soon. Full analysis can be found in appendix 2.

4.5 Economic developments

Costs in healthcare are structurally growing. The costs of care in the Netherlands are relatively quite high. For the government, care is the highest cost item in its yearly budget, namely 24.6 per cent on the budget. (Baarsma & de Boeck, 2017). The neonatology department needs external money for large renovations like the PNC. However, financially there will not be much trouble ahead. The budget for ICN will stay somewhat similar in the future. Though, in every department in the hospital, one has to be creative. Needing funding for one project means cutting budget at another project. The full economic developments analysis can be found in appendix 2.

4.6 The quadruple aim model

Value-based healthcare strives to get better treatment results with lower costs. The so-called quadruple aim model adds two other important goals for the health sector. The experiences of patients and care providers. By continiously putting emphasis on these aspects, it should be possible to get value-based healthcare to daily practice.

It is said that the healthcare system needs transformation. Costs and quality of care are under pressure due to a higher demand, care providers are more and more dissatisfied with their work due to high pressure, and the system cannot provide the service that patients expect and require. With these problems in mind, first the triple aim and later the quadruple aim model was created.

The Triple Aim is an approach to optimizing health system performance, proposing that health care institutions pursue three performance goals: improving health of populations, enhancing patient experience and reducing cost of healthcare. William Spinelli recognised that a fourth aim of employee experience was missing to complete the triple aim model (Spinelli, 2013). Due to the fact that doctors and other health care providers report burnout and dissatisfaction in work, the fourth aim of improving staff experience is added. Burnout is associated with lower patient satisfaction, reduced health outcomes and increases costs. It therefore affects the other three pillars of the triple aim and is now used as a fourth pillar in the quadruple aim model to improve health systems performance (Bodenheimer & Sinsky, 2014).
The quadruple aim is a widely accepted model that is used as a compass to optimize health system performance. 'The rewards of the Quadruple Aim, achieved within an inspirational workplace could be immense' (Sikka, Morath & Leape, 2015).

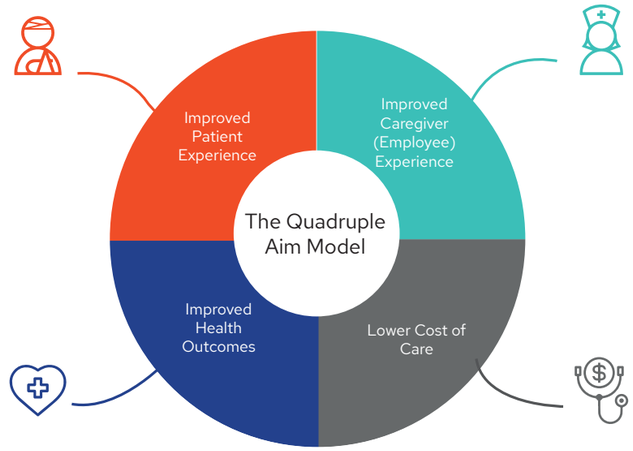


Figure 16: Quadruple aim model

People-centred care is gaining ground in healthcare: making the care really revolve around the patient or family. FIC and developmental care play part in that at neonatology. While new technological developments show large potential in quality improvements, hospitals have to be creative with their financial means and can't just afford everything. This pressure is also noticeable with employees and especially nurse satisfaction shows room for improvement. The quadruple aim model is a great strategic model that shows four goals for developments in healthcare.

5 Vision definition

This chapter shows how future themes were created from research and how stakeholders were involved to create a shared future vision of ICN supported by all stakeholders.

In this chapter:

"Sharing the same vision and wanting to achieve a common goal with employees are key elements for succesful change."
Roger Gill (2002)

5.1 Mapping research insights

Value mapping

To get an overview of the information gathered, insight cards were created. These cards contain insights from internal analysis (interviews with stakeholders) and external analysis (external interviews and desk research) as read in previous chapters. All insight cards can be found in appendix 3. An overview of some of the insight cards and an explanation of the process follows in this chapter.

Stakeholder values
Internal analysis insights were put on insight cards. These insight cards represent important values for the different stakeholders in the neonatology department. These values range from direct problems and needs of stakeholders to larger (emotional) needs. In figure 18, a set of actor value cards can be seen.

External values (developments)
In external analysis also different insights were gathered on which changes are seen important or which external factors influence healthcare and specifically neonatology. These external developments were put on insight cards, to be seen in figure 17.

Linking the cards to create future themes
A total of 80 value cards were created. These values were mapped to try and create overview and links between the values or insights. In a session, the value cards were linked to form clusters, the value card clusters. Thereafter, these clusters were used to form larger themes. These are themes that are important for (an improved) future of neonatology. See figure 19 for the process, and appendix 4 for the whole overview.

Value mapping process

In figure 19 , the value mapping process is shown. From the stakeholder value careds and external vealue cards themes were created, called the value card clusters. These value card clusters represent the overarching themelink between the cards. These value card clustrs where then used to create even larger overarching future themes. These themes are also shown in figure 19.

SEE THE APPENDIX FOR ALL INSIGHT VALUE CARDS

Figure 17: Some of the external values cards: insights from external analysis: desk research and interviews with external parties.

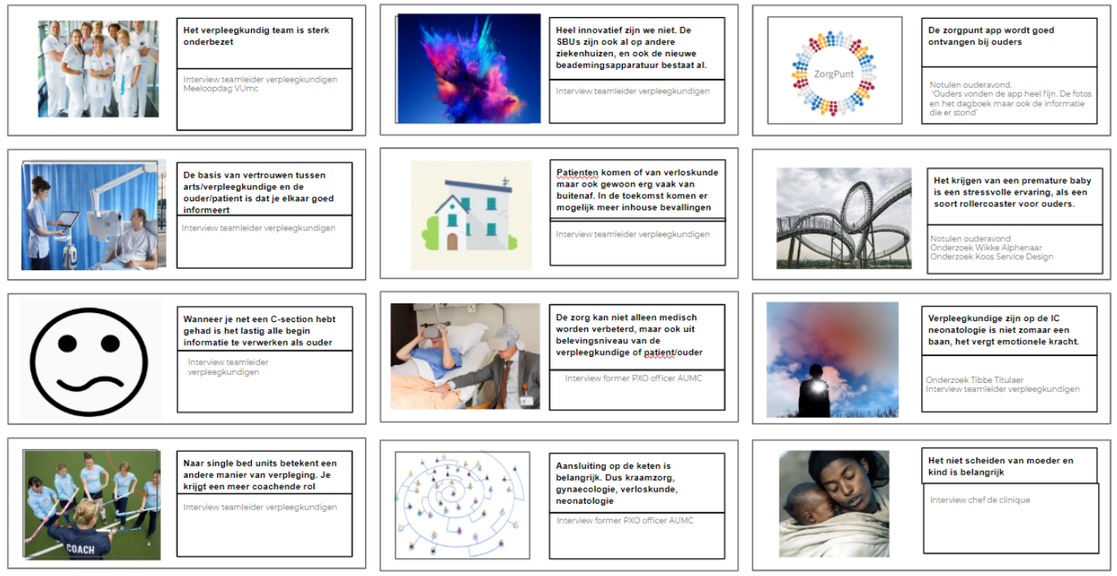


Figure 18: Some of the actor values cards: insights from internal analysis

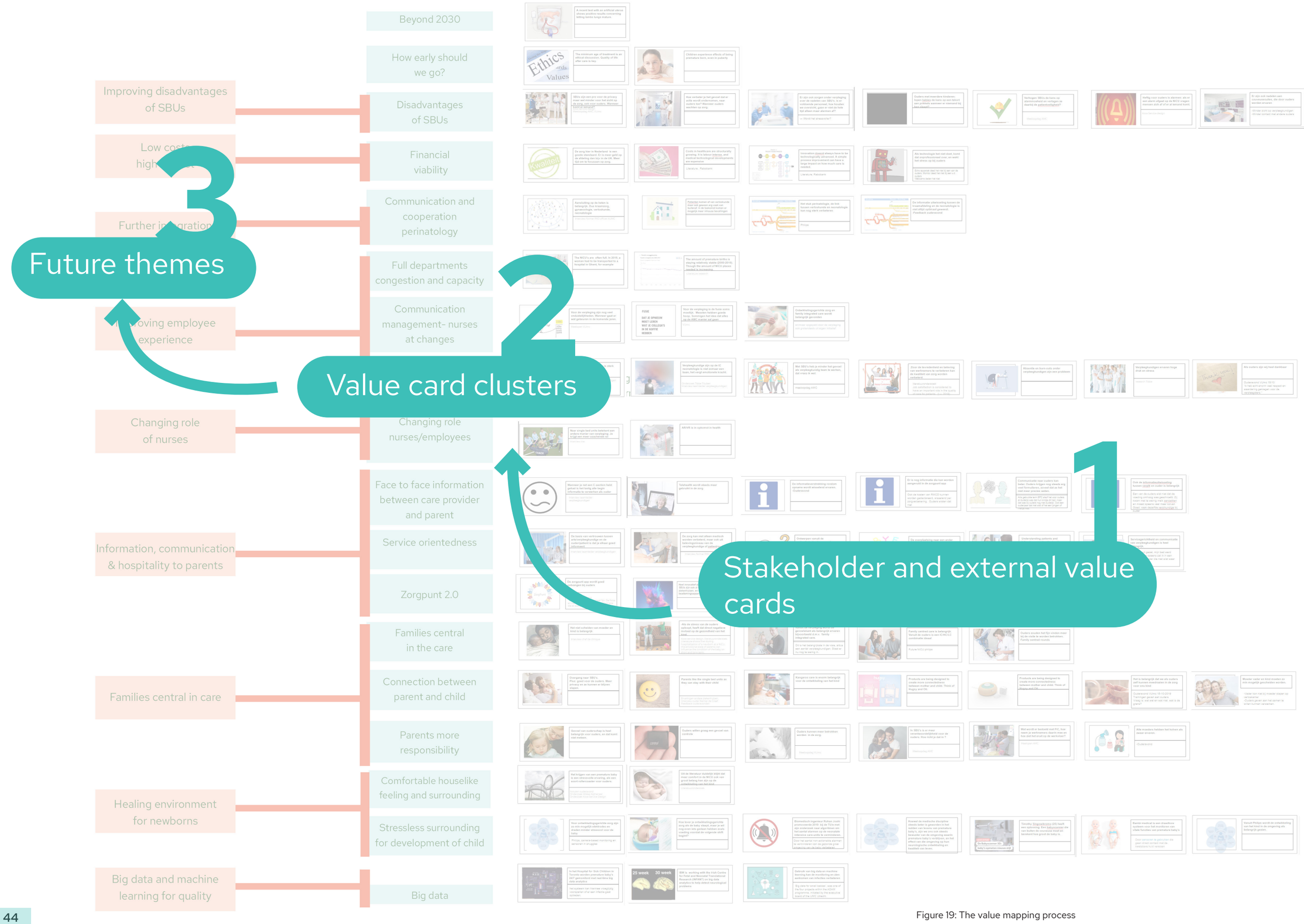


Figure 19: The value mapping process

5.2 Future themes

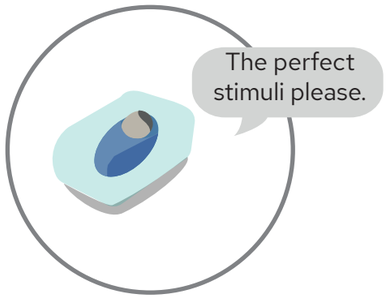
As a conclusion, it can be stated that the care at the Amsterdam UMC is very good. Though, the neonatology department can still also improve. In the future, the neonatology department can improve on certain topics that are described below.

Families at the center of care
The bonding between parents and their child is very important for the development of the baby and the family also in later stages in life. As every family has different needs, families have to be seen as key players in the health system. Not only can they have more responsibility for the care of the infant in the future, their input on how to improve the care should be seen as very important. This goes further than family integrated care. Feedback of parents is a starting point of improvement and innovation. Understanding families (patients and parents) and delivering a good parent/ patient experience is a core objective. Family satisfaction could be an indicator of performance.

Healing environments for prematures
With more and more research being done on the surroundings of a premature that has positive influence on the development of the baby, it is expected that the neonatology department of the future is a place where a baby can optimally grow. New technologies can help in creating these spaces.

Information, communication and hospitality towards parents
Many of the parents imply that they experience the medical care as good. Most of the complaints are about a lack of transparency in the hospital's system, lack of communication towards them or between care providers. They do not always know what to expect or sometimes miss information. Hospitality trainings are currently given as an extra but could potentially be further embedded in trainings. Also **digitisation** of communication could be an opportunity here.

Improving employee experience
With the upcoming merger and many changes, and a global nurse shortage, a focus for the first years should be on the employee experience



and their job satisfaction. A great team makes a great experience for parents. With improving the employee experience, it will hopefuly decrease stress at work (and in some cases burn-out) and decrease the lack of personnel. Understanding care professionals needs and delivering a good employee experience is a core objective to create a place where éveryone wants to work.

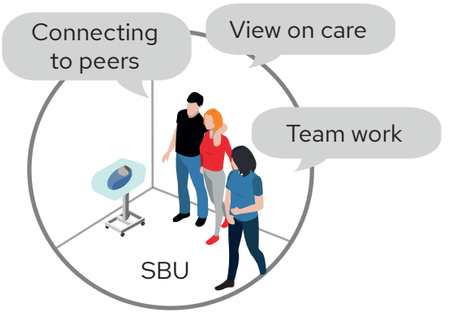
Guiding nurses in a changing role
Going to SBUs means a role that implies more coaching. How and what it will look like should be guided to nurses.

Data and machine learning to improve care
Big data and artificial intelligence show large potential to improve detection of disease also for the smallest babies. It is expected that this will increase even further in the future. It can improve the quality of care.

Low cost, high impact
Solutions that decrease workload are more viable. Also solutions that are purely a restructure in communication are low-cost solutions that can already have a high impact.

Improving the challenges of SBUs
Apart from being very good for family centred care, SBUs show some disadvantages that still have to be tackled. Such as improving the overview for nurses and care providers, improving the view on care for parents, improving the idea that action is taken towards parents, improving the contact with other parents for parents, improving the feeling of working in a team for nurses and care providers.

Further integration of perinatology
Parents do not experience just only their journey at neonatology. For them it is one larger experience that is not put into silos. A good cooperation in creating great parent experiences asks for an integrated cooperation and good communication between neonatology and obstetrics.



5.3 From themes to corporate vision

Creation

Creation of concept visions
To create a vision, several concept visions were created. These concepts were created from the previous neonatology vision, related visions, (see appendix 1) and future themes from research. Those two documents were heavily studied, next to insights from previous research of this graduation report, and previous graduation projects and companies involved such as Koos Service Design and Philips. That created the four visions, as to be found in appendix 5.

Choosing

Out of four concept visions, one was chosen together with the teamleader who helped creating the core values in the vision. Together, one proposal was formed of the new shared vision.

Process

Ideally, a vision creation session would be held with all the different stakeholders: parents, nurses, doctors, management and assistants. Though, reality proved differently. There was no time to schedule such a meeting. Therefore, information from different stakeholders was gathered in interviews and the first version of the vision was validated with nurses and care assistants in the coffee room of both hospitals, and in short interviews with doctors, and lastly in an alliance meeting between neonatology department management of VUmc and AMC, the final vision was presented. See figure 20 for the overview of the process.

Concept proposal vision

The concept proposal vision is shown in figure 21. All vision concepts can be found in appendix 5.

5.4 Concept validation

Validating with nurses and care assistants

Feedback and input on the vision
To validate the first concept vision, a brownpaper feedback and input day was held at both the AMC and VUmc. The brownpapers were present for one week at both places. One day long, at both locations, questions were asked around the topic to start the discussion on the vision with nurses

Process
To validate the concept, the nurses and care assistants were not directly asked to look at the concept. First they were asked to think about the future. What would and ideal neonatology department look like in 2030? What do you see? What happens there? What would you like to see? What can still improve or change? These post its were gathered. Thereafter, nurses and assistants were asked to have a look at the vision concept. Does it represent your ideal future which you just wrote down? Feedback on the concept was gathered in such a way.

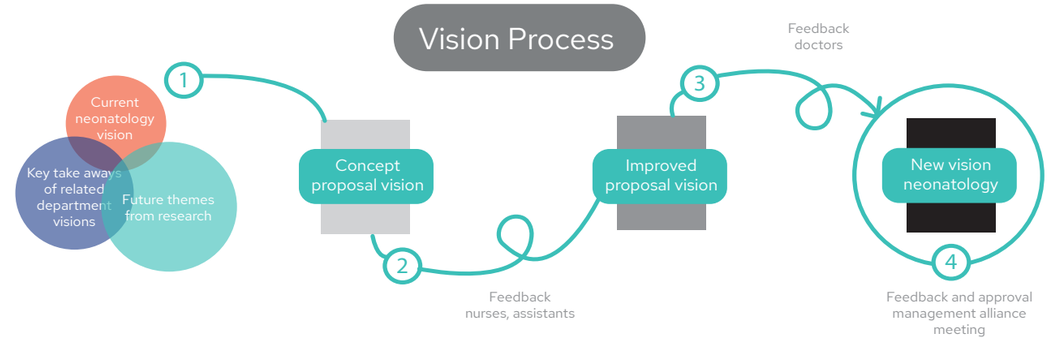


Figure 20: The vision process: from current visions, related visions and future themes to the new vision neonatology

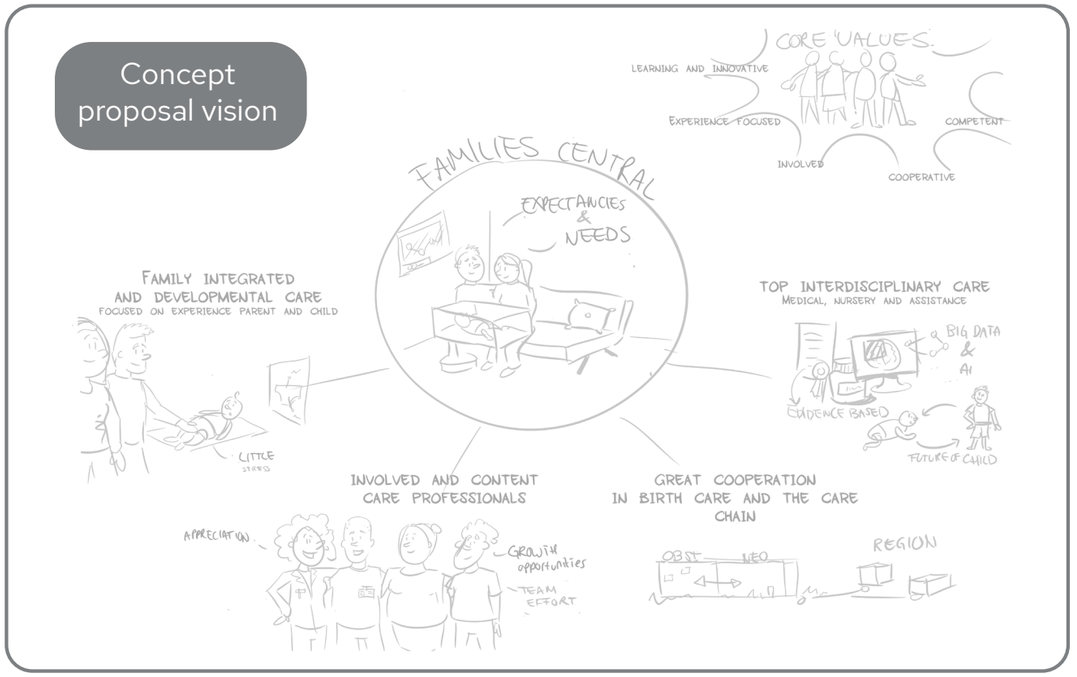


Figure 21: The concept proposal vision

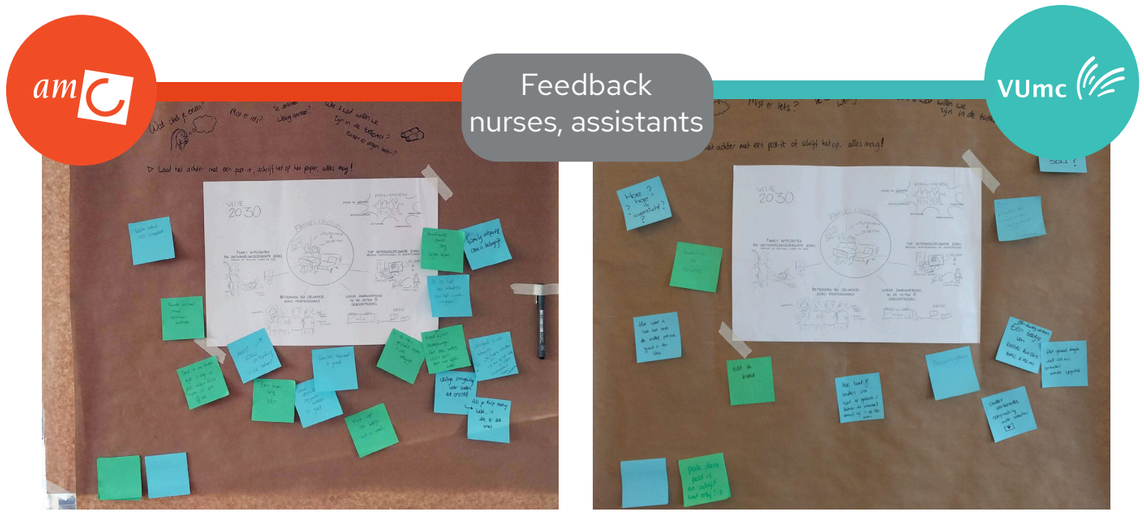


Figure 22: Feedback from nurses and doctors of both hospitals on the first concept vision

Validation with doctors

Feedback and input on the vision
To validate the first concept vision, the vision was discussed with four doctors (neonatologists-pediatricians). The average opinion was that the vision concept was good. A returning question of doctors was that research and education was missing in the vision. Research and education is intertwined with all activities, it adds to delivering good care. It really needed to be added, to give a complete overview.

Improvements

With the feedback of doctors and nurses, improvements were made on the first concept. Research and education were added in a way that it shows that it adds up to vision on care. Next to this, the vision was changed from 'families at the center', to 'a department with the best possible care where family and child are at the center (of care)'. Next to this, the core values (who do we want to be in the future) are now shown at each pillar, to show the link between the pillar and the core value.

Validation with theory

Looking at the quadruple aim model, which is an often used model that serves as a compass to optimize health systems, the vision shows large similarities. The quadruple aim has four aims: (1) improving health outcomes, (2) improved patient experience, (3) improved staff experience and (4) reduced costs. The first three aims are corresponding to the vision. Improving health outcomes corresponds to 'top multidisciplinary care'. Improved patient experience corresponds to the pillar 'family integrated care and developmental care'. Lastly improved staff experience corresponds to the pillar of 'satisfied and involved care providers'.

Validation with management

In a VUmc and AMC alliance meeting, the new corporate vision was proposed in a text and visual document. A presentation was given on the insights and process of how the vision was formed. Thereafter this vision proposal was concluded to be the new vision for the neonatology department. See table 3. In total 47 caretakers have been involved.

Total amount of nurses, assistants and doctors that validated the first vision concept and gave feedback to create an optimized vision	
Nurses VUmc	12
Care assistants VUmc+AMC	5
Nurses AMC	15
Doctors VUmc+AMC	4

Total amount of nurses and doctors that are part of the management who concluded the optimized vision to be the new department vision	
Management VUmc+AMC	11

Conclusion presentation one-to-one on the vision 2030 neonatology with management
Unit head nurses VUmc

Management present during alliance meeting concluding the vision 2030 neonatology
Subhead of neonatology Chef de Clinique AMC Chef de Clinique VUmc Teamleader AMC (1) Unit head nurses AMC Team manager AMC Nurse teamleader VUmc Teamleader AMC (2) Pediatrician-neonatologist AMC Pediatrician-neonatologist VUmc

Table 3: Stakeholders involved in the vision validation

5.5 New corporate vision for neonatology

New vision explanation

Vision
The new vision is:
'A department with the best possible care which is child- and family-centred.' This means that the care providers deliver the best care concerning their care abilities and the quality of care. This is not new in comparison to the old vision ('top care'). Though, what is new in the vision is that next to the good quality of care which the hospital wants to deliver, also the child and its family are central in the care now. By 2030 the needs and expectancies of prematures and their families are fully taken into account to improve families' experiences. To reach the vision, four pillars have been created.

Four pillars to reach the vision

Family integrated care and developmental care
To make sure families are central in the care, it is important to improve parent and patient (premature) experiences. Family integrated care and developmental care is of key importance. A stress reducing environment for both parents as children is important for good development of the child and bonding between the family. Parents are actively involved in the care for their child. Parents and their child(ren) have the possibility to be together 24/7.

Content and involved care professionals
The experience of the professionals in their work contributes greatly to the experience of the family. Committed and happy employees leads to a pleasant and safe work environment. Healthcare is a team effort, in which team spirit is of great importance, greater than individual interest. Management listens to individual needs and professional development of care professionals. The employee has autonomy in his or her work and receives appreciation for what he or she is doing.

Top multidisciplinary care
The neonatal care is preferably evidence-based and goal-oriented. Healthcare has an innovative character in the field of diagnostics and treatment methods and there is a short implementation time for new developments. Children with an increased risk of developmental problems get a multidisciplinary follow-up up to eight years at the outpatient clinic.

Cooperation in birthcare and the care chain
The cooperation takes place both intramural (obstetrics, other pediatric specialisms) and extramural with regional hospitals in the Noord-Holland and Flevoland region and the other neonatal intensive care units in the Netherlands.

Link between the four pillars
Within these four pillars, there is a link between those pillars, they have influence on eachother. Content professionals (good employee experience) has a positive influence on the family experience (FIC and developmental care). Also cooperation in birthcare (bridging silos) can have a positive influence for example on family experiences as the parent experience bridges silos (departments and hospital walls) too.

The link between care, education and research

As can be seen in the vision 2030 visual in figure 23, the vision consists out of the three core tasks of the academic hospital: care, education and research. It is visualized in such a way that it shows that good research and education can lead to better care in the 'care platform' as to be seen in the visual.

Mission

A mission describes the reason why a company exists and can contain a longer-term goal. For hospitals this is quite an obvious reason. The mission is to provide the best chances of survival to prematures and best quality of life for prematures and their family. This mission has not been changed compared to the already existing mission.

Core values

Apart from the vision elements, also related core values have been created. Where the vision and pillars show 'what' the department wants to be in the future, the core values show 'who' the department wants to be in the future. These core values have been created in cooperation with one of the teamleaders. The core values are directly linked to the pillars. If you want to be able to offer top multidisciplinary care, for example, the team should be competent to do so. If you want to deliver FIC and developmental care, the team should be experience-orientated. These core values have been written out for the neonatology team. The core values are shown in yellow and in the upper right corner of the vision visualisation in figure 23.

> "I am really happy that the vision is now family-centred."
>
> -Nurse of AMC hospital

The largest change in the new vision is that family and child are now central in the care, whereas the previous vision of ICN was to deliver top quality care. Next to that, the vision now consists out of four pillars to reach the vision. All projects of the ICN department should be linked to see how they are adding value to the departments overarching vision.

MISSION

Creating the best chances of survival with the best possible quality of life for ill newborns, children and their parents.

Vision 2030

IC neonatology

Amsterdam UMC

A department with the best possible care which is child- and family-centered.

CORE VALUES

Experience-oriented, competent, involved, collaborative, and learning, researching and innovative

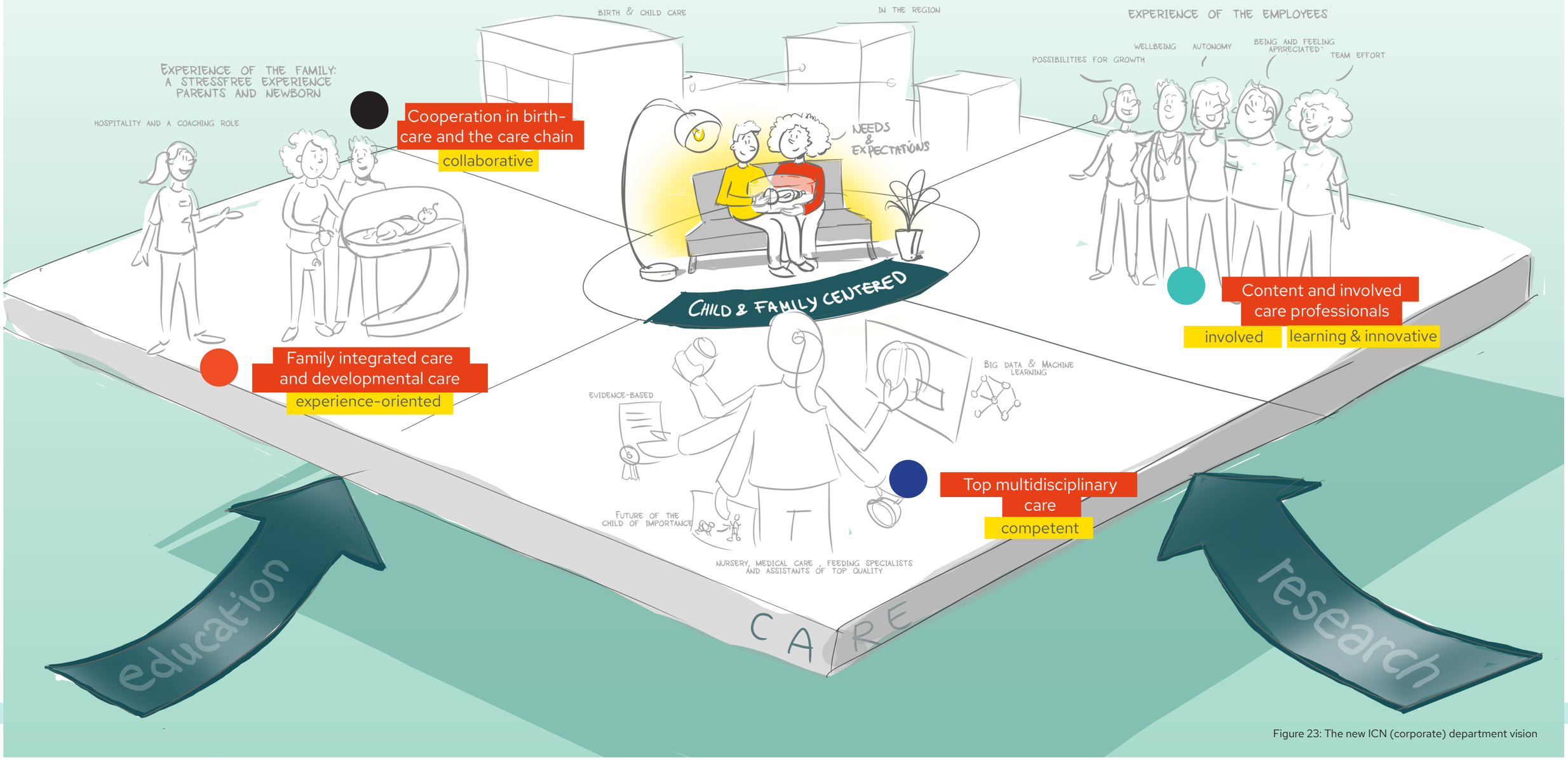


Figure 23: The new ICN (corporate) department vision

6

The current road ahead

This chapter gives insight into the current projects and gaps to reach the new shared ICN vision, from a management, doctors and nurses point of view.

In this chapter:

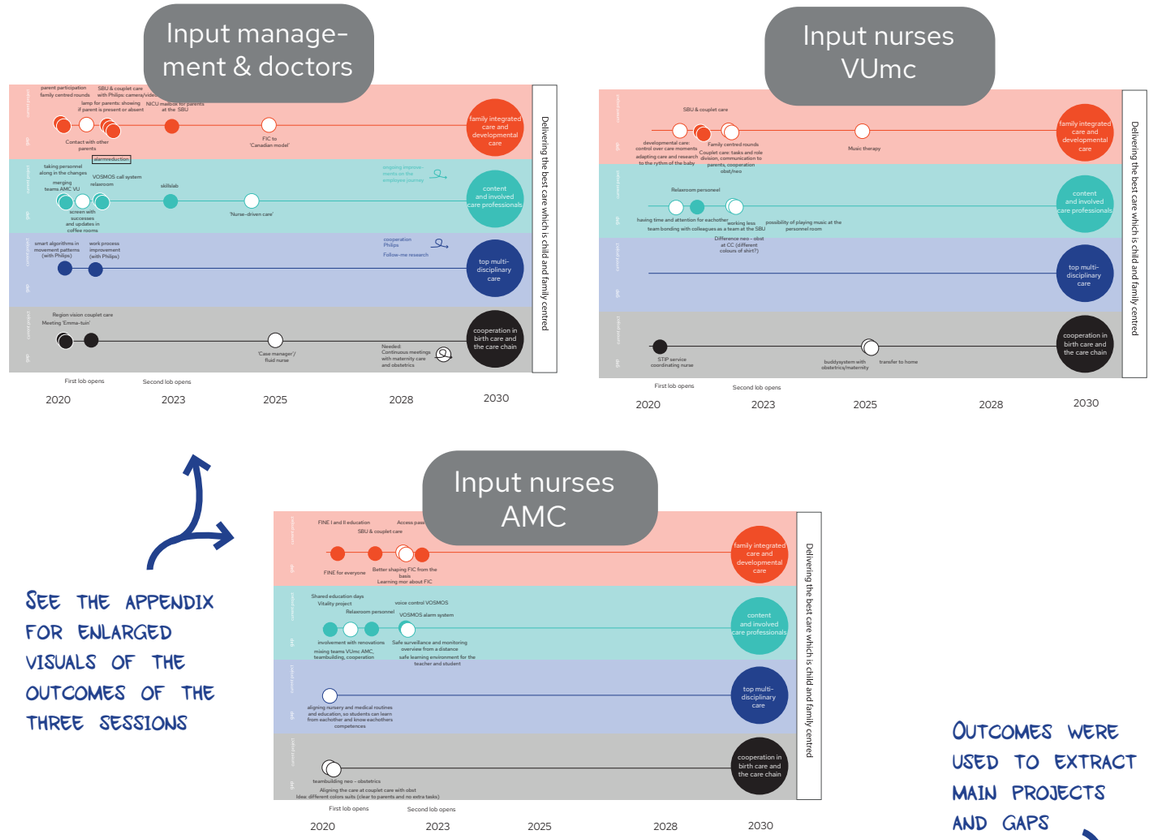
6.1 Mapping current projects and gaps on the four pillars of the vision

To have an overview of current projects and gaps (or things missing) to reach the new vision, the vision was presented in an interactive session in a (1) management alliance meeting, (2) coffee room session in the AMC, (3) coffee room session in the VUmc. In the management alliance meeting, also two doctors were present. The four pillars in the vision (that are to be strived towards to reach the vision) were mapped on a brownpaper. The results of the sessions are shown in figure 25.. A change map of current projects was created to visually show the current road, combined with the new vision (figure 27). For detailed versions of the results and the change map (to be able to read each detail) see appendix 7.

People involved in mapping current projects and gaps to reach the 2030 vision	
Nurses + care assistants VUmc	12
Nurses + care assistants AMC	15
Management AMC + VUmc	11
Total	38

Table 4: Amount of stakeholders involved in the mapping sessions

Figure 24: Project mapping session management (top left), nurses and care assistants AMC (top right), nurses and care assistants VUmc (bottom left and bottom right).



SEE THE APPENDIX FOR ENLARGED VISUALS OF THE OUTCOMES OF THE THREE SESSIONS

OUTCOMES WERE USED TO EXTRACT MAIN PROJECTS AND GAPS

Figure 25: Results from the mapping sessions with management (including doctors), nurses and assistants from AMC and VUmc.

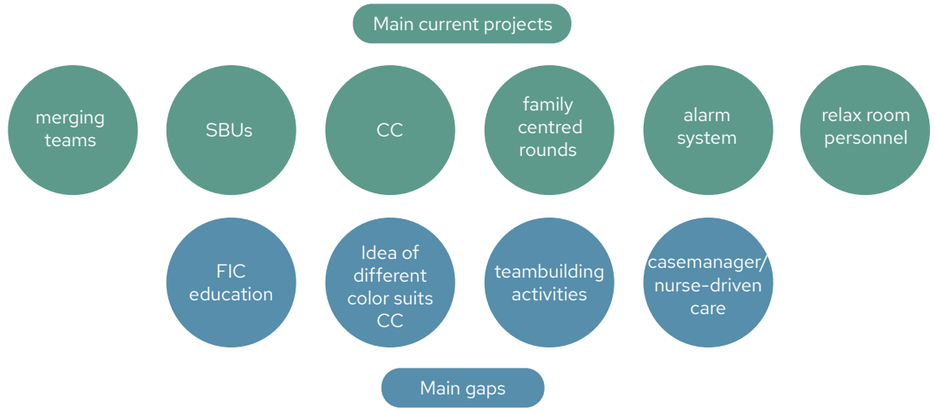


Figure 26: Main themes (commonalities) from the mapping sessions of current pojects and gaps

All current projects of ICN add up to all four pillars of the vision. Though, nurses spot more gaps than doctors and management in the road to the vision. Most importantly, there are many ideas and projects for the next three years while there is already a lot of change ahead in those three years. Change fatigue is a risk. There is an opportunity to prioritize change projects to spread them out in several phases.

Change map: current road to reach the corporate vision

IC neonatology

Amsterdam UMC

2020-2023

Merging teams & employees learning to work at the new center

Offering the best care which is child- and family-centered

2030

2026

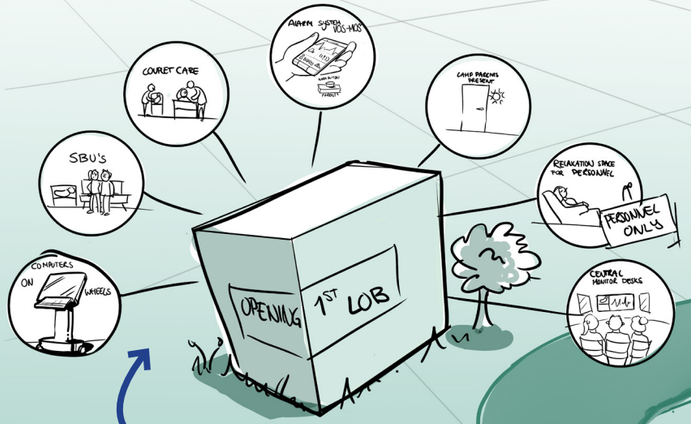
2023
OPENING PNC

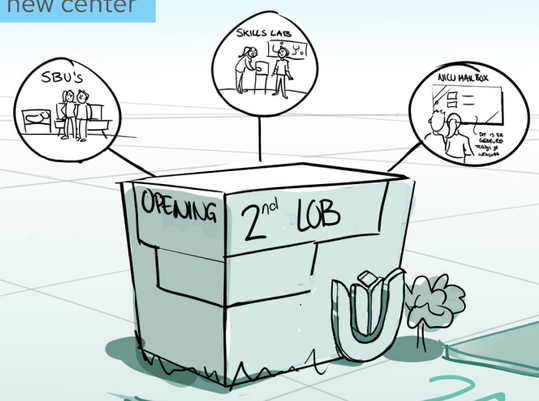
2022
ONE TEAM ATTND LOCATIONS

2021
OPENING 1ST LOB

APRIL 2020
START & XCHANGING TEAMS

2020





SEE THE APPENDIX FOR ENLARGED DETAILS

Figure 27: Current change ahead mapped out for the ICN department

7

Developing ideas

This chapter shows how ideas were generated to further enrich the current road to reach the vision.

In this chapter:

"For complex problems there is no simple solution. They require a multitude of interventions that reinforce eachother."
Joannes Vermeulen (Haentjes, 2020)

7.1 Creating horizons

Creating an innovation vision
The previously presented vision in figure is a corporate vision for the neonatology department. It represents what the department wants to be in 2030. To create an innovation vision, the new vision was used to compare with the departments previous vision. The biggest difference in the 2030 vision is the family and child-centeredness. This means not only that parents are more involved in the decision-making process, but also their needs and expectations are taken into account. Families are seen as experts in the care. With this change, the question arose: how to create a family-centred department and make use of their experiences and expertise even more? Of course, changing to SBUs and CC is a great improvement for families privacy and the ability to be close to eachother, though the service to parents can also be improved at the new PNC.

The focus of the innovation vision therefore lies within the scope of family-centred care. The innovation vision for 2030 is: 'fully integrated family-centred services.'

This means that ideas are generated to be able to improve parents' experiences at the new PNC. Of course, having a premature will never be an ideal experience, but many small improvements can make the stay for parents a bit more pleasant at least, to not create unnecessary stress (which is of bad influence on the health of the child).

Creating horizons: time pacing
The horizons have been set as follows: previous innovations have happened around three years ago, when the Zorgpunt application has been implemented. Also, the new PNC center will be fully renovated in 2023. A time pacing of three years per horizon thus seemed a good pace for the innovation horizons.

'Fully integrated family-centred services'

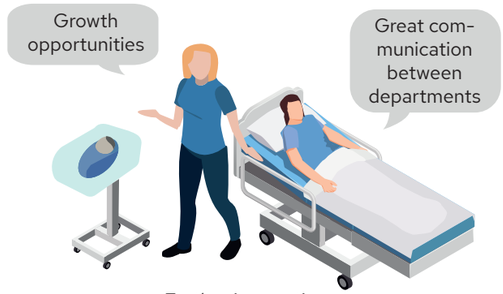
Horizon 1: Merging teams and learning to work at the new center
The new perinatal center will open in two phases: part one will open in 2021, and the second lob will open in 2023. The perinatal center will be finished in 2023. In this period the innovation vision of these three years is focussed on the **employee experience(EX)**. The merger of the teams and learning to work at the new center are important events for employees. As these two events are already large changes, it is important to get employees along during this period of time. Having content employees and having them (personally) involved is key in making the new PNC a success. Currently, nurses do not all have the feeling that they are taken along in the process of the new PNC and all changes and why they are made.

Improved employee experience

Horizon 2: Improving family experiences at the new center
The new vision puts families central in the care, next to the care itself. The new perinatal center gives great opportunities to families' privacy, though there is much more possible to improve families' experiences. After having merged and learnt to work in a new way at the new center, there is room for improvement concerning parents experiences and evaluation. To improve their satisfaction of the care ánd service. In this period, the focus lies in improving the experience of parents.

Improved parent experience

Horizon 3: Integration perinatology at the new center
Closer collaboration with obstetrics offers great opportunities in the service towards parents. With the new perinatal center, Obstetrics and Neonatology work closer together at Couplet care. Though there are more opportunities to improve, and make the close collaboration really a point of differentation. Parents experience the whole delivery and care at neonatology as one experience.



Further integration perinatology (bridging silos)

The link between employee experience and family experience

There is rising quantitative evidence that there is a link between employee engagement and customer loyalty. A best practices study by McGovern and Moon shows that there is a recognizable link between the two. Companies that engage employees show gains in customer satisfaction. Disengaged employees show a 1000 per cent increase in errors, is shown in findings from Fortune 100 clients. Managers are most often held accountable for engaging their employees (Gonring, 2008; McGovern & Moon, 2007). To improve customers (or patients) experiences, managers have traditionally analysed customer needs and insights within the organisation. However, if employees are not content in their work, this effects the employee-customer interactions negatively. According to MacGillavry and Sinyan, in a case study at DHL, a parcel and mail service company, there is a link beteen employee experience and engagement to reach successful customer centricity (MacGillavry & Sinyan, 2016). Also in healthcare, job satisfaction is considered to have an important role in the quality of care for patients (Lu, 2019). Employee experience and job satisfaction is expected to have great impact on family experience and satisfaction at neonatology too. Therefore, to reach family centricity, it is key to first improve job satisfaction. Especially at the teams, though also with other employees.

7.2 Ideation

Generating ideas for horizon 1
In the first horizon, the focus therefore lies on employee experience and satisfaction. During the merger, the change of cultures and merging ways of working and protocols, are day-to-day practice. Next to this, a new perinatal center means change in the way of working for everyone. Single rooms means that one does not have a quick overview of the patients. The care will change to a more coaching role for nurses when parents are more present in the rooms in the new SBU care concept. Therefore, the first horizon contains ideas to improve employee satisfaction during all this change. These ideas have been generated by discovering difficulties to employees, focussing on nurses. These were found in spending days with the nurses, though also in the mapping exercise where nurses pointed out current projects to reach the new vision and gaps, things they were missing. A couple of ideas were generated to try to improve satisfaction and involvement. These ideas can be found in appendix 11, showing the horizon 1 ideas.

Iteration on ideas for horizon 1
In an iteration round, by validating the ideas with a teamleader from the VUmc and AMC, it appeared that nurses are being given the option to give input on the new PNC rooms in a mock-up session. Such an event will happen soon again. Also the latest news is being shared by printing the alliance news letter and putting it at the coffee tables. There will be a shared hospitality training with the AMC and VUmc neonatology nurse teams soon as well, and giving the FINE training to everyone is also on the planning. A coaching training could be a good idea. **Most important is that employees in these three years are content and satisfied, by taking them along in all the change.** In the change management model called 'DINAMO' it is shown which thirteen factors influence eagerness to change (Metselaar, 1997; Metselaar & Cozijnsen, 2002). The thirteen influencial factors have been studied to select four factors which can be improved to improve eagerness to change and satisfaction. The following four factors have been selected to improve (based on what nurses have shared in earlier sessions for this graduation research):
-Having the knowledge and experience
-Complexity
-Involvement
-Effects to the work

Having the knowledge and experience could be improved by offering coaching trainings, to prepare nurses on a coaching role which they will increasingly have in the future SBUs. Complexity in Coupet Care is an issue, as working in a new care concept, with new colleagues, and parents that also need care, brings complexity. Complexity could be dealt with via CC arm bands, that show to parent if the nurse is qualified to help the mother or the premature (see appendix 11). Though also by opening the CC rooms not in 2021 already but in a later stage such as in 2023, complexity could be decreased. Next to complexity, involvement of employees in the change is also of great importance. Involvement could be reached by showing in detail a proposed timeline of change and actively involving employees more (such as in mock-up sessions). Lastly, the new way of working will have great effects on the work of nurses. One of the effects to the work of nurses which they have appointed as a gap in a coffeeroom session, is that they will miss the team feeling in the work as they will be working more on their own in SBUs. This could be possibly improved by shared coffee moments at regular times that are being messaged at the beeper.

Total amount of ideas for horizon 1
In total, with the first ideas and the iteration round, seven ideas were generated, of which four are shown in the appendix (the four initial ideas) and three are shown in the innovation roadmap (the ideas after iteration and discussion with a team leader).

IDEATION
Horizon 1

Employee experience is expected to have a great effect on the family experience at ICN

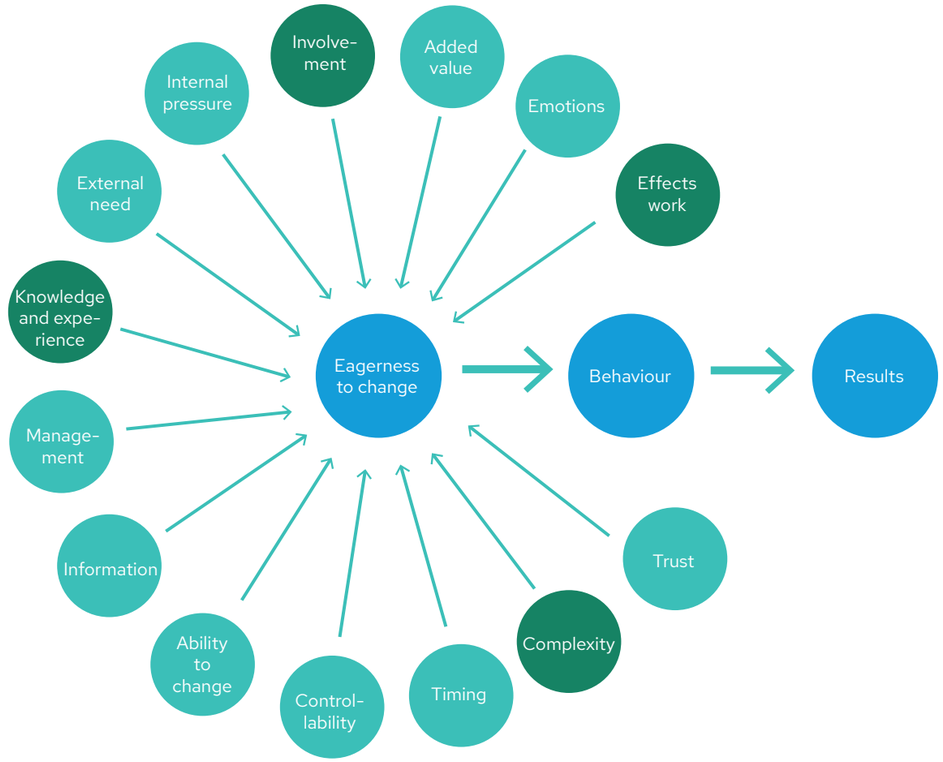


Figure 28: DINAMO model (revisualized model from theory of Metselaar & Cozijnsen, 2002) with the four important factors for this department shown dark green.

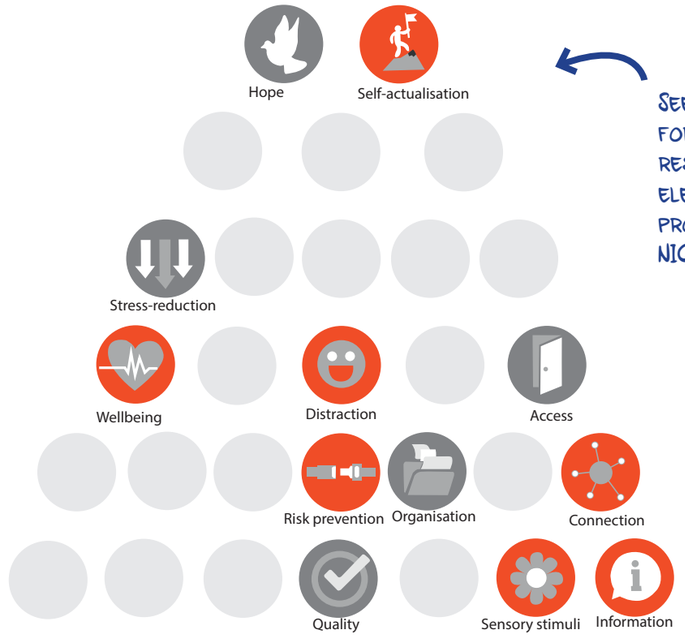
Generating ideas for horizon 2

In 2023, the new perinatal center is expected to be fully built. There is room for more improvement concerning family experiences and further integrating family-integrated care. While having learnt to work at the center now as employees, there is room for further improvement in terms of family services.

The current state of family-centred services

In an earlier qualitative study, the service design company Koos Service Design, derived different values that are ought to be delivered to parents to improve their experience at the new perinatal center. These values are created with the value pyramid of Bain & Company (n.d.). These elements of value represent how a company can deliver value in a service towards its customers, or in this case, parents of prematures. The following values have been derived from 15 qualitative interviews:

1. Hope
Offering hope to have something to be (realistically) optimistic about
2. Self-actualisation
Having the feeling of growth in parenthood
3.Fear and stress-reduction
Helping parents to reduce fear and stress during the care pathway
4. Wellbeing
Improving the mental and physical state of the parent
5. Distraction
Offering appropriate distraction to parents during the stay at the department
6. Quality
Offering highest quality of care and professionals
7. Information
Offering timely and trustworthy information
8. Risk prevention
Decreasing risks for the child
9.Sensory stimuli
Minimizing negative sensitive stimuli



SEE THE APPENDIX FOR EXTENDED RESEARCH ON THE ELEMENTS OF VALUE PROVIDED AT THE NICU

Figure 29: Values that parents want to be offered at the new NICU in the renovated PNC, in the Amsterdam UMC's care and services. The blue lines represent the link between different values, where the three text boxes explain some of the links. Interviews and values are executed and created by Koos Service Design, delivered to the Amsterdam UMC in 2018.

10. Organisation
Offering organisation of your life around hospitalisation
11. Connection
Offering the option to connect to peers.
12. Access
Giving 24/7 access to the department to parents.

To have an idea of how family-centred services are currently offered, or planned to be offered, the current services and plans for the perinatal center were reviewed in terms of these values being offered to parents. How are the values currently being offered was assessed together with several caretakers in one to one meetings. It can be found in the appendix 9.

Based on these insights, seven values were chosen to link to painpoints or needs of parents that show potential to improve with design solutions. These values are: wellbeing, distraction, connection, information, self-actualisation, stimuli, and risk prevention.

Ideation for horizon 2

For these values, how-to cards were created with quotes of parents (from previous research by Koos Service Design: appendix 8) and own research (from feedback given in parent feedback nights at VUmc and AMC and the interview with a parent of a premature at an SBU). Creating 'how to' trigger questions from insights and user stories is a good way to convert research into a wide range of actionable ideas, if there is research to build on. Having original raw data or research nearby can be useful for participants (Stickdorn et al., 2018). In this case that was solved by directly showing quotes on the how to cards.

These 'how-to cards' show a how-to question to solve the issue that parents experience, an introduction to the context and several quotes that express this issue. An example of a how-to card is shown in figure 30. All cards can be found in appendix 10.

SEE THE APPENDIX FOR ALL HOW TO CARDS

IDEATION
Horizon 2

Potential impact of the ideas of horizon 2 on the parent journey

In the end, the innovation vision and end goal is to deliver fully integrated family-centred services. This means, that the parent journey should be improved in several areas. In appendix 13, the future parent journey at the PNC is shown with key moments (based on earlier research of this project). Also the painpoints are shown of parents (based on research) and the how to card that corresponds to (solving) this pain point. As can be seen in the parent journey, the painpoints are spread out over different areas of the neonatology part of the journey. Improving parent experience at Obstetrics is also to be considered for another project.

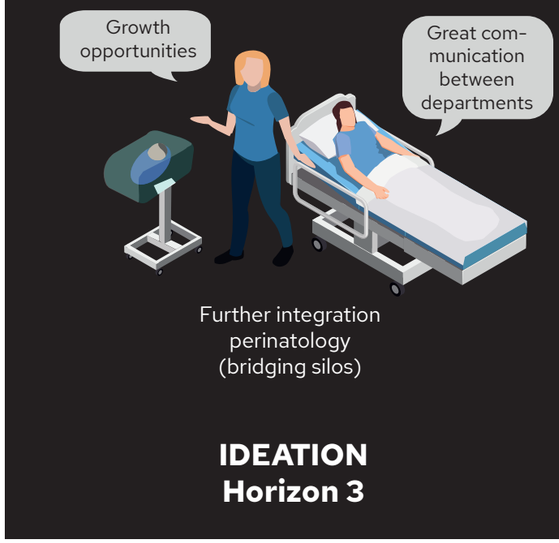
Figure 30: Example of a 'how-to card', used in the ideation session with students

The ideas for horizon two have been created in a creative session. In this session, four design students were asked to ideate with the 'how-to' cards after a first purge (letting go of first ideas) (Tassoul, 2009). The design students weren't told about the parent journey, to keep it simple with the how to cards and the context quotes on these cards. After ideation, the most promising ideas were selected, instead of the usual clustering, because ideas were already generated within themes in this specific case. (Buijs & Van der Meer, 2013) With inspiration from these ideas generated and own ideas that popped up during research and vision creation, several ideas were created, see page 72 and 73 and appendix 11.

Total amount of ideas for horizon 2
In total, over 50 ideas had been generated on post-its by the students. Also 31 own ideas were generated by myself. These small post-it note size ideas were condensed to ten ideas for horizon 2. These are all ten ideas to improve parent experience.

Figure 31: Impression of the ideation session with students

Generating ideas for horizon 3
The third horizon lies closest to the vision of having family-centred services. To be family-centred, it is important to have close ties with obstetrics, as parents experience the whole journey from delivery to going home from neonatology as one, as can be seen in the parent journey in appendix 12. Also, the PNC offers the opportunity to work closer together. In Couplet Care rooms, parents can be not seperated from their child, even if they both need care (both the mother and child need complex care). Neonatal units thatprovide couplet care frequently exclude womenwho need complex maternity care, though in the Amsterdam UMC perinatal center this will happen. Stelwagen et al. did research on the change towards a design and implementation of an infrastructure for maternity care and neonatal care combined, to empower parents. In her research it shows that health care professionals and systems can move away from traditional ideas and structures of seperate specialties. With the goal to optimize the integration of maternity and neonatal care, to improve parent empowerment. Though, achieving parent empowerment also requires readiness for change in hospitals. (Stelwagen et al., 2019).
In the new hospital setting, where the previously described research was done, the Onze Lieve Vrouwe Gasthuis Oost (OLVG Oost), a woman and child nurse is created as a new role for nurses. This nurse is trained to take care of both the mother and the premature in the single rooms.
Apart from a woman and child nurse, it would also be possible to create the new role of a 'case manager'. This idea was opted by some of the doctors and nurses. This means that there is a person head responsible for the woman and child from hospitalisation to discharge. The parents can always ask questions to this person, and it is clearer to caretakers what journey parents go through. Ideally it would improve the bridge between maternity wards and neonatology as well.
Lastly, one of the ideas is to do shared parent feedback nights with neonatology and obstetrics. Parents already give feedback on the maternity or obstetrics part of the journey as well, and it makes more sense to do a shared feedback night. In validation of the idea, it appeared that this idea is actually going to be implemented as it was also seen as an improvement needed by several nurses that lead the parent feedback nights.



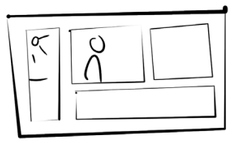
Total amount of ideas for horizon 3
In total, three ideas were generated for horizon three. These ideas are all about cooperation between neonatology and obstetrics.

7.3 All initial ideas for horizon 1, horizon 2 and horizon 3

Also see appendix 11 for an explanation of each of the ideas

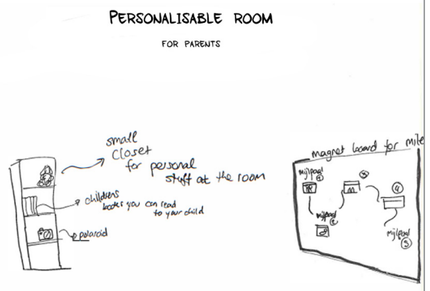
LATEST NEWS

ABOUT THE ALLIANCE/PNC ON AN INTERACTIVE SCREEN



PERSONALISABLE ROOM

FOR PARENTS



ALARM BUTTON WITH VOICE

FEEDBACK TO PARENTS, MORE INSIGHTS TO NURSES

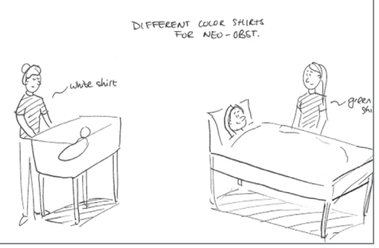
PARENT BUDDY PROGRAMME

LOW THRESHOLD COMMUNICATION WITH AN EXPERIENCED PARENT OF A PREMATURE

DIFFERENT COLOR SHIRT

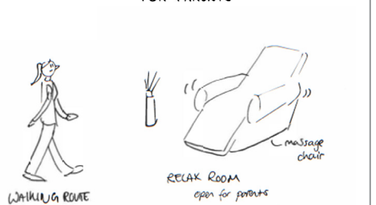
(OR BAND AROUND ARM)

FOR NEO AND OBST



DISTRACTION MOMENT

FOR PARENTS

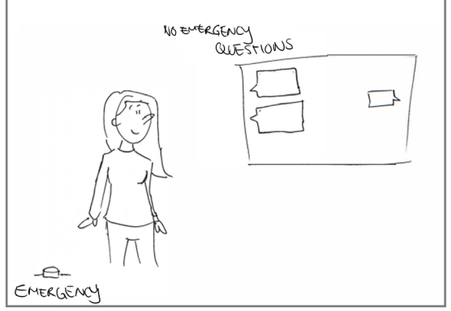


CONTACT

IMPROVE FAMILY BONDING AND STIMULI

1 PLATFORM FOR QUESTIONS

LOW THRESHOLD COMMUNICATION TOOL TO CARETAKERS

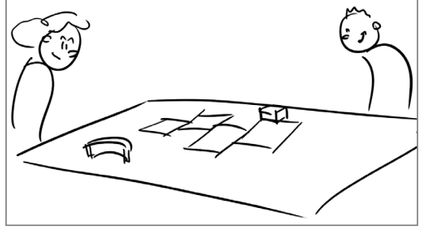


CASE MANAGER NURSE

WHO GUIDES A PARENT FROM ARRIVAL AT OBST TO LEAVING AT NEO (DURING THE WHOLE JOURNEY)

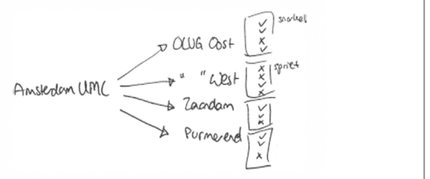
WE ARE INVOLVED

BOTH NURSE TEAMS BEING ABLE TO HAVE A FINAL LOOK AT THE NEW DEPARTMENT INTERIOR/ARCHITECTURE FOR THE FINAL TOUCHES



CHANGES IN HOSPITAL CHEATSHEET

(OR IN SMALL VIDEOS) FOR PARENTS



SHARED PARENT GATHERINGS

IMPROVE CONTACT WITH PEERS

SEE THE APPENDIX FOR AN ENLARGED VIEW OF THE IDEAS WITH EXPLANATION

All small interventions can reinforce eachother to create better family experiences.

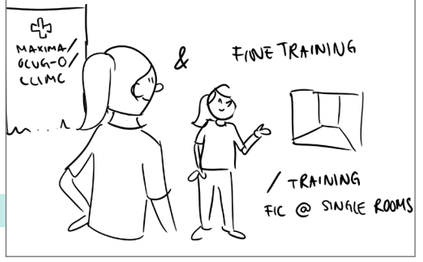
SEE APPENDIX 13 TO SEE HOW THE IDEAS OF HORIZON 2 AND 3 ARE LINKED TO THE PARENT JOURNEY AT PNC

SHARED PARENT FEEDBACK NIGHTS

NEO AND OBSTETRICS

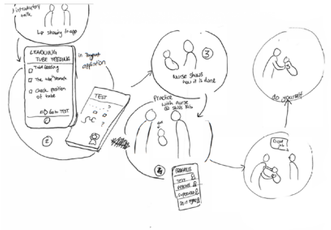
WE ARE PREPARED

BEFORE HAVING A NEW CARE CONCEPT



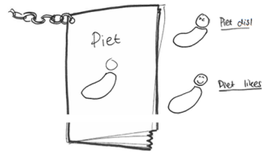
LEARNING MORE BABY CARE

IN AN INTERACTIVE WAY (OR IN SMALL VIDEOS) FOR PARENTS



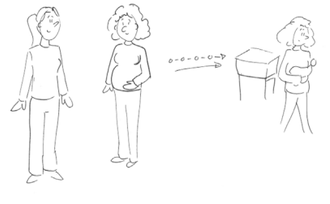
PREMATURE DIARY

SHARE WHAT YOUR CHILD LIKES WITH NURSES



PERINATOLOGY NURSE

A NURSE BEING BOTH NEO AND OBSTETRICS NURSE (ESPECIALLY AT COUPLET CARE)



8 Proposed road ahead

This chapter shows how ideas are being linked in a design roadmap, and how several ideas are extracted to the proposed road ahead. In a change map the current road ahead is shown enriched with validated ideas to reach the vision.

In this chapter:

8.1 Evaluating ideas

As mentioned a little bit in the previous chapter, the ideas have been evaluated with different stakeholders, to validate the ideas. This chapter shows how and with whom the ideas were validated to create an innovation roadmap and change map.

Validation with parents
The ideas for horizon two have been evaluated with three parents, of which one has been hospitalized at the Reinier de Graaf hospital and two at the VUmc hospital. All of them have had a premature one to three years ago.

Validation with caretakers
The ideas for all three horizons have been evaluated with a nurse of the AMC, the chef the clinique of the VUmc and both teamleaders of the VUmc and AMC.

How were the ideas validated?
The interviewees were asked to give a top five of the ideas and an argumentation of why they prefered these ideas concerning desirability, feasibility and viability. With this top five, an opposite ranking was given to the ideas, where the number one idea would receive five points and the number five idea received one point.

Outcomes horizon 1
For horizon 1, it appeared that quite some ideas were already put into practice or on the planning. By revising the ideas with the DINAMO model, new ideas were generated for this horizon.

Outcomes horizon 2
The ideas for horizon 2 were quite widespread concerning what people preferred. The **six ideas** personalisable room, shared parent gatherings, distraction moment, contact, learning caregiving, and alarm button with voice **were all receiving high scores**. The ideas 'Shared parent gatherings', 'Contact', and 'Learning the Care' were chosen, where 'shared gatherings' and 'learning the care' were combined in shared gatherings where parents learn the care. Also the part of celebrating milestones was chosen from the personalisable room idea. As the six ideas received somewhat similar scores, the argumentations were taken into account to make a final decision.

Outcomes horizon 3
For the last horizon, the idea of having a case manager that follows a parent from Obstetrics (having a chance on a premature child) to Neonatology (leaving to a different hospital) was chosen, next to the idea of having a perinatology nurse (who cares for mother and premature). More cooperation via these two roles is expected to improve parents experiences. Both ideas were seen as good ideas by caretakers and parents. The idea of a case manager might be more difficult to implement as it is not always clear beforehand when and if a parent will deliver premature.

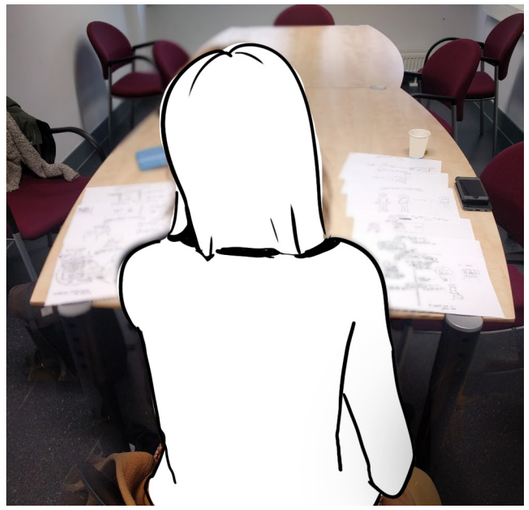


Figure 32: Evaluating the ideas with a parent of a (former) premature

People involved in evaluating the ideas for the innovation roadmap

Parents of a premature	3
Teamleader AMC	1
Teamleader VUmc	1
Nurse AMC	1
Chef de Clinique VUmc	1
Total	7

Table 5: Stakeholders involved in evaluating the ideas

Case Study OLVG Oost

OLVG Oost is a hospital in Amsterdam delivering high care to neonates and pregnant women. A few years ago they have experienced an alike change as the Amsterdam UMC will undergo soon with the perinatal center. The two hospitals Sint Lucas Andreas and OLVG were merging, and there was a renovation in the neonatal and obstetrics care to build a woman- and child center. Information was collected in a hospital visit, joining one of the nurses for half a day, via an interview with Mireille Stelwagen about her research on FIC at the new center and a pediatrician at OLVG Oost was talked to.

The woman and child center at OLVG
The center at OLVG is of course different in the sense that high care is delivered, instead of intensive care. As though, there are similarities in the CC and SBUs that will also be at the new PNC in the Amsterdam UMC. Nurses use computers on wheels and a (handwritten) schedule of which patient they will care for at what time. By using a small whiteboard tile at the entrance door, it is clear who is the nurse of today for the parents and child(ren). Three hallways were built, as though two hallways are open. One hallway had to be closed and is now used by cardiology as there was a lack of personnel to use all hallways. There is also a lack of personnel to fill all rooms at the other hallways.

The change and transition at OLVG Oost
Many nurses have left due to the many changes and as there was a nurse personnel crisis (in almost all hospitals there is). The nurse from OLVG advises the Amsterdam UMC not to use many different kinds of rooms. Walking around and moving patients all the time is a hassle. Unless there is enough personnel. She feels like more personnel is needed with this concept though there is less personnel now than before. She also misses coffee breaks that are held together. Even though there are downsides, the nurses feel like they don't want to go back anymore, they do really see the advantages for parent and child bonding. A pediatrician sees the whole change as not such a successful outcome. A lot of money has been invested though the (nurse) personnel has not been involved in the new care concept enough. All of a sudden there was a personnel crisis and now the whole renovation was too large for the amount of personnel that could work there. The difficulties that are seen: getting parents out of the rooms, walking distance for personnel, lack of personnel, having had personnel more involved in the architectural changes, having a quick overview on the patients. It is good to change not at once, but gradually, so it is good that the Amsterdam UMC is opening one unit first, and then the second. The change did have very positive influence on family empowerment, according to Mireille Stelwagen (Stelwagen et al.,2019)(Stelwagen et al.,2018). Bringing Obstetrics and Neonatology closer together also has positive influence. Though, sufficient training of personnel is needed, and preferably already before opening the new unit(s).

Figure 33: Impression of the Anna Paviljoen: The woman- and child center of OLVG Oost

8.2 Creating a design roadmap

How the roadmap is created
By evaluating the ideas, and linking these to the user (stakeholder) values that the ideas were created for (to improve these values), linking it to the pillars from the corporate vision and linking it to needed trainings and ways of giving feedback, a design innovation roadmap was created, see figure 36.

How design roadmapping is usually done
Usually, a design roadmap consists out of a strategic roadmap and a tactical roadmap. A strategic roadmap contains the (three) horizon visions, and the overall vision. It also contains user values (usually only of one stakeholder, often the customer), business values or business models per horizon, sometimes contains technology trends, and last but not least the product-service innovation(s) per horizon. A strategic roadmap gives a quick overview of the innovations needed per horizon to reach the overall vision and how (technology and market) trends and user values influence these innovations from a market pull and technology push perspective.
Next to a strategic roadmap, often a tactical roadmap is made. This roadmap shows more level of detail and is often an internal document that is often not published due to confidentiality. It shows in more detail the user values, market trends, specific business model, details of the product and service, the technologies and resources needed to accomplish these innovations, and possible partnerships. It also shows the links between those factors that influence the products and service (Simonse, 2017).

How roadmapping methodology has been used in this graduation project
In this graduation project, only a strategic roadmap has been made. In this roadmap the vision, horizons, stakeholder values and product-service innovations are shown (per stakeholder target group). Also internal trainings needed and how feedback is gathered is shown. The business value is not shown, as the value of these innovations lies in the value it creates. it does not change the hospital business model (which works with the amount of patients that are insured via their insurances, subsidies and assigned budgets. For all innovations, there will be extra budget needed. Though most of the innovations proposed in the roadmap do not need extremely large budgets.
Technology and market trends are also not shown, as these are more often seen in the tactical roadmap. The technology trends that play a role in this strategic roadmap are digital communication and a 'kind of' tele-health like idea. In the idea of sending voice to your child, it is a way of connecting with your child without being present in the hospital. The market trends that play a role is the need for more NICU beds, which will be solved with the new larger renovated PNC which contains more beds. Lastly, the developments of employee, patient and parent experience are taken into account in the whole roadmap.
What is included in this roadmap, and usually is not, is different stakeholders and there experience. The user values were the largest drivers for the innovations. The user values show values (needs) of three different stakeholders. To show the different stakeholders in the roadmap too, they have been split into employee experience, premature experience and parent experience, instead of 'product-service'. These both three parts contain the product-service innovations. This way a multi-stakeholder roadmap had been created.

Explanation of the innovation roadmap
(1) Horizons and focus on pillars
The horizons have been explained before. The horizons show a great link with three out of four pillars in the corporate vision. These pillars are thus also shown in the roadmap.

(2)Major events
As a lot of change is ahead, the major events of the next three years are shown in the roadmap too. These things are already planned.

(3)Actor needs
These show the actor needs gathered from interviews, spending days with the nurses, sessions on mapping projects and gaps, previous projects for the department.

(4) Employee, premature and parent experience
As explained, these three sections show the product-service innovations to improve one of the three stakeholders experiences by improving their needs, or improves multiple experiences at once. In that case the idea is shown at both stakeholder sections.

(5) Trainings
As a new way of working requires skills, this is an important part of the employee experience and successful change. Therefore, a different section has been made to include trainings. These trainings can improve successful change.

(6) Giving feedback
Employee and parent/patient experience is key to improve, though to be able to do continious improvement it is important to gather feedback from employees and parents or families. With this feedback it is possible to continiously see if employees and parents are generally content. Though also it is possible to test the influence of these innovations by gathering feedback before the innovation and afterwards.

8.3 Creating a change map

The roadmap as input for potential further change
The design innovation roadmap has been used to extract ideas to combine those in the map of existing planned change. Seven ideas and one training have been extracted from the roadmap to highlight those ideas in the change map. Together with two nurses (from AMC and VUmc) it was evaluated if the right ideas were chosen and some changes were made.

Explanation of the change map
The change map shows the planned change ahead (opening the new perinatal center in two parts, called lobs, in 2021 and 2023) and merging the nurse teams (doctors and management have merged already). It also shows details of which things exactly will change in these two new lobs of the perinatal center. The planned change, which is fixed, is shown in green. The concepts from the innovation roadmap are shown in blue. Those concepts are not fixed yet, the management team stated they will further evaluate which ideas they will continue, also in collaboration with the work groups ('werkgroepen'). The concepts are further explained on pages 84 and 85.

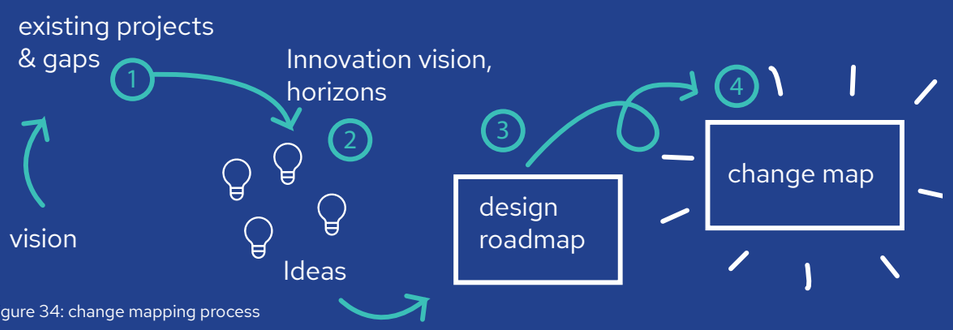


Figure 34: change mapping process

The design innovation roadmap was in this case used to create an overview of innovations to then select several for the change map. While presenting the design roadmap and change map to the department the change map was seen as a more valuable outcome to them, as it combines the change that is already ahead for the department with the key takeaways from the design innovation roadmap. It felt more relatable.

Merging teams & employees learning to work at the new center

Improving family experiences at the new center

Integration perinatology at the new center

Family centred services

2020 2023 2026 2030

focus on pillar

Content and involved employees

Family integrated and developmental care

Cooperation in birthcare and the care chain

major events

merging teams

opening of the new perinatal center

actor needs

The need to have a team feeling in single units with new colleagues*

The need for no extra work at CC while learning to work at the new center**

The need to have a team feeling in single units with colleagues***

Being able to celebrate positive moments with parents, a reminder of the purposeful job**

Being able to personalize the room with positive moments **

Having enough stimuli also when parents are not around****

Having the option to have contact with other parents *

Being given chances to feel like being a parent via caregiving***

Bonding with the child while not able to be around****

The need to have a team feeling at CC with obstetrics colleagues*

Having the opportunity to grow also after many years**/***

Having one contact person in a CC room**

The handover from obstetrics to neonatology can be improved***

Employee Experience (EX)

Teambuilding activities neo AMC and VUmc*

Different colour armbands for neo and obstetrics nurses**

Shared coffee moments communicated via the beeper***

Physical

Digital

Celebrating successes (milestones) together with parents in the rooms**

Teambuilding activities neo-obstetrics*

Possibility to grow to CC nurse or case manager**/***

Trainings

Hospitality training

Coaching training

FINE I training for everyone

FINE II training for everyone

Shared hospitality training with obstetrics

Giving feedback

Sharing EX and needs

Giving back input to employees

Sharing EX and needs

Giving back input to employees

Sharing EX and needs

Giving back input to employees

Premature Experience

Parent Experience

Celebrating successes (milestones) together with parents in the rooms**

Shared lunch every weekday

Organising shared parent gatherings*

@ Parents Lounge

Organising shared parent care teaching gatherings***

@ Skills Lab

home

hospital

Teaching sending voice or sound to the baby****

CC nurse for mother and newborn (perinatology)**

Case manager nurse who helps a pregnant woman over the whole journey***

Giving feedback

Possibility to give direct feedback via Zorgpunt app

Automatic pop-up to review care+service after leaving AUMC

Shared parent feedback evenings with Obstetrics

The experience is a rollercoaster but it's made much more pleasant due to the AUMC

Our needs and expectancies are fully taken into account

Design innovation roadmap

Figure 36: design innovation roadmap

The road to 2030

IC neonatology

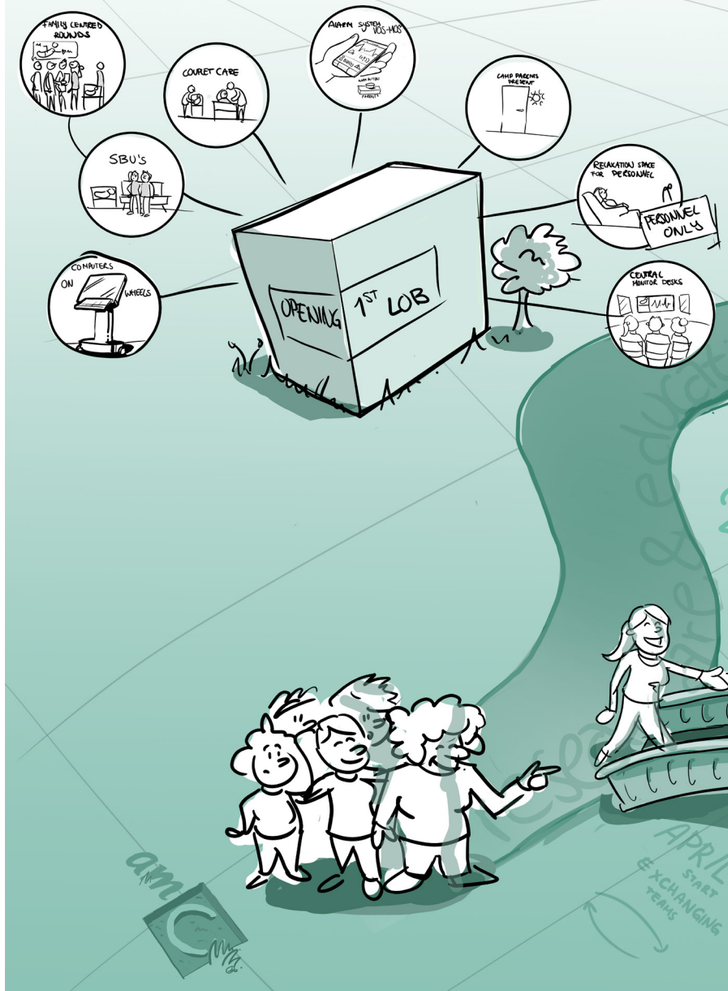
Amsterdam UMC

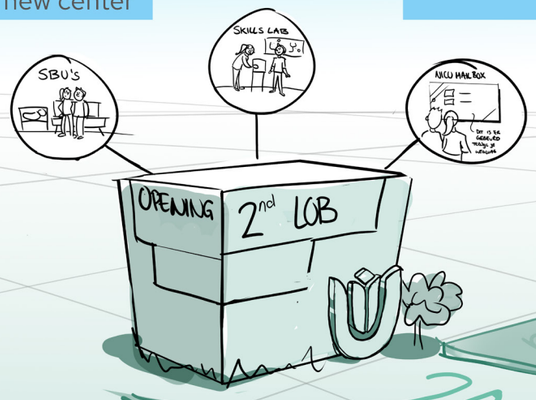
2020–2023
Merging teams & employees learning to work at the new center

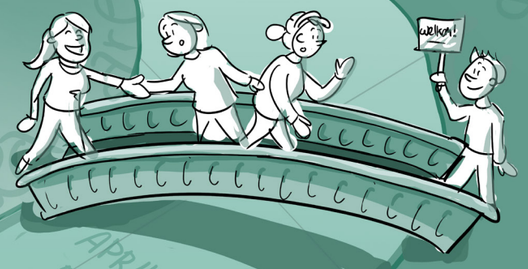
2023–2026
Improving family experiences

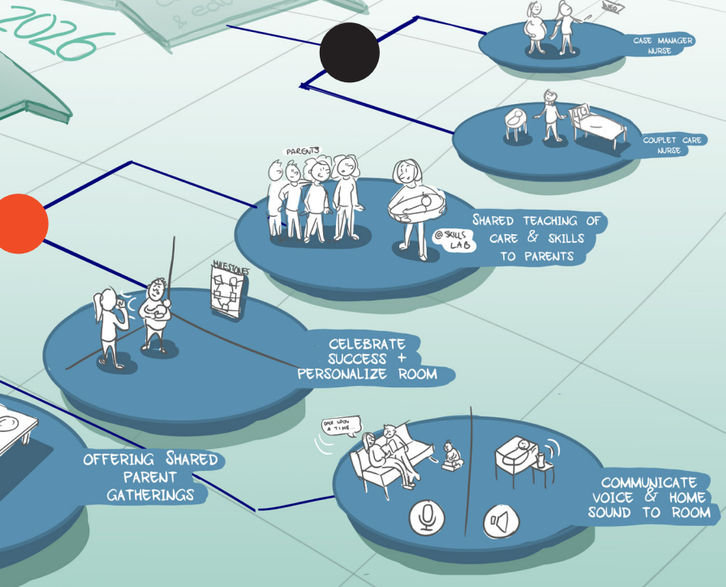
2026–2030
Integration perinatology

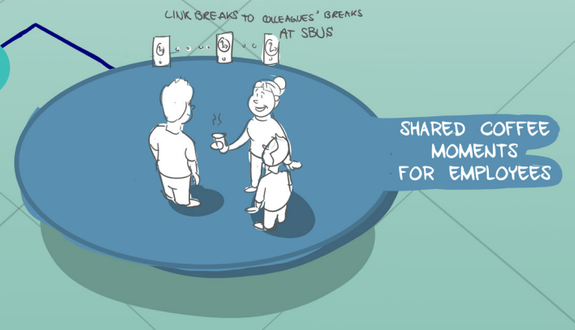
Offering the best care which is child- and family-centered











Change map

PLANNED CHANGE

IDEAS FOR CHANGE

Figure 37: change map

8.4 Concepts

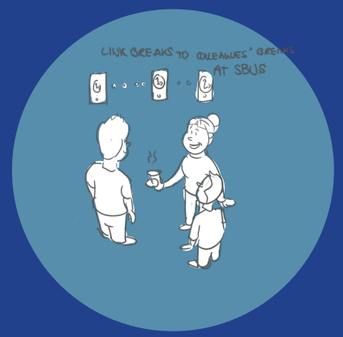
Concepts first horizon

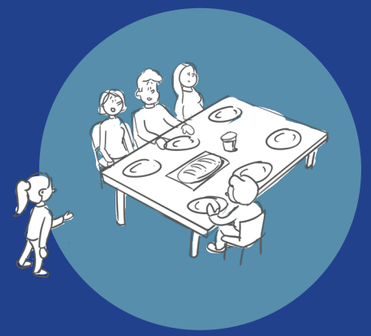
Training in coaching for employees
With the change to SBUs, nurses will experience a new care concept. As stated by Mireille Stelwagen during the visit at the OLVG, nurses will become more of a family counsellor. It is gets increasingly important to teach parents care, the right balance between being in the room and going home (as a healthy distraction), teaching fathers to support their wives. Nurses will get trainings in family-centred and developmental care in the Family and Infant Neurodevelopmental programme (FINE trainings). This will prepare nurses already somewhat, but a specific training in coaching and how to stimulate parents to positive behaviour and optimal learning, is valuable to prepare nurses well for the new care concept of SBUs.

Shared coffee moments
Due to different schedules and allocated rooms in SBUs, the work of nurses will become more solitary than in open wards. As the team feeling is important to nurses, coffee moments are key to get together. In the OLVG there are no fixed coffee moments anymore due to the changed setting. For employee experience, it is of great importance to not let this happen. Shared coffee moments can be kept in several ways, for example with the buddy system, though also digitally. As there are different nurses in different shifts each day, it is practically not possible to make whatsapp groups for coffee. A possibility could be to integrate a function or app in the VOSMOS phone. Here you could fill in your free moments in your schedule as a nurse. This gets automatically linked to other nurses having free moments in their agendas to share a coffee and stimulates nurses to take a break some times during the day.

Concepts second horizon

Shared parent gatherings
One of the downsides of SBUs to parents is an enlarged barrier to connect to peers. Organising shared parent gatherings (such as a daily lunch) in the two parent rooms that will be there in the new perinatal center, can lower the barrier to parents to chat with eachother and share experiences. Both parents and caretakers found this idea valuable.





Celebrating successes with parents in the rooms
This idea is based on stimulating positive interaction. While parents have the need for being able to personalise the room (the hospital rooms don't feel very homelike) and like to be given hope at times, nurses like to share positive moments too. The concept works as follows. At the time of a milestone(success), such as first time kangarooing, first time giving a bath, first time changing the diaper, a picture is being made with a department polaroid camera and hung on a timeline. This process could also be digitalized, with a digital screen.

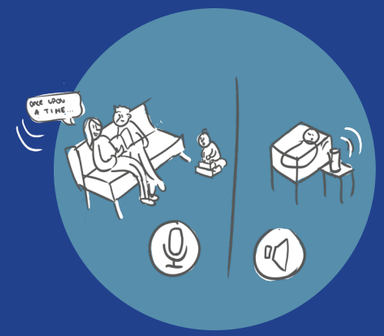
Communicate voice and home sound to room
One of the downsides of SBUs is that sometimes children can get understimulated, called stimuli deprivation. Sometimes, parents cannot be present at the SBUs oftentimes, as they have other (small) children or live far away. To stimulate bonding, there will be cameras in the SBUs that can be watched from home. Though it can also be valuable for the development of the child and bonding between mother and child to be able to send voice recordings from home. Parents can for example read a book, send it to the hospital room, and this way a child can still learn to recognise parents or siblings voices.

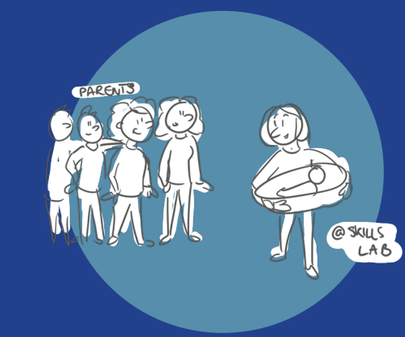
Shared teaching of care and skills to parents
Next to the shared parent gatherings which are meant for casual moments to lower the barrier to interact with other parents, also shared moments of teaching care could be held. These would be seperate events at the skills lab. Multiple parents can learn a skill at once, and possibly also learn from eachother. This could potentially be more efficient than teaching everyone all skills seperately and create a potential for peer connections to parents.

Concepts third horizon

Perinatology nurse
Couplet care offers the opportunity to create a new role, the perinatology nurse, also see 'ideas for horizon 3' on page 71. This nurse cares for the child and the mother.

Case manager nurse
Improvement in the parent experience could be made by offering a case manager who is the contact to a parent over the whole hospitalization, from maternity care to getting discharged.





9

Recommendations

Next to the vision and change map, general recommendations are given to the Amsterdam UMC and the design field

In this chapter:

“Tranformation from the top? How about engagement on the ground?”
Henry Mintzberg (2017)

9.1 Evaluation of the concepts

To evaluate the concepts, the three lenses of innovation by IDEO were used. A concept or idea should be desirable, viable and feasible to be able to succeed. In the section below it is evaluated how the ideas score.

Desirability
All ideas have been generated from a specific parent or nurse need. The ideas have also been evaluated with the stakeholders. The ideas thus solve specific challenges of stakeholders.

Feasibility
Most ideas do not use advanced technologies and are possible to be implemented by internal staff. There are enough capabilities to develop these solutions, as the ideas are not that technologically advanced. For the ideas of shared coffee moments with employees or communicating voice to the room from home, external partners could be involved. For example the partner who is involved with the VOSMOS. For the communication of voice, this could be included in the ongoing collaboration with Philips Healthcare.

Viability
In terms of business and strategy, the ideas are in line with the vision, as it was created in this project. Most ideas proposed cost some money or some time. The ideas do not generate money as the businessmodel of a hospital works with volumes of patients and insurances. The volumes of patients that can be cared for are though very dependent on the amount of personnel. With a lack of personnel less patients can be served. As there is a lack of resources, and not that much budget available, there are three options. Either the idea saves time or funding can be generated by raising budget via campaigns via the Emma Foundation or budget has to be allocated by cutting costs on a different cost item in the department budget.

The idea 'shared teaching' could potentially save time, by teaching skills and care to parents at the same time, instead of at different rooms. The idea 'perinatology nurse' could potentially save budget as one nurse can be stationed at a room. However, it should be tested if it really serves more patients with less nurses, and if it is desirable to nurses.

In the appendix, a cost estimation of each of the concepts can be found. The costs range from 0 euros (a change in how things are being done) to 5000 euros. Most concepts can be established without very high costs. See appendix 12.

Apart from the three lenses, it is important for ideas to succeed by having internal support and people wanting to further take the ideas along.

Internal cocreation and co-evaluation
In the project I have tried to incorporate as many internal stakeholders as possible to cocreate the vision, road to 2030 and ideas. It is expected that this helps with the probability that the ideas will be implemented and succeed.

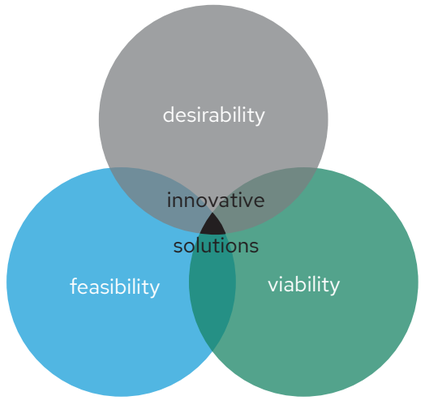


Figure 38: The three lenses of IDEO: desirability, feasibility and viability

9.2 Implementation

As mentioned earlier, the corporate vision of this graduation report has been accepted as the new department vision of neonatology. The change map (road to 2030) is also accepted as how the future is currently seen.

Sharing with management and nurses of AMC and VUmc in the coffee rooms
The road to 2030 has been shared in a management alliance meeting and multiple coffee room sessions at AMC and VUmc.

Further implementation
The ideas will be considered and taken along according to several caretakers. One of the nurses who also is doing a study in business administration will take the vision and the change map as a starting point for a further developed strategy and plans of organisational change. She will be developing strategic goals, critical success factors and internal organisation such as key performance indicators. Some **first ideas for strategic goals** have been set.

Possible strategic goals
1. **Most employees (80 % or above) indicate that they are content with their work and work conditions and feel involved.**
It is advised to measure this qualitatively. In surveys or talks with employees several questions can be asked such as if they would advise others to work at the Amsterdam UMC and why (not). How would they rate their work? What do they like and what do they dislike. With these evaluations improvements can be made.
2. **Most parents (80% or above) are content with the care and service provided by the Amsterdam UMC.**
It is advised to measure this qualitatively. A score is expected also to be very dependent on the outcomes of the health of the child if it is being asked in the moment. Asking parents at different moments in their journey if they are satisfied with the care and would recommend the hospital to others, can give some indication in parent satisfaction.
3. **In 2026 multiple shared projects are being done by obstetrics or maternity care and neonatology, or with hospitals in the region to improve parent experiences.**
One of the projects could be the improvement of transition to other hospitals, for example.

Figure39: Final presentation to management, discussing implementation

9.3 Risks

To evaluate the change map, several risks have been taken into account, to be able to make the change a success.

Amount of nurses and their job satisfaction
Without nurses, there will not be a well-working perinatal center, as the case study of OLVG shows. This is the largest risk to successful innovation and change. Improving nurse satisfaction and good change management can help reduce and mitigate this risk. Also making the department an attractive place to work for new young personnel is key.

Financial support for innovations
When there is too little support for realising innovations, it will be difficult to implement these innovations. Budget will have to be allocated in the department's budget or via fundraising for example via the Emma foundation.

Implementation of innovations
Too little time spent on implementation of the concepts as daily practices continue, is a considerable risk. Also responsibilities, possibilities and rewards concerning innovations should be clear. Who is responsible for which innovations? Are people trained in innovation? Do people get time and support for realizing ideas?By defining thanswers to these questions, this risk can be mitigated.

9.4 Recommendations to ICN Amsterdam UMC

Apart from recommendations in terms of implementation, risks, desirability, viability and feasibility, some general recommendations are given.

Focus on employee experience
To make the new PNC a success, personnel is key. There is a nurse personnel shortage. If employees are not content in their work or the changes, there is a large chance that personnel will leave. This could result in the same results as OLVG Oost, where some parts of the new center had to be closed.
One of the factors that is stated important in literature is autonomy. It helps if as a nurse, you can help cocreate solutions for the problems you walk into. Having more control over the way you do your work offers quality and prevents work stress. Giving nurses more space and more influence on the work they do will help with the satisfaction in work (NOS, 2020). To be able to have autonomy and create solutions in work, there are several managerial practices that affect creativity. They can be put into six categories: challenge, freedom, resources, work-group features, supervisory encouragement and organisational support. Creativity thrives when managers let people decide how to climb a mountain, not to choose which mountain. Giving clear challenges or strategic goals can enhance people's creativity to think for themselves about how to tackle the challenges (Amabile, T., 1998). Giving nurses the power to start initiatives to reach the vision should be recognised and encouraged.

Focus on training nurses
As can be learnt from the case study of OLVG Oost, training personnel for the new care concept is important. As stated in the article by Stelwagen et al. (Stelwagen et al., 2019), it can be found that it is difficult to prepare with the right training beforehand to be able to adopt coaching roles to parents for nurses, as most nurses do not have experience in working more intensively with parents. Though, it can be very worthwile to cooperate with hospitals where this is already the case, so nurses are more prepared by sufficient training for this change of tasks and responsibilities. It is advised not to wait with appropriate trainings and preparation, to create a smooth transition to the new care concept.

Open Couplet Care rooms in 2023
In terms of change management the next three years will be hectic times, especially for nurses. Soon the teams will merge from AMC and VUmc, and nurses will start working in a new care concept, which will largely affect their work. For doctors it is expected to have less of a large impact on the way they work. Though for nurses it will. Working at SBUs will be a challenge, it is advised not to open the couplet care rooms in the first lob in 2021. First let nurses learn to work at SBUs with a new team, in a new composition. Then, in a later stage, in 2023, open up the couplet care rooms, is the advise. If you change too much at once there is the chance that employees will leave.

Most important of all: listen to your employees in times of change
In order to mitigate the risk of job satisfaction (and amount of nurses) it is important to listen to your employees very well. What are they walking into? Why are some nurses leaving? It is important to keep as much personnel as possible to make the PNC a success and who can better know what is going on and how to potentially improve it than the nurses themselves?
It could also be helpful to put the focus on successfull milestones with all nurses, by celebrating positive moments together in the alliance and renovation period. A transformative leadership style of showing the dot on the horizon, what are we all doing this for, can help. We are doing this because, as a team we want to create this great place for employees ánd parents.

Show extra appreciation to the employees that stay during the changes
The nurses who stay during the time of change have more to endure due to less colleagues and high work pressure during the change. Showing the nurses appreciation is highly valued, according to nurses at the VUmc. This could be via a relaxation chair or some small treats during night shifts, improved communications, there are several ideas amongst nurses.

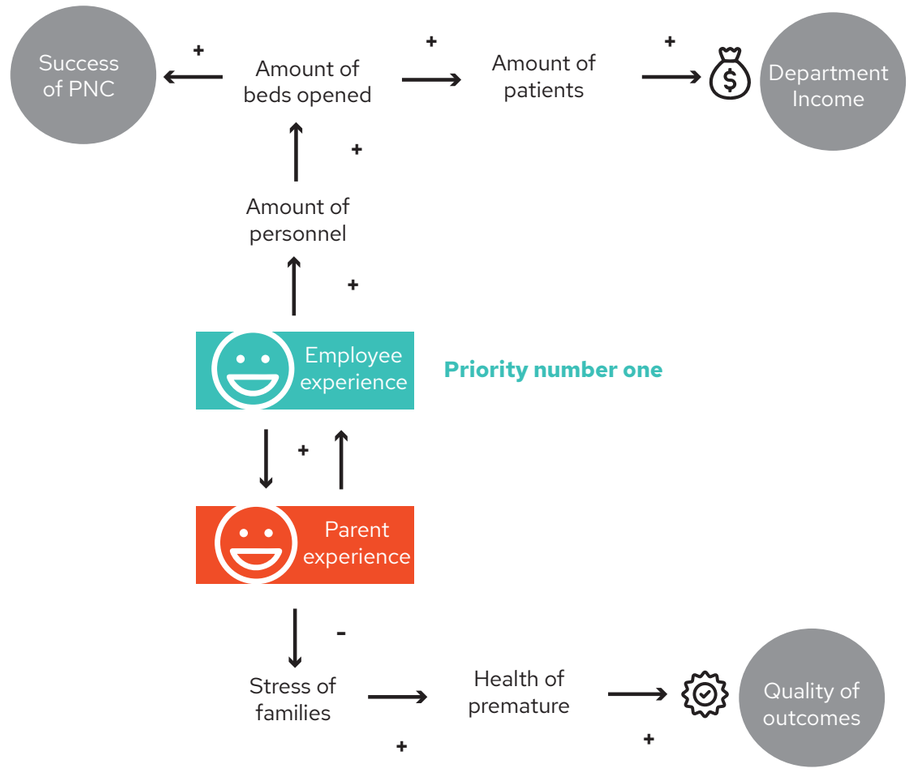


Figure 40: Influence of employee experience and parent experience on the business model. Plus represents a positive influence (if value 1 increases value 2 increases). Minus represents a negative influence (if value 1 increases, value 2 decreases and opposite). It is proven that stress of families have a negative impact on the health of the premature, and that employee experience has also an impact on the quality of care (Civic & Holt, 2000 ;Manning, 2012; Lu, 2019)

9.5 Recommendations to designers: design for change

All methods have been used in this project to propose change and enhance eagerness to change and improve. In this chapter, recommendations to the design field are given on design for change. It shows great potential for designers to gain knowledge on this topic to be able to make change happen. As design moves more and more to a systemetic approach and organisational design is gaining ground, it is of great value to gain insight in how to engage employees to embrace change.

Change management and different types of change

Change management is the management of different types of change within an organisation. Types of change are (technological) innovations, process innovations, renovations, crisis, consumer habit changes, pressure from new business entrants, acquisitions, mergers, and organizational restructuring (HCMI, 2014). All types of change, whether it be mergers, renovation or innovations, have one thing in common. They may affect the people working at an organisation and change the status quo (the way things are done). People usually do not change from themselves and therefore such a process could be managed by a change manager.

The process of organisational change starts with a vision and communication

Organisations need to go through continuous change to keep up with the market and keep their sustainable competitive advantage. 'Mastering the art of changing quickly is now a critical competitive advantage' (Ewenstein, Smith & Sologar, 2015). This project shows a combination of changes: a merger, planned innovations (in the renovation) and proposed innovations. They all affect employees and how they work. The change that organisations want to achieve is most often shown in a vision that defines where the organisation needs to go, and a strategy that explains how to get there. The whole company or department needs to be involved to implement the change. In figure 41, a change process is shown in five change intervention steps. This process is based on the model of Rutte (2019).

Organisational change through design

More and more, designers are not only involved in the design of objects, services and ideas, but also in organisational change. Peter Coughlan for example, is an organisational design and change consultant at IDEO. He focuses on the later phases of change (that result from innovation propositions). 'At IDEO, even though the ideas we came up with were often quite compelling, it was sometimes difficult for our clients to implement them.' The organisation needs to change internally to be able to make innovations happen (Yee, Jefferies & Michlewski, 2017).

Taking into account other changes in proposing change interventions

In this thesis, a change map has been created, as there were multiple types of changes about to happen at ICN. A merger affecting the departments, a renovation that means a new way of giving care, and the need to further innovate at the new PNC. These things all affect employees and therefore it was combined in a change map with one corporate vision.

The change mapping process

In this project, there was a focus on the first two fases of the change interventions of figure 41.

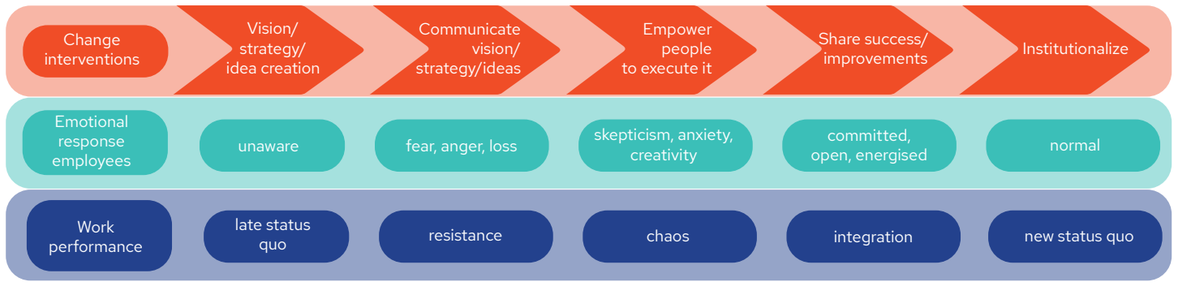


Figure 41: Design for change model, based on the model of Willemijn Rutte (2019), which is based on the theory of several change researchers. The orange change interventions are possible interventions that can be created or enhanced by designers.

As a designer, you might not be the only one proposing change. Your design might be a part of a larger path of change that is ahead. If the changes affect employees it is important to take them along in the whole change process. In a change map (see figure 42) , a designer could plot all change ahead to communicate it to employees. In a change map, the reason to change (a compelling future shown in a vision) can make employees energised about the future and knowledgeable about the road ahead. The next step should be to empower people to make it happen together.

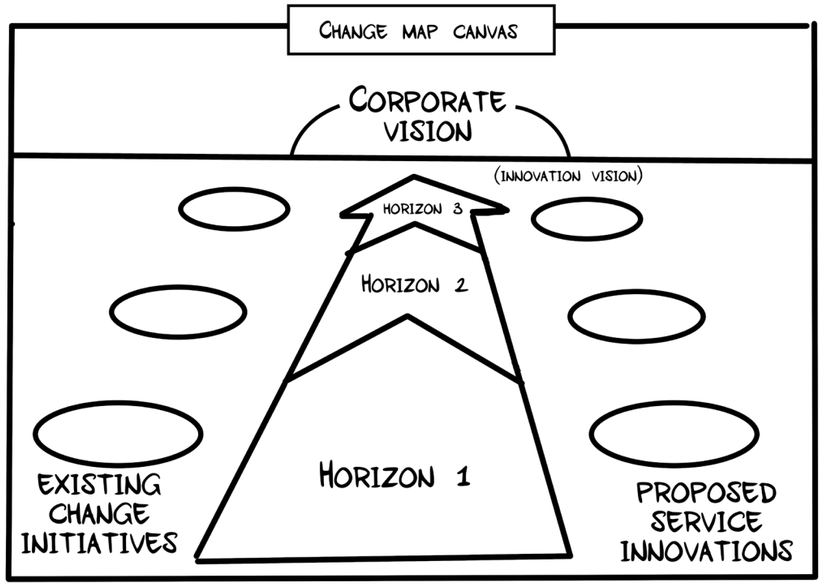


Figure 42: A change map canvas can help in aligning stakeholders and then communicating the change ahead in the early stages of change.

Expert interview Turner Change Management

An online meeting was held with Dr. Dawn-Marie Turner, a Canadian change manager and author of the best-selling book: 'Launch Lead Live: the executive's guide to preventing resistance and succeeding with organizational change.' Turner was fascinated by the change map created in this thesis. At Turner Change management they offer clients change maps, though these represent more of a decision making tool to see how many changes employees face and which changes to proceed. It comes into organisations with multiple changes. However, the change map of this thesis looks more like what she uses in the company as a 'strategic change architecture'. The strategic change architecture provides a map of the changes needed in your organization to successfully implement your strategic goals. This identifies the changes required by individuals in the organisations to reach the vision or strategic goals. It shows a road from the current state of an organisation to the future state of an organisation.

- Change comes in if your new vision, strategy or ideas affect the way of working of employees
- Take into account the other changes if you design for an organisation with ongoing change
- Service and organisational design affects the way employees work, good change management or design for change could improve implementation

9.6 Recommendations to designers: service roadmapping (in healthcare)

In the book of Pfannstiel & Rasche (2019), it is proposed that service design can have high impact in hospital management. There is increasing attention to service design in the healthcare field. Also in the paper of Fry (2019) it is stated that hospitals can benefit from service design, as though designers should be aware of the extraordinary context and cocreate as much as possible. As designers must convince managers on the power of patient experience, incorporating it in an innovation roadmap, vision and strategy could be a good solution to take service design in healthcare to the next level. Almqvist (2019) proposes that service design roadmapping can improve implementation of service design in healthcare.

Service roadmapping in literature

While Almqvist proposes roadmapping more as a handover process for service design, Simonse (2018) proposes that roadmapping should be a part of front-end innovation, setting first the vision as a direction and then creating service innovations. In this project the theory of Simonse has been followed, starting with a vision first. It is important to know what to reach in the far future first, to be able to propose more radical and creative ideas than to first focus on current problems.

Service roadmapping for multiple stakeholders

The roadmapping in this thesis has been not exactly as in the theory of Simonse (2018). First of all, a public health sector is less affected by competition and trends in society. Therefore, only developments have been taken into account but no trends. Though, more importantly, multiple stakeholders have been incorporated in the service roadmap. In healthcare there are many stakeholders that have a great influence on eachother. Therefore, the focus lies on experiences of multiple stakeholders and their needs, instead of technology and market trends that affect products and services for (oftentimes) one user target group. This roadmap is more focused on users and experiences as is the core of service design. Also in the paper of Kim, Yao & Agogino (2015), where opportunities and challenges in design roadmapping are given, the opportunity of experience-driven roadmapping is stated as a possibility to improve or expand current roadmapping practices. As though in the theory of Simonse (2018) the product-service system also stands central, an improvement in experience can also be organisational, and does not always have to be a product or service. Further research has to be done to validate if this way of roadmapping is applicable also in other situations.

How could service roadmapping be done

Service roadmapping for multiple stakeholders could be done by putting services as desired experiences under each stakeholder (if there are multiple stakeholders involved) linking to the stakeholder value (needs), and showing stakeholder interactions. Applicable to the situation, also trend, developments, business model changes and technology trends could be linked to the services proposed. As though, the core should revolve around the stakeholder values (needs) and experiences, just as in service design.

The value of service roadmapping in healthcare

As stated by one of the project leaders of the alliance of the Amsterdam UMC, this project created a story, a red thread through service innovation projects. While being very satisfied with the earlier service design outcomes on employee and parent experience, the link between all the many different service design projects can make it difficult to see what to implement when and how it is adding to a greater goal. In a service roadmap prioritisation in time can be made, and a link to the greater goal, called the (innovation) vision. It structurises different concepts in time. Service roadmapping is expected to deliver great value if several service design projects have been done for a department but a link is missing, to take it to the next level. Though, more research is needed to provide a thorough answer.

Limitations

In the service design roadmap created, there were some struggles with concepts that were improvements to multiple stakeholders' experiences. In this case, the concept was put at both places. However, this might be improved. Also, trends and technology developments have not been shown in the roadmap (making the roadmap to busy) but can be valuable. Lastly, the link between the needs and concepts are shown with a asterix (*) in the roadmap of this thesis. It can become very crowded on a roadmap to show it with lines, as is usually done in design roadmapping. An optimal solution can still be found. Further research could further improve how service roadmapping could be executed ideally and apply and test it to different contexts.

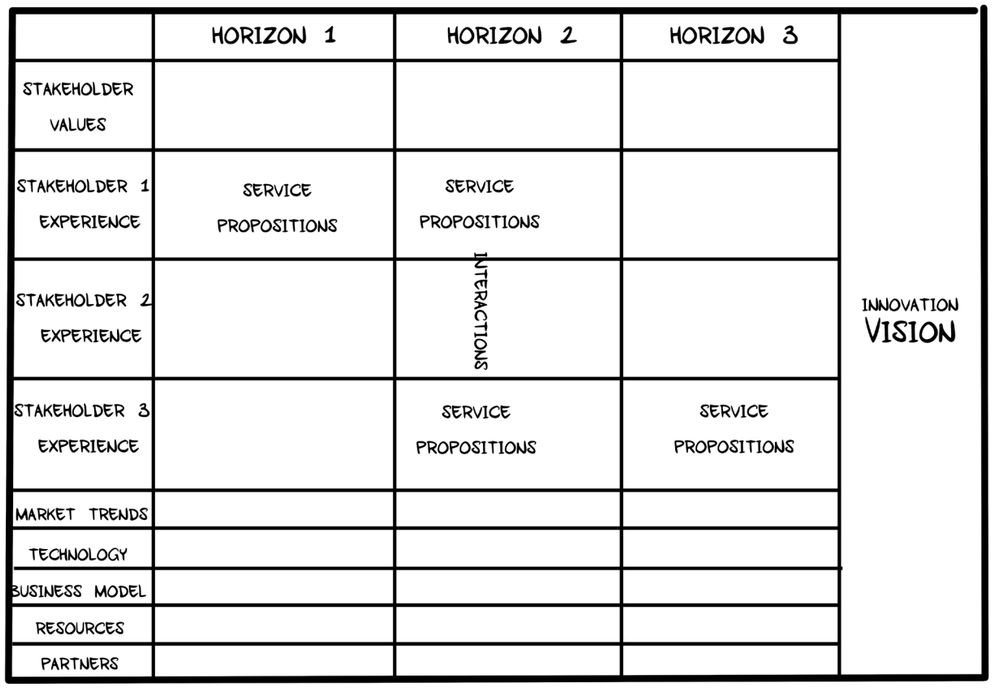


Figure 43: A service design roadmap canvas as it could be used according to this research, with stakeholder values (needs) as key drivers for change.

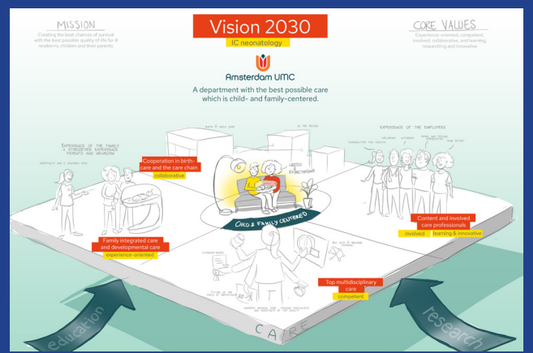
Service design in healthcare is ready for the next step which could be service roadmapping

Putting several stake-holders and future experiences in a service roadmap could be valuable to give a more holistic overview in multi-stakeholder design projects

9.7 Conclusion

Main outcomes
The main outcomes for the Amsterdam UMC ICN department are the shared vision and change map. They are valued by the stakeholders to which they are presented, and thus, the problem stated in the introduction has been sufficiently solved for the department. In terms of implementation and further communication, there lies a task for the department to keep using the vision and change map to make it most valuable. As far as it is known now, people are excited to do that.

A strategy of value creation
The outcome (change map) shows a strategy of value creation. It is expected that increasing value in work and the experience in care can increase satisfaction though also have a positive effect on the quality of care and department income, see figure 40, thus also creating value to other core goals of the department.



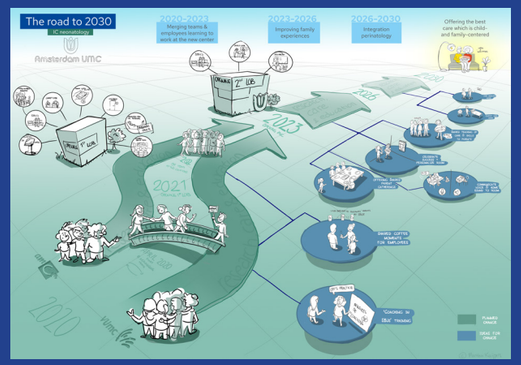


Figure 43: Design outcomes of this thesis

9.7 Video evaluation by stakeholders

WATCH THE VIDEO TO SEE THE REACTION OF STAKEHOLDERS TO THE OUTCOMES

"At first I was somewhat skeptical, but I am pleasantly surprised by the outcomes."
-Subhead of the neonatology department

"I have used the vision in my function as senior nurse FIC for being able to get the relevant trainings. I use the roadmap as well in my function."
-Senior Nurse FIC VUmc

"The road is valuable, it gives a good overview of the future"
-Nurse at VUmc

"I really like all the ideas, I hope they get implemented."
-Parent

"I think this is really valuable to the department in quite a difficult time."
-Change manager alliance Amsterdam UMC

10

References and appendices

This chapter shows the references used in this graduation project, and appendices showing extra or deeper information used in the other chapters.

In this chapter:

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10.2 Appendices

Appendix 1 : Current visions and missions

Current visions and missions

For the merger of the AMC and VUmc, most departments created a common vision of the department. The visions of the relevant departments for this graduation report have been gathered. This is the vision of the Amsterdam UMC, the vision of the VKC, the vision of the PNC (this vision had been created specifically for the building of the center) and the vision of the neonatology department.

Vision and mission Amsterdam UMC
In 2019 the Amsterdam UMC has further positioned itself and is busy with creating a new vision and strategy together. This is the core of the vision document:

The Amsterdam UMC AMC and VUmc are joining forces. Together they want to build towards a society where disease are being prevented and patients are being healed. They are there for patients with a special medical condition and complex treatment. They want to educate the best doctors and nurses. Together they are in the top of scientific research and make medical breakthroughs possible for as many people as possible. They reach out to the Amsterdam region and everyone who wants to foster healthy life and high quality of care.

The strategy consists out of five building blocks:
*Cooperation
*Patient-centred care
*We are innovative
*We strive towards the top
*We are selective

The ambitions are being made true by hardworking colleagues in all layers of the organisation. The values they search for in colleagues are being caring, being enthousiastic for initiatives and being fundamentally curious.

The vision and mission VKC
The core of the vision of the VKC is as follows:

'We deliver, together with **the patient and his/her surroundings, evidence based care**. The patient and his/her **family** are **central** in this. Our care concept is focused on joint decision making. Participation and focussing on having the patient make their own choices, is very important. Care has to be adapted to each individual situation. The vision is to work from three core values:

Open
Being open and transparent to patients, parents and other dear ones. Being open in communication . An open atmosphere is important for giving and receiving feedback.

Sensitive
Care for patients and their quality of life is central. Being caring and open to colleagues is also very important. Having respect for different opinions, individual qualities are seen and used best in the workfloor.

Innovative
We want to continuously and evidence-based improve our care. Scientific research and implementation of research results are important. We develop and evaluate new ideas and techniques.'

The vision and mission PNC
Our vision on care is focused on **participation of the patient and his or her surroundings,** where the care is being given on the **best available evidence.**
Our core values are shared decision making, family integrated care and developmental care. The seven prioritized points are as follows:

Family integrated care (FIC): mother, partner and child always together.
During the intake of mother and child at the PNC, the family is key in delivering good care. If the mother has to be hospitalized before birth, the father or family members are as much as possible involved in the care process. Also after birth - just as in daily life- they play a important role in caring for their (ill) child. Taking part in the care is more than changing diapers. For example: feeding via a probe, assisting the nurse in the care actions, daily reporting, and participation in the daily visits. Though the exact boundaries still have to be defined, some actions cannot be done by parents themselves. This care will happen under supervision/coaching of the caregivers, especially the nurses. Parents will also get trainings so the care is being given in the right way and in a responsible manner. Factors that impede the presence of the parents and thus the participation in the care are as much as possible being deducted. Examples of this are care at the 'Single bed units' (SBU) with a place to sleep for one of the parents and a possibility for day-care for other children of the family. The role of caregiver can be taken by the father, the mother but also another family member. Though parents are encouraged to take part in the care process, it is never an obligation. There is always the freedom of choice. The role of the parents in the care is dynamic and can differ between parents but also over time. Though more research is needed, the first studies and experiences show that the 'family integrated care' principle within neonatology possibly leads to less stress with parents, more and longer breast feeding, less incidents, better growth and shorter hospitalization times.

Single bed units (SBU)
The SBU's reason to be is that a pregnant woman and her family or newborn and the parents are as much as possible together and being taken care of in their own room. The most important improvements in care on a private room are better hygiene and less chance on infections, more privacy and better bonding between parents and child. It can lead to quicker recovery and shortened hospitalization. This way of care fits FIC. Participating in care can only happen if the parent can be near the incubator 24/7.
For possible drawbacks of SBU's, (creative) solutions are being invented. The drawbacks can be: less contact between mothers-to-be or parents, too little stimuli for small babies (neonatology), a lack of overview (neonatology). A solution could be a parent lounge where interaction between parents is possible, and having enough medical staff. If parents rather not have SBU care, as a request from the parents, it should be possible to have care with multiple patients in a room. Ideally those would be sliding walls between SBUs.

Minimizing transport of a patient
Transporting an ill mother or child is a burden for the patient and thus an undesirable situation that has to be prevented as much as possible. This means transporting patients between hospitals but also in the hospital. To make sure that a mother-to-be or a baby to another third line hospital, the ambition is there to have enough capacity in the new PNC so there is always enough space for third line, complex, care for mothers or babies from the region North-Holland and Flevoland.

PNC facilities and work climate
Within the PNC all services are present for FIC and minimizing patient translocation. The SBU needs enough space for patient care as well as parents to stay at the PNC. There is also place for our ambitions in research, education and follow-up. Though the focus in the SBU is care, there should also be enough facilities for the parents for longer stay: a good bed, TV and internet. Also other practical facilities are mentioned that should be present at the SBU,. To keep an overview in the SBU concept, there should be transparent view points: a lot of glass and a lob-formed structure of the rooms.

Further reaching integration perinatology and neonatology
The unity of parents and child is also visible in the structure of the PNC. All the links in the health care chain are being put into one department (PNC) on one location, where the importance of the chain is being guaranteed. Partly, the care of mother and child will physically take place in one shared SBU ('couplet care'). This will - in comparison to the current situation - also improve connection between the care professionals perinatology and neonatology (as they are together responsible for the mother/parents-child unity). It has to be taken into account that there are differences in competences and qualifications of employees.

Integration PNC and VKC care departments and facilities
Within the PNC, there is care for the pregnant women and newborns within one department at one location. There are of course also other care departments and facilities that are very closely connected to the PNC. It is of importance that the balance and the coherence with the whole of the VKC are being taken into account, before more specifically creating the interior for the PNC.

Atmosphere and appearance new PNC
The new PNC should appear homely, where important aspects are a calm atmosphere and reduction in stimuli.This is the right balance with the needed facilities to provide efficient and safe care. The equipment should thus be out of sight as as much as possible though reachable for care providers. The atmosphere should be in line with the atmosphere of the new Emma Child hospital. To create a sense of rest, the patient can be reached via different walking routes by parents/ family/visit and by the care professionals.

The vision and mission of neonatology

The vision and mission of the neonatology department consists out of a vision on education, research and care. I will focus on the vision on care, therefore only this part is shown.

Mission statement IC Neonatology

1. With the goal to improve chances of survival and to maximise the possible quality of life, we deliver top care to ill newborns and their parents
2. Optimizing the neonatal care and outcomes, by initiating and/or participating in scientific research.
3. Educating highly qualified care professionals with the goal of delivering top care on local, regional and national levels.

Vision on top care

To realise the first mission statement top care there are the following points:

1. The neonatal care is evidence based and goal oriented
2. The neonatal care has an innovative character including a short implementation time for new evidence based diagnostics and treatment
3. Developmental care is an integral part of the care process
4. The parent(s) participate as an appropriate partner in the care for their newborn(s) according to the family integrated care principle
5. The child and (ill) mother are preferably not being parted during hospitalisation
6. Newborns are being cared for in an individual room where one of the parents has the possibility to be present 24/7
7. Parents get adequate support during hospitalisation
8. Top care is a team effort, where - nexxt to the parents - all care professionals and supporting services play an essential role. It is of great importance that team effort stands above individual needs.
9. The work surroundings for the entire team is pleasant, safe and functional
10. The care for the newborn and accompaniment of parents is also after clinical hospitalisation continued for at least 8 years via the policlinic neonatology. It is a multidisciplinary approach via the follow-me principle.
11. There is an intensive cooperation with regional hospitals and instances involved with the chain (care) for newborns.

Vision on scientific research

To realise the second mission statement of scientific research it exists out of the following points:

1. Scientific research happens in the medical and nursery discipline
2. Scientific research is an integral part of good care
3. Scientific research is essential to further improve the neonatal care
4. Scientific research is a team effort where all disciplines are involved.
5. A child can be involved in multiple researches though this depends on the research question, research set-up and the impact on the newborn and his or her parents.
6. Locally initiated research happens preferably at one of the research topics of IC neonatology
7. De IC neonatology participates in the national (N3 consortium) and international research projects
8. There is a research coordinator present at the department
9. There are research nurses at the department

Vision on education

To realise the third mission statement of education there are the following points:

1. There is a participation in the education to basic doctor (basisarts), pediatrician, pediatrician-neonatologist, ICN/HC nurse, Physician assistant, and ventilation practitioner. Also other care professionals (being educated) are welcome for internships
2. There is a safe educational climate
3. There is a good balance between education and a student being useful for the practic
4. Education is being seen as an important academic pillar and educators and educating groups will spend sufficient time and training for doing this task.
5. There is an extensive cooperation with hospitals in the region and instances.

Appendix 2: Additional information on developments

Ethics

Ethics is an important part of neonatology. There is always a question of quality of life or letting a child live. Neonatology is letting small babies artificially live, that would have naturally passed away. Because of ethical issues, also at the Amsterdam UMC, a medical ethicus is sometimes involved in making decisions with doctors and parents.

Children experience effects even in puberty

Children that are born prematurely experience the effects in later stages of life. Their disadvantages are experienced longer than previously thought. This is the conclusion of Sabrina Twilhaar with her research at VU Amsterdam. Even in puberty premature children notice the effects. The quality of life in later stages of life is key. How can you predict this? (NOS, 2019)

Technology can do more, but should we want that? A discussion of treatment from 22 to 26 weeks

While many other countries are treating below 24 weeks, we should focus on quality of life after care, according to Manon Benders. At UMC Utrecht, around 20-25 of the 30 premature children that have passed away were decided upon to stop treatment. This amount is high, as technology can do more than we should want. The quality of life can be highly affected due to physical and brain damage. (Köhler, 2017) The LUMC has changed their treatment from a former minimum of 23 weeks to 25 weeks back in 2001, while for example in the USA infants are treated from 22 weeks on (Trouw, 2001).

Economic Developments

Costs in healthcare are structurally growing. The costs of care in the Netherlands are relatively quite high. For the government, care is the highest cost item in its yearly budget, namely 24.6 per cent on the budget. (Baarsma & de Boeck, 2017)

Value based healthcare (VBHC)

In 2006, the concept of VBHC was first introduced in the book of Michael Porter, called 'Redefining Health care: creating value-based competition on results'. He suggests a shift to move from volume- to value-based care. In VBHC, one measures the outcomes of care and the needed costs for this outcome. (Porter, 2006) (Porter, 2009)

Amsterdam UMC

The Amsterdam UMC is a financially healthy organisation (Amsterdam UMC, 2018). One of the largest projects of the Support Emma Foundation is the renovation of the NICU and PNC. Over 130.000 euros have been collected to support the renovation. (Stichting Steun Emma Kinderziekenhuis, 2018). This implies that these projects are success stories, though also that external money is needed to be able to achieve large innovative renovations or projects.

Neonatology department

After a short interview with Lara Talsma, project leader of the alliance of VUmc and AMC for perinatology, and company mentor of this graduation project, it can be concluded that financially the neonatology department will probably not receive more budget in the future, though it will not decline either. Though, nonetheless, one has to be creative. If you want to do something new, another project must stop. Another option is creating a solution which saves work for nurses or doctors and therefore having less personnel needed.

Demographic developments

To get insight in whether the amount of premature infants is expected to increase or decrease, research was done to demographic changes in society.

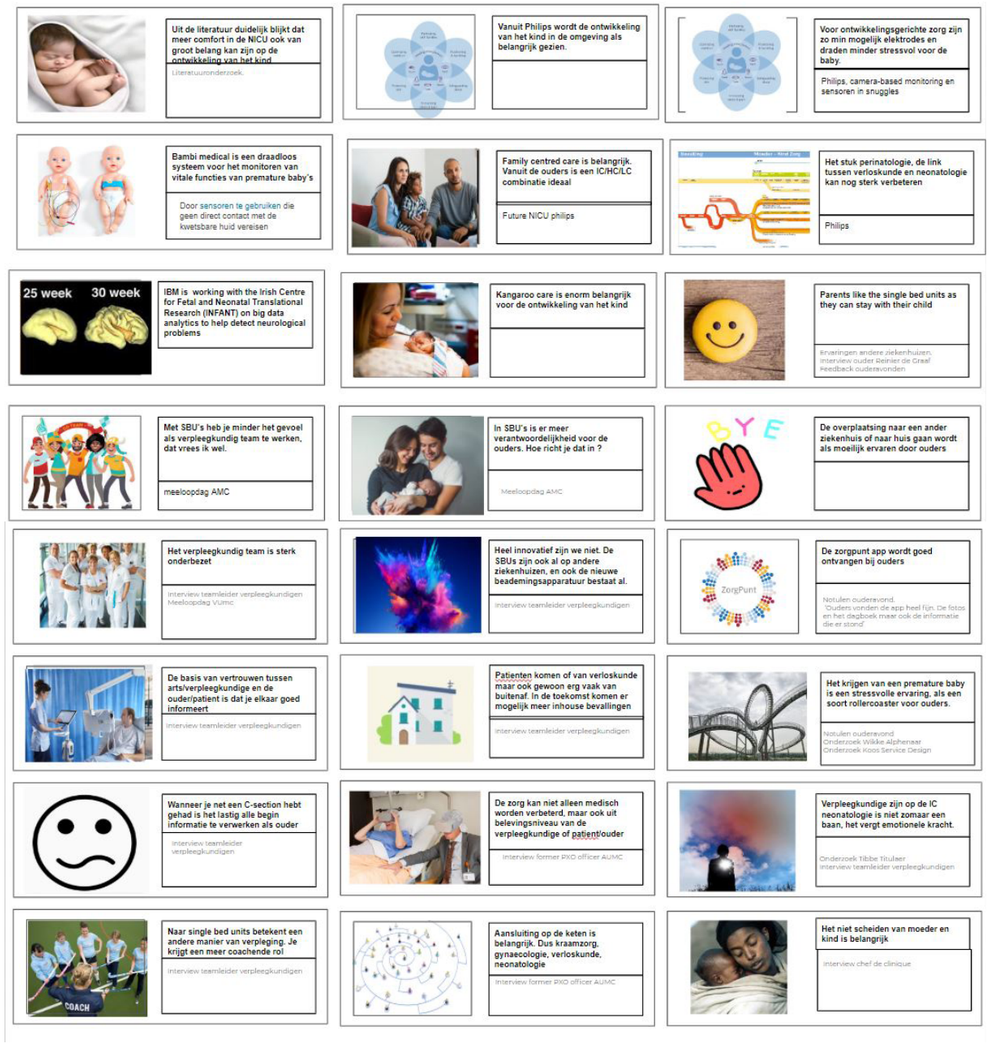
Amount of premature births is expected to decrease slightly, amount of babies at NICUs is expected to increase
The percentage of premature children have decreased between 2000 and 2016. The percentage has dropped from 8,0% in 2000 to 7,2% in 2017. According to data from gynaecologists, obstetricians and pediatricians (Volksgezondheidenzorg.info, 2019-1). Though, the amount of babies of these percentages that are being born and have a need for intensive care after birth, increases. The percentage of prematures being born at a perinatal center increases. With an expected premature birth, women are more and more already sent to a hospital with a NICU. Having birth at such a location increases chances on survival without severe physical disabilities. (Volksgezondheidenzorg.info, 2019-2). In 2000, it was already stated that there is a large need for intensive care places for premature babies (Overheid.nl, 2018) (Perined, 2016).

NICUs are often full
Still, pediatricians are worried about the specialised intensive care departments for newborns. The NICU's are more and more often full. In 2019, a woman had to be transported to a hospital in Ghent, as there was no care available at the NICU. The reason for this problem is probably not the NICU's itself, according to pediatrician Károly Illy. The problem is the need for personnel which is also present at other hospitals. The intensive care units (NICU) are sometimes full, as some high care or medium care babies cannot be placed to different hospitals, as the department at the lower care hospitals are also full. The flow of premature babies from NICU to lower care hospitals seems to be stuck sometimes (Nyland, 2019).

Risk factors in premature birth
Risk factors lead to spontaneous premature birth
A premature birth can happen spontaneously, or be a consequence of medical intervention. Most often, premature birth happens spontaneously. There is a number of risk factors, including age of the mother (being quite young or old during pregnancy), being pregnant of multiple babies, smoking, and having had a premature birth before. While some risk factors are increasing (age of being pregnant), some risk factors are also decreasing (smoking and twins or multiple birth). The amount of premature births is expected to further decrease slightly, though the amount of births at NICUs is not expected to decrease in the near future.

Amsterdam UMC
The new perinatal center will hold more beds for premature infants with a need for intensive care. This is in line with the demographic trends and the acute need for place at NICUs.

Appendix 3: Insight cards



-Als de stress van de ouders oploopt, heeft dat direct negatieve invloed op de gezondheid van het kind.

Koos service design, literatuuronderzoek: Literature shows that during hospitalisation of a newborn at a NICU, the emotional state of parents can influence the condition of the baby on short and long term.

Gevoel van ouderschap is heel belangrijk voor ouders, en dat komt niet meteen.

Overgang naar SBU's.
Plus: goed voor de ouders. Meer privacy en ze kunnen er blijven slapen.

Heftig voor ouders is alarmen: als er een alarm afgaat op de NICU vragen mensen zich af of er al iemand komt.

Koos Service design

Hoe verbeter je het gevoel dat er actie wordt ondernomen, naar ouders toe? Wanneer ouders wachten op zorg.

Er zijn ook zorgen onder verpleging over de nadelen van SBU's. Is er voldoende personeel, hoe houden we overzicht, gaan er niet de hele tijd alleen maar alarmen af?

— Wordt het stressvoller?

Ouders willen graag een gevoel van controle

Ontwerpen vanuit de patientbeleving is een andere manier van denken

Interview former RKD AUMC

De zorg hier in Nederland is een goede standaard. Er is meer geld op de afdeling dan bijv in de UK. Meer tijd om te focussen op zorg.

SBUs zijn een pro voor de privacy maar wel minder voor het zicht op de zorg, ook voor ouders. Wanneer komt er iemand?

Koos service design
Meeloopdag AMC, VUmc

Ouders kunnen meer betrokken worden in de zorg.

Meeloopdag VUmc

De zorgpunt app is alleen in het nederlands.

Meeloopdag VUmc
Hoe geef je info aan ouddoeddoeddoe

Voor de verpleging zijn nog veel onduidelijkheden. Wanneer gaat er wat gebeuren in de komende jaren.

Meelopen VUmc

Ouders met meerdere kinderen: lopen babies de kans op een tekort aan prikkels wanneer er niemand bij hen slaapt?

In het Hospital for Sick Children in Toronto worden premature baby's 24/7 gemonitord met real-time big data analytics

het systeem kan hiermee vroegtijdig voorspellen of er een infectie gaat optreden.

Voor de verpleging is de fusie soms moeilijk. Meesten hebben goede hoop. Sommigen het idee dat alles op de AMC manier zal gaan

VUmc

Vanuit de verpleging wordt de gevoelskant als belangrijk ervaren bijvoorbeeld d.m.v. family integrated care.

Dit is het belangrijkste in de visie, aldus een aantal verpleegkundigen. Staat er nu nog te weinig in.

Timothy Singowikromo (25) heeft een oplossing. Een babyscanner die van buiten de couveuse meet en berekent hoe groot de baby is.

Ontwikkelingsgerichte zorg en family integrated care wordt belangrijk gevonden

en/maar opgepakt door de verpleging ook grotendeels uit eigen initiatief

Wat wordt er bedoeld met FIC, hoe neem je werknemers daarin mee en hoe ziet het eruit op de werkvloer?

Meelopen AMC

Biomedisch ingenieur Rohan Joshi promoveerde 2019 bij de TU/e met zijn onderzoek naar algoritmen om het aantal alarmen op de neonatale intensive care-units te verminderen.

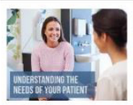
Door het aantal non-actionable alarmen te verminderen kan de gezonde groei omgeving van de baby verbeteren.

Hoe lever je ontwikkelingsgerichte zorg als de baby slaapt, maar je wil nog even iets gedaan hebben zoals voeding voordat de volgende shift begint?

Verhogen SBUs de kans op alarmmoeheid en verlagen ze daarbij de patientveiligheid?

Meeloopdag AMC

Hoewel de medische discipline steeds beter is geworden in het redden van levens van premature baby's, zijn we ons ook steeds bewuster van de omgeving waarin premature baby's verblijven, en het effect van die omgeving op hun neurologische ontwikkeling en kwaliteit van leven.



Understanding patients and delivering a good patient and carer experience should be a core objective for health organisations, according to E. Fitzgerald.

Literatuuronderzoek. (KPMG Health)

Gebruik van big data en machine learning kan de monitoring en zien aankomen van infecties verbeteren

'Big data for small babies', was one of the four projects within the ADAM programme, initiated by the executive board of the UMC Utrecht.

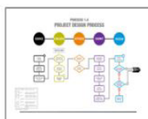
Costs in healthcare are structurally growing. It is labour intense, and medical technological developments are expensive

Literature ; Rabobank

.Door de tevredenheid en beleving van werknemers te verbeteren kan de kwaliteit van zorg worden verbeterd.

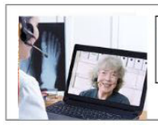
literatuuronderzoek
Job satisfaction is considered to have an important role in the quality of care for patients. (Lu, 2019)

Products are being designed to create more connectedness between mother and child. Think of Hugsy and Obi.



Innovation doesnt always have to be technologically advanced. A simple process improvement can have a large impact on how much care is needed.

Literature, Rabobank

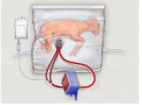


Telehealth wordt steeds meer gebruikt in de zorg

Products are being designed to create more connectedness between mother and child. Think of Hugsy and Obi.

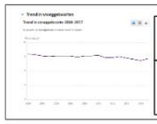
Children experience effects of being premature born, even in puberty

AR/VR is in opkomst in health



A recent test with an artificial uterus shows positive results concerning letting lambs lungs mature.

The minimum age of treatment is an ethical discussion. Quality of life after care is key.



The amount of premature births is staying relatively stable (2000-2016). Though the amount of NICU places needed is increasing.

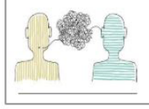
-Literature research

Er is nog informatie die kan worden aangevuld in de zorgpunt app

Ook de kosten van RMCD kunnen worden gedeclareerd, wisselend per zorgverzekering. Ouders wisten dat niet

Digital technologies are supporting health systems' efforts to transition to new models of patient-centered care and "smart health" approaches to drive innovation, increase access and affordability, improve quality, and lower costs.

The NICU's are often full. In 2019, a woman had to be transported to a hospital in Ghent, for example



Communicatie naar ouders kan beter. Ouders krijgen nog steeds erg veel formulieren, zoveel dat ze het niet meer precies weten.

Arts gebruikte term BPD alsof het voor ouders al duidelijk was dat hun kindje dit had, maar dat was bij ouders nog niet duidelijk. Ook een ouderpaar dat niet wist of het een jongen of meisje was.

De informatie uitwisseling tussen de kraamafdeling en de neonatologie is niet altijd optimaal geweest.
-Feedback ouderavond

Alle moeders hebben het kolven als zwaar ervaren.

-Ouderavond

De informatieverstrekking rondom opname wordt wisselend ervaren.
-Ouderavond

Verpleegkundigen ervaren hoge druk en stress

research Tibbe

Het is belangrijk dat we als ouders zelf kunnen meedraaien in de zorg voor ons kind

Ouderavond VUmc 15-10-2019
Trainingen geven aan ouders
Vraag is: wat wel en wat niet. wat is de grens?

Ook de informatieuitwisseling tussen verpik en ouder is belangrijk

Een van de ouders wist niet dat de voeding omhoog was geschroefd. Zij kwam met te weinig melk aanzetten en moest opeens veel meer kolven
Goed: vaak dezelfde verpikondige bij ouder

Absentie en burn-outs onder verpleegkundigen zijn een probleem

Als ouders zijn wij heel dankbaar

Ouderavond VUmc 15/10
'Ik heb echt enorm veel respect en waardering gekregen voor de verpleegsters."

Als technologie het niet doet, komt dat onprofessioneel over, en wekt het stress op bij ouders

Echo apparaat deed het niet bij een van de ouders. Monitor deed het niet bij een v.d. ouders
Webcams deden het niet.

het is belangrijk de future workforce op te leiden voor AI-enhanced diagnostics

Moeder vader en kind moeten zo min mogelijk gescheiden worden.

-Vader kon niet bij moeder slapen op verloskamer
-Ouders geven aan het samen te willen kunnen verwerken.

Ouders zouden het fijn vinden meer bij de visite te worden betrokken.
Family centred rounds

Servicegerichtheid en communicatie van verpleegkundigen is heel belangrijk.

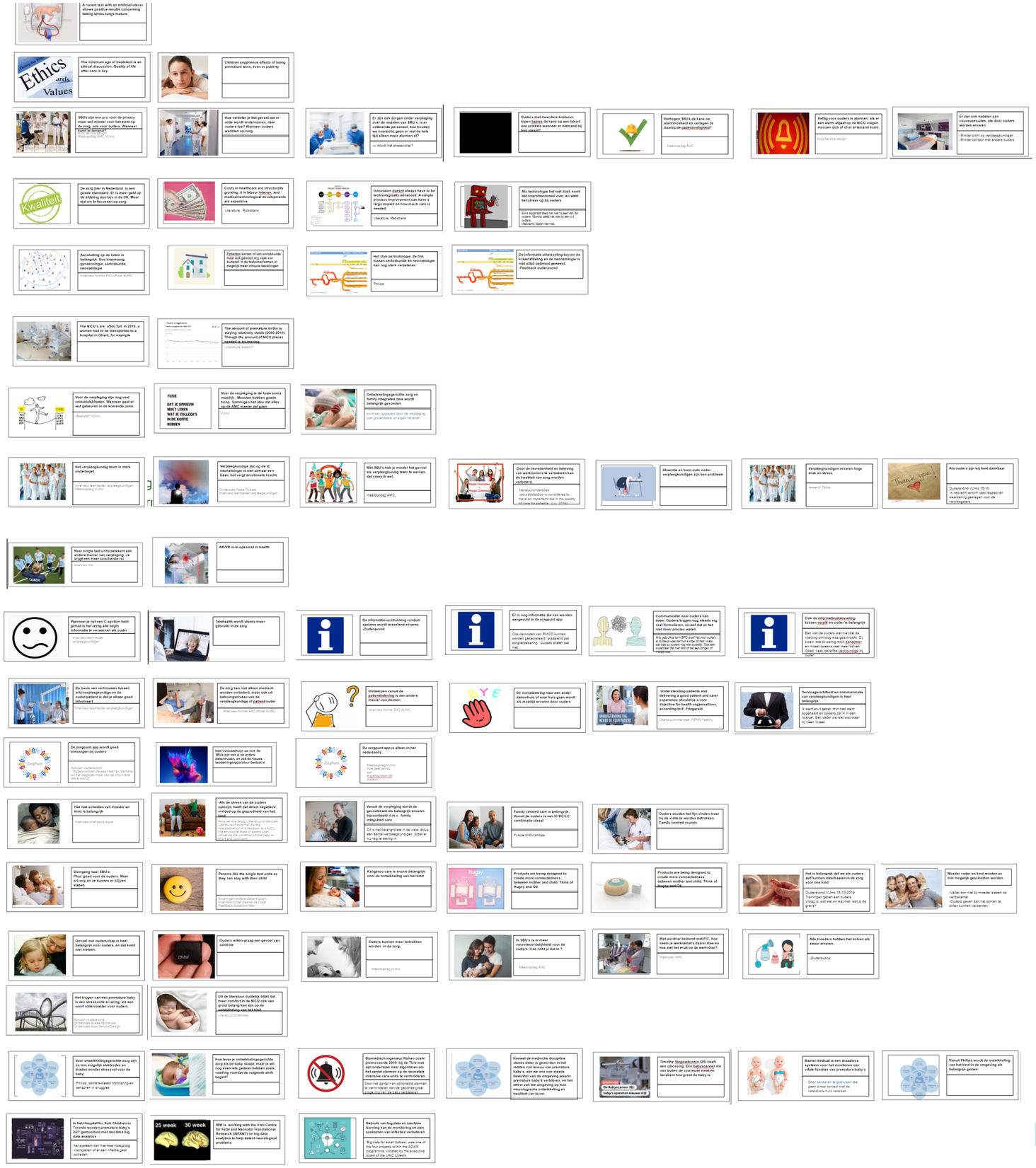
Ik werd eruit gezet, mijn bed werd opgehaald en opeens zat ik in een rolstoel. Een vader die niet wist waar hij heen moest

Er zijn ook nadelen aan couveusesuites, die door ouders worden ervaren

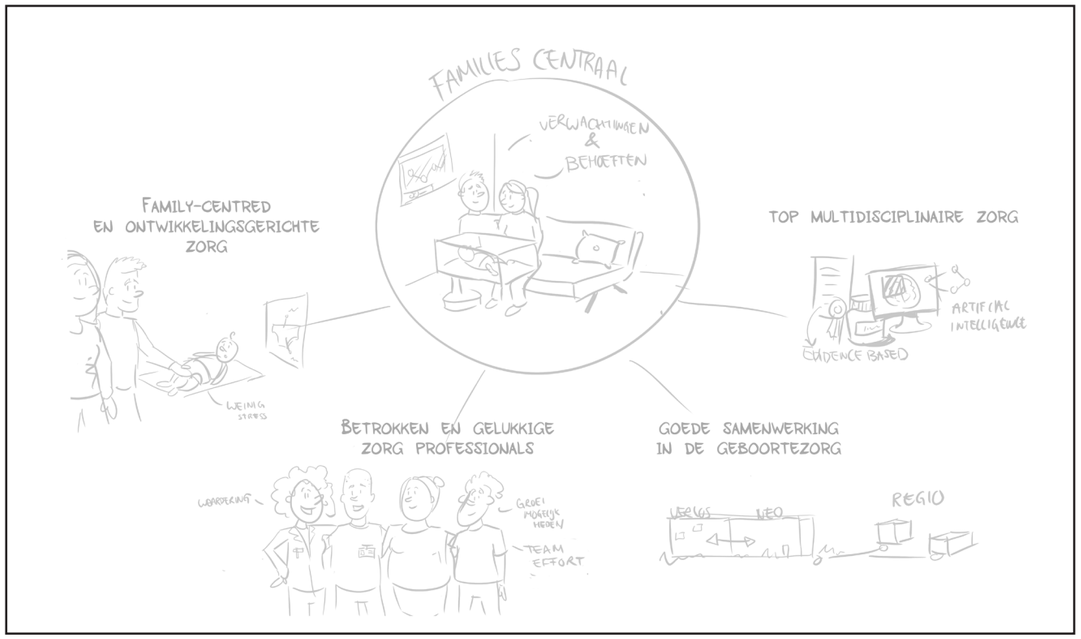
-Minder zicht op verpleegkundigen
-Minder contact met andere ouders

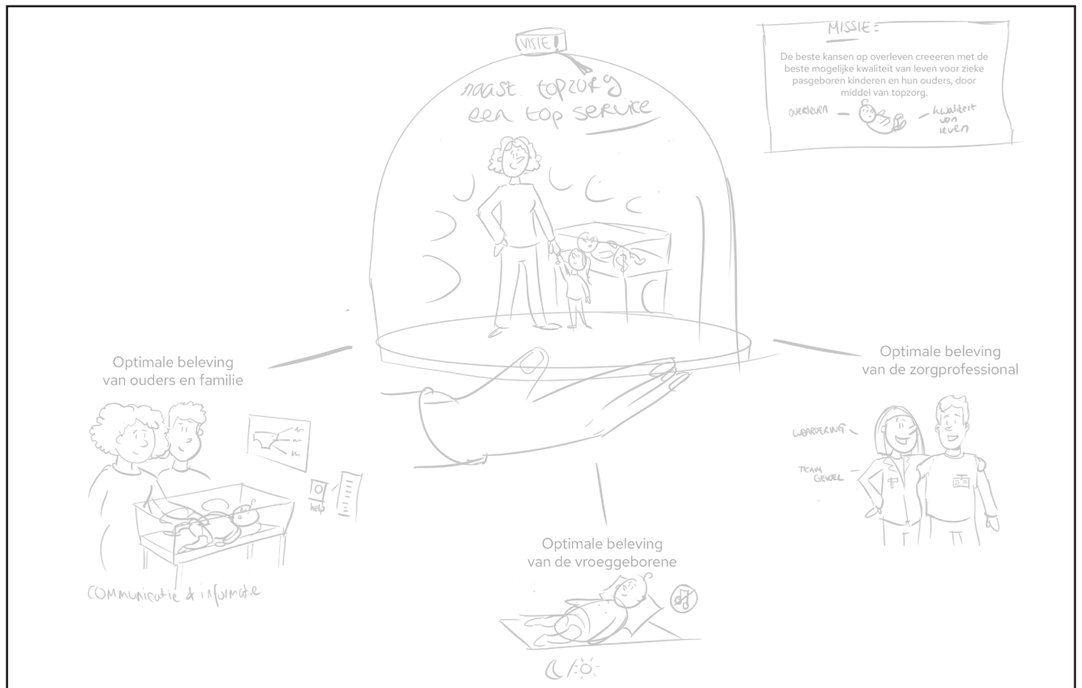
Appendix 4: Value mapping

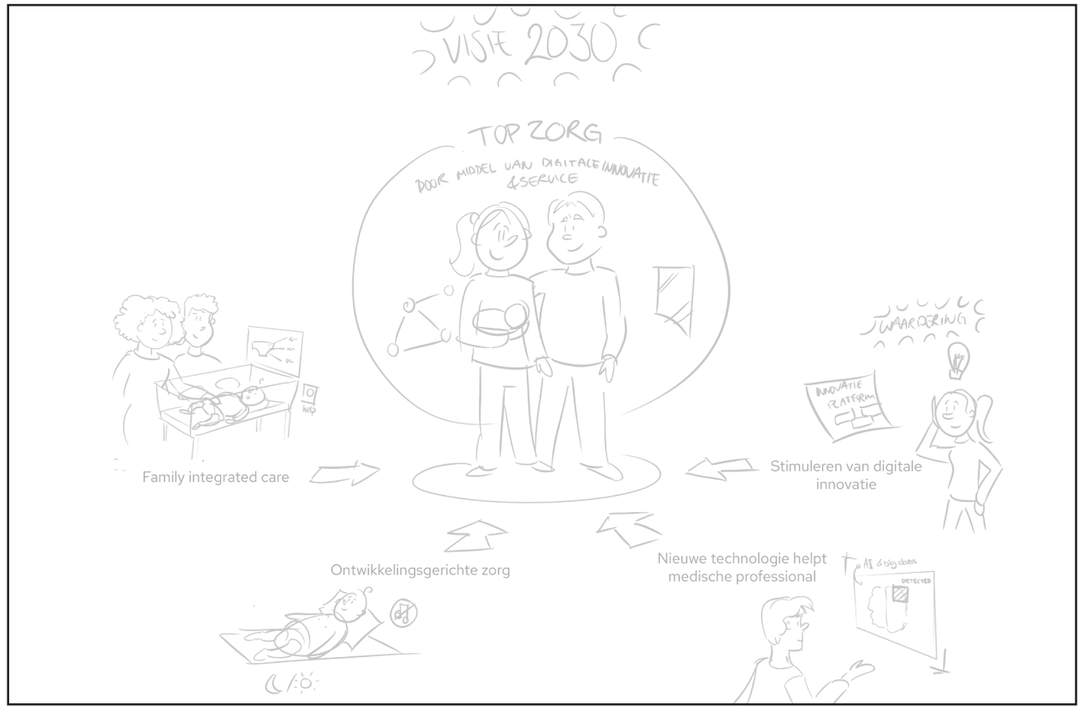
	Verder dan 2030
	Hoe vroeg moet je willen gaan
Verbeteren challenges SBUs	Nadelen SBU's
Lage kosten hoge impact	Financiele haalbaarheid
Verdere integratie perinatologie	Communicatie en samenwerking perinatologie
Verbeteren van werk-nemer ervaring	Volle afdelingen doorstroom en capaciteit
	Communicatie management- vpl bij veranderingen
	Werkdruk verpleegkundigen
Veranderende rol/ werkzaamheden VPL	Veranderende rol verpleegkundige/ zorgverlener
Informatie, communicatie, hospitality naar ouders	Face to face informatie tussen zorgverlener en ouder
	Servicegericht-heid
	Zorgpunt 2.0
Families centraal	Families centraal in de zorg
	Binding ouder en kind
	Ouders meer verantwoordelijkheid
Helende omgeving voor pasgeborenen	Comfortabele huiselijke omgeving
	Stressloze omgeving voor ontwikkeling kind
Big data en machine learning voor kwaliteit	Big data

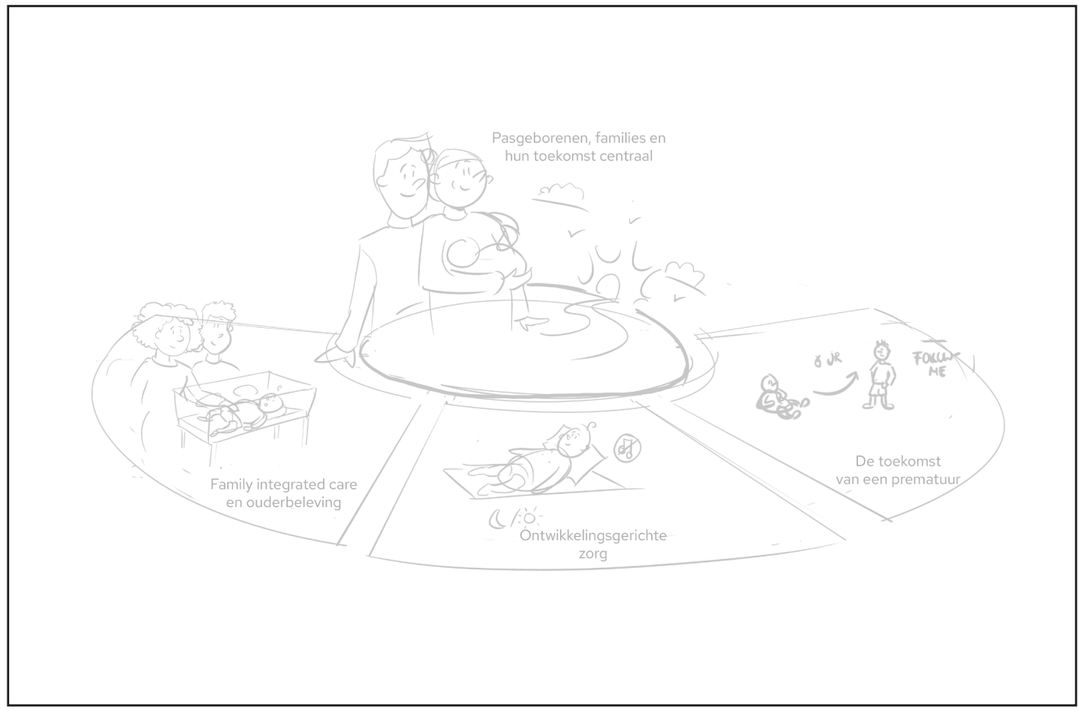


Appendix 5: The four vision concepts

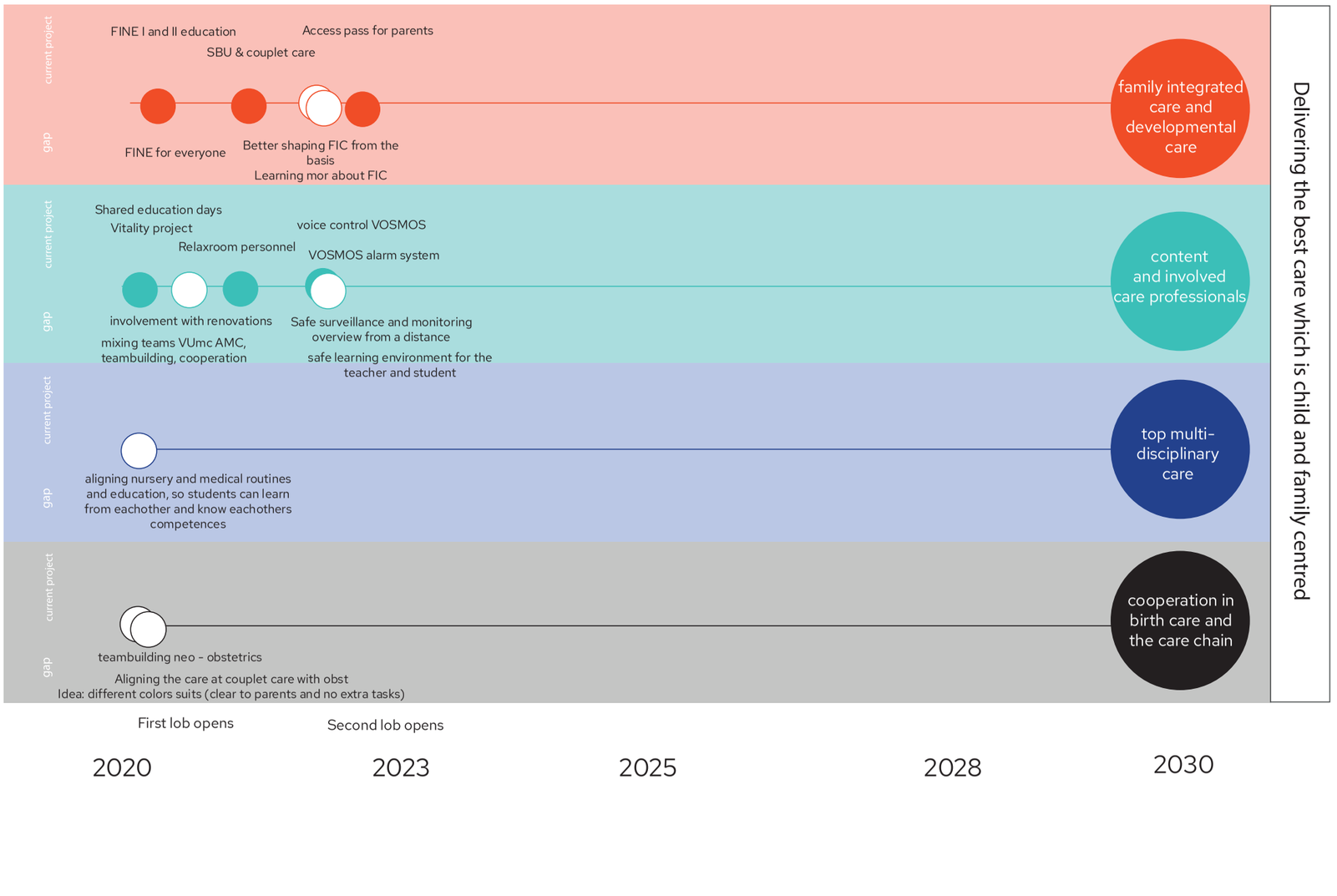




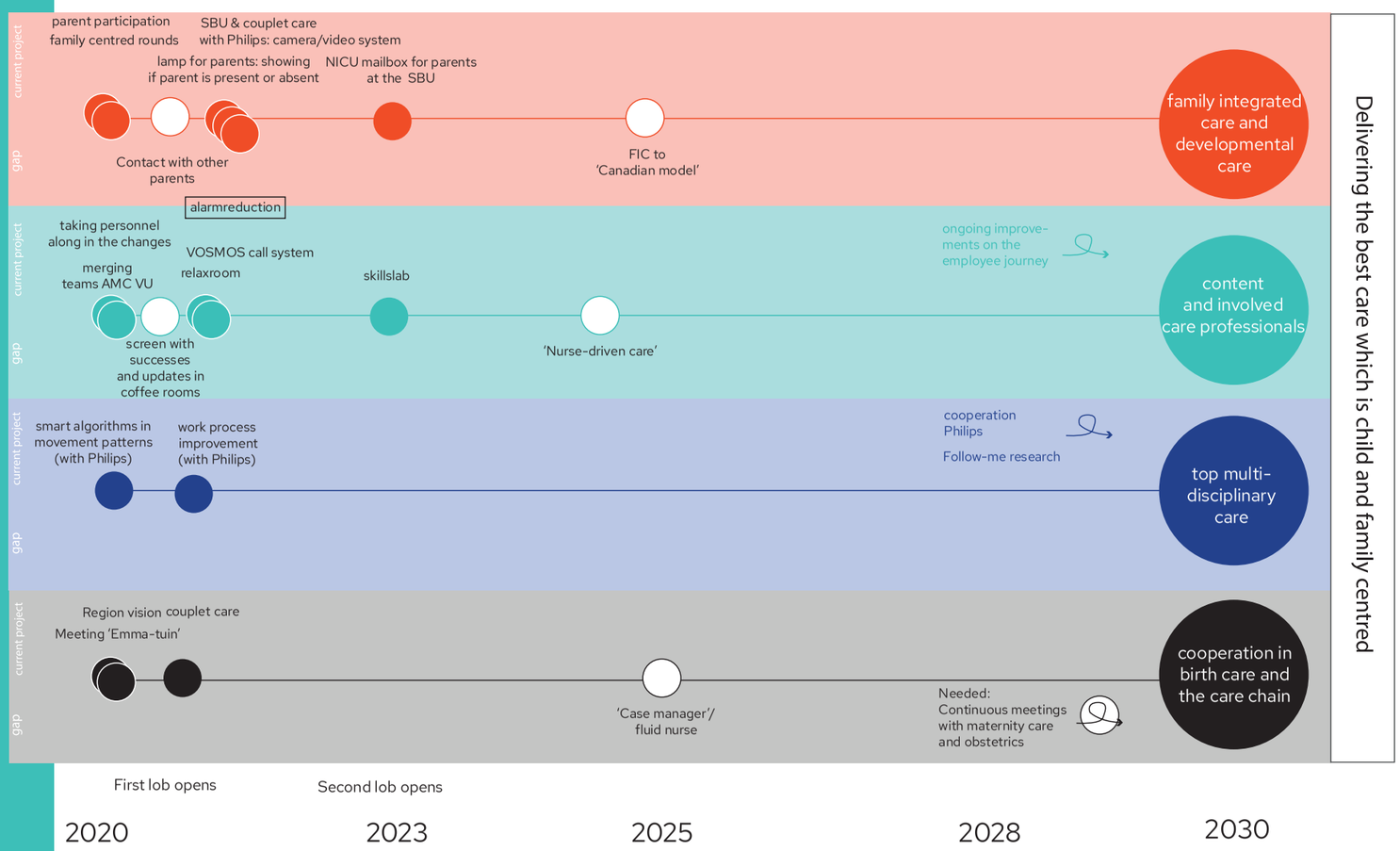




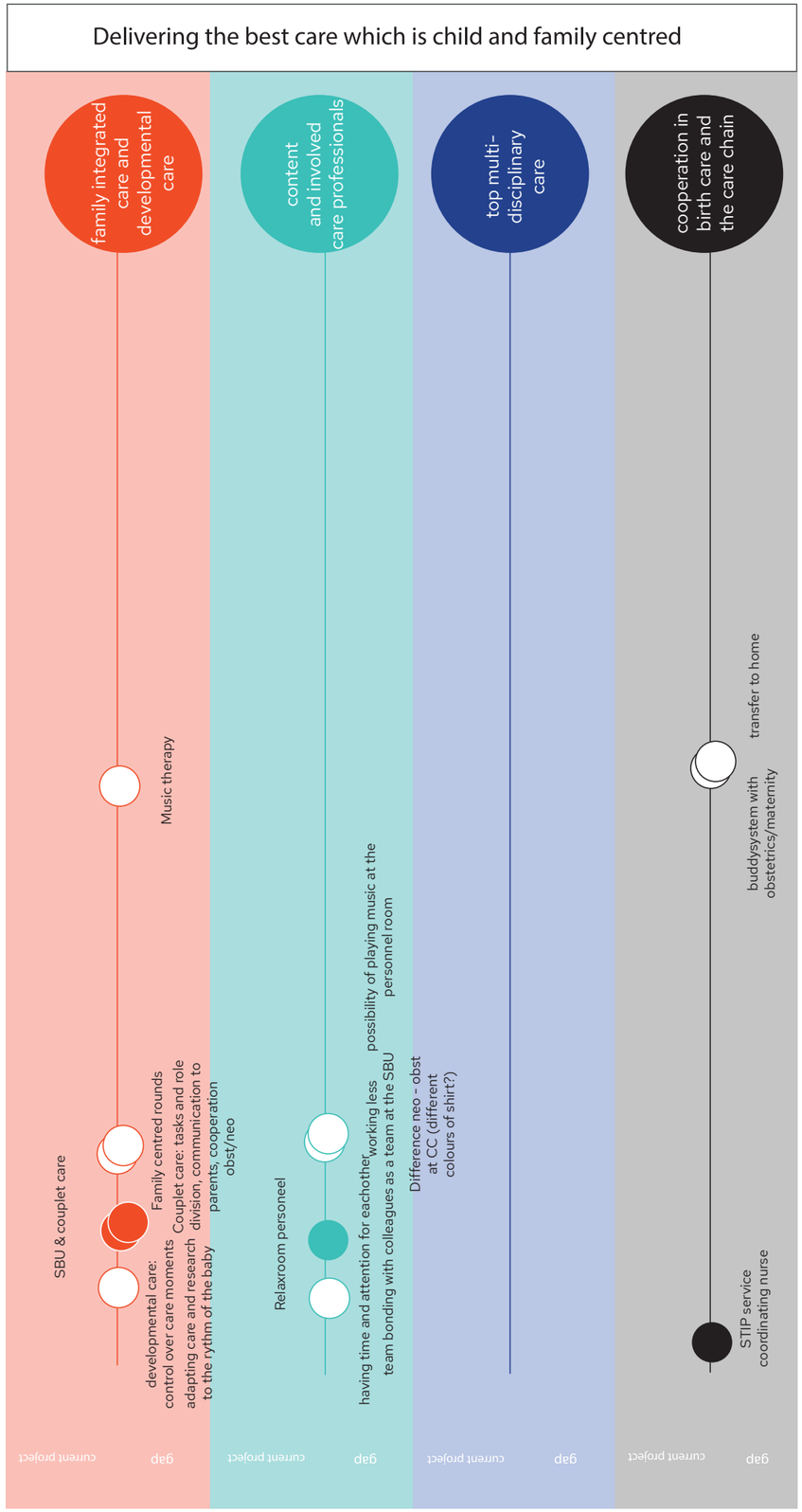
Input nurses AMC



Input management



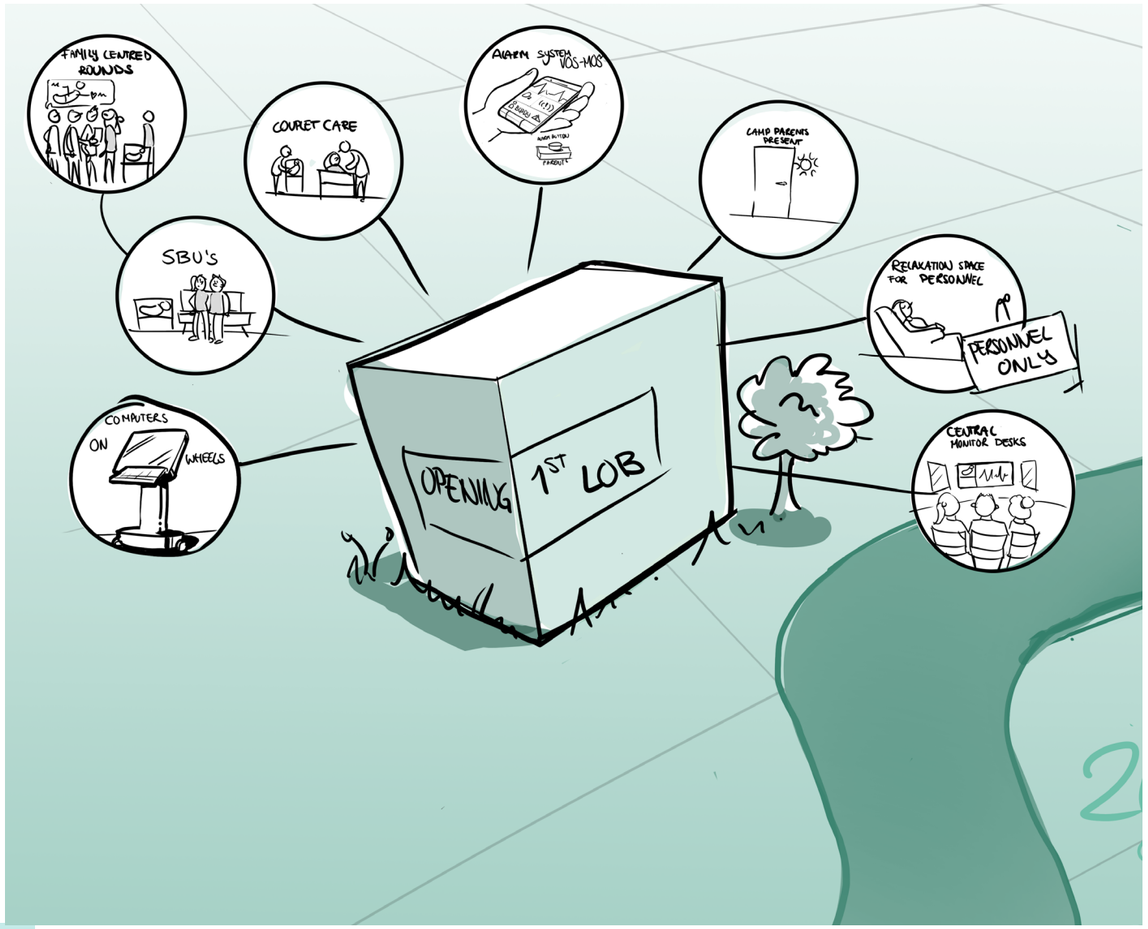
Input nurses VUmc

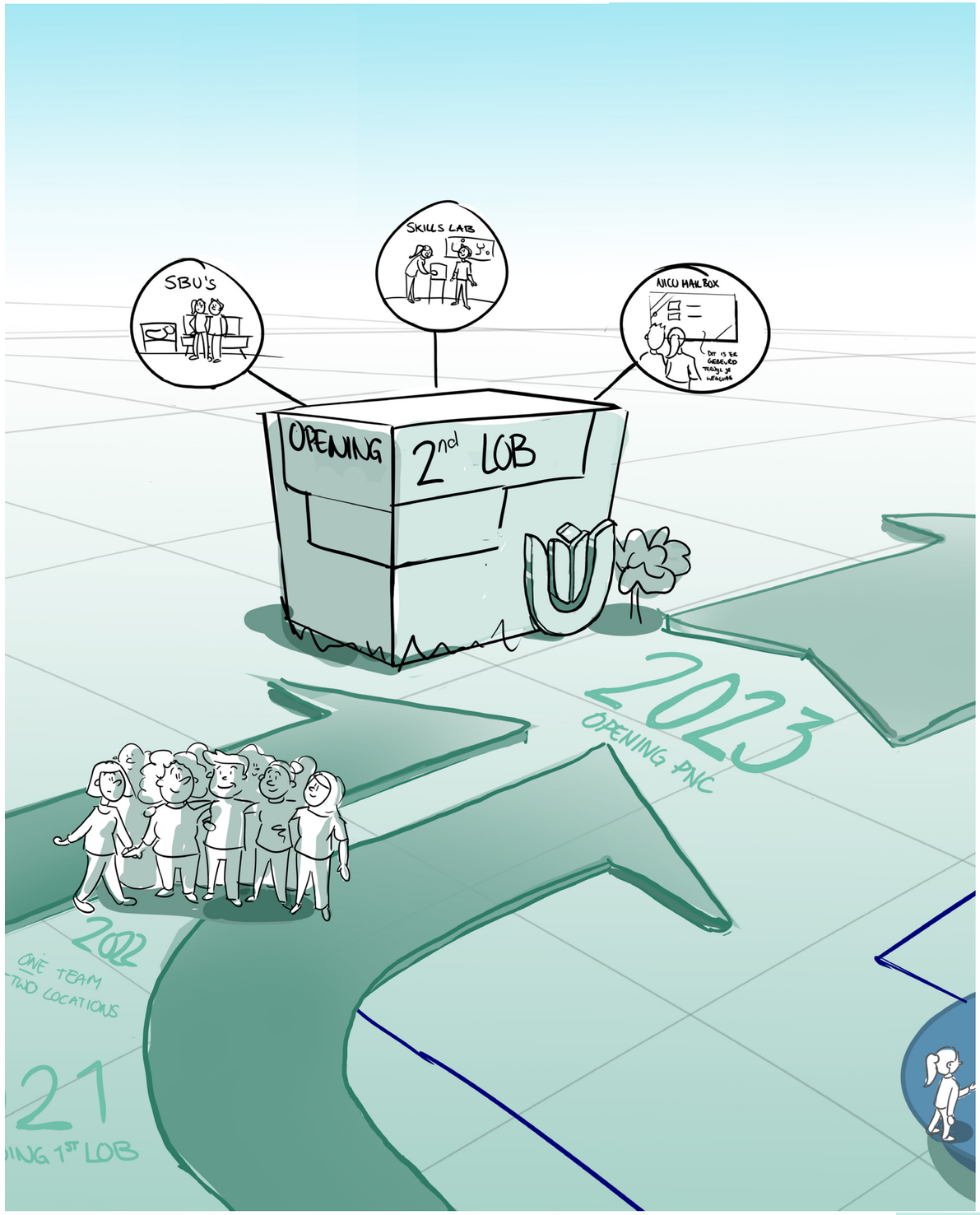


Appendix 7: Details of the current change

Opening first lob
The first part of the new PNC will be opened for neonatology a in 2021. It will contain computers on wheels (COWs) and 11 SBUs. Opening SBUs means that also family centered rounds should be held. This means that doctors will do their visits with parents involved at the room of the child. Also, 7 CC rooms will open, there will be an alarm system (VOSMOS), lamp showing if parents are present, a relaxation room for personnel and central monitor desks giving a quick overview on the care .

Opening second lob
In the second lob, more SBUs will open, also a skills lab for employees (for training exercises for nurses and doctors on dummies for example) will open. Lastly, there will be a NICU mailbox, containing information for parents whilst they have been away. Opening the second lob means that the VUmc hospital will close.





Appendix 8: Qualitative research by Koos

Waarden in de NICU

Hoop
- Iets bieden om optimistisch over te zijn

Zelfactualisatie
- Het gevoel van groeien in ouderschap

Angst/stress reductie
- Ouders helpen hun angst en stress te reduceren tijdens het zorgpad

Welzijn
- Het verbeteren van de mentale en fysieke staat van de ouder

Afleiding
- Gepaste afleiding voor de ouder tijdens het verblijf op de afdeling

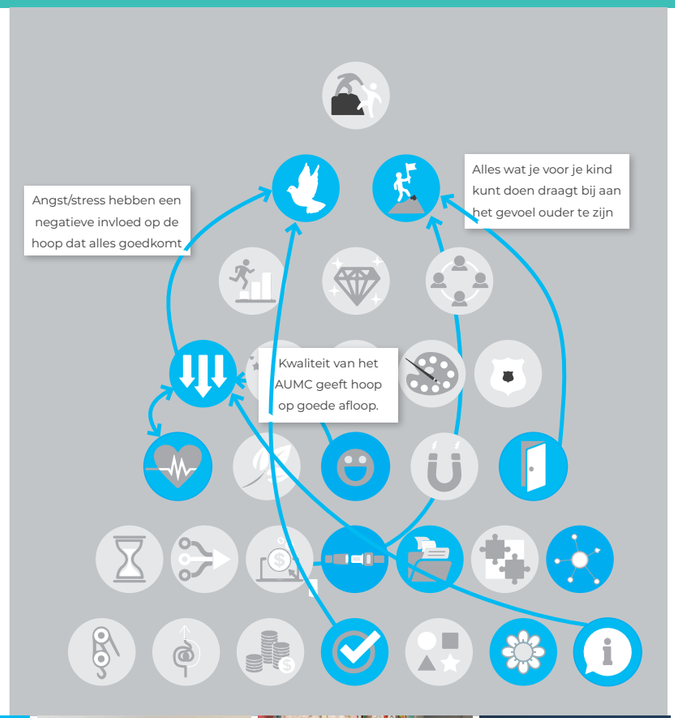
Kwaliteit
- Het bieden van de hoogste kwaliteit zorg en professionals

Informatie
- Het bieden van tijdige betrouwbare informatie

Risicovermindering
- Het verminderen van risico's voor uw kind

Zintuigelijke prikkels
- Het minimaliseren van negatieve zintuigelijke prikkels

Organisatie
- Organisatie bieden van uw leven rondom de opname



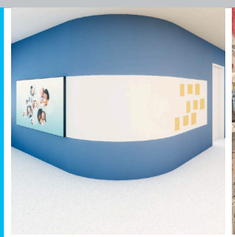
Hoop

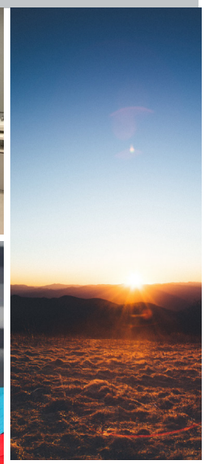
Iets bieden om optimistisch over te zijn.

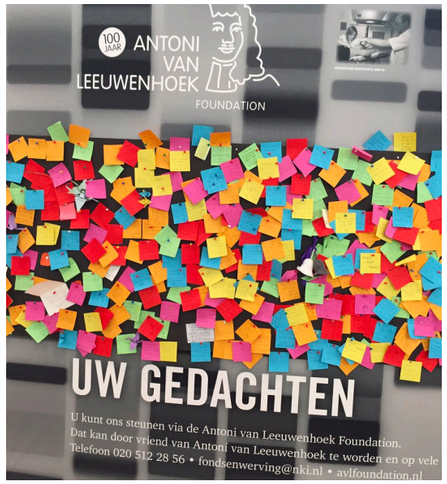
Wat het Amsterdam UMC over hoop belooft:

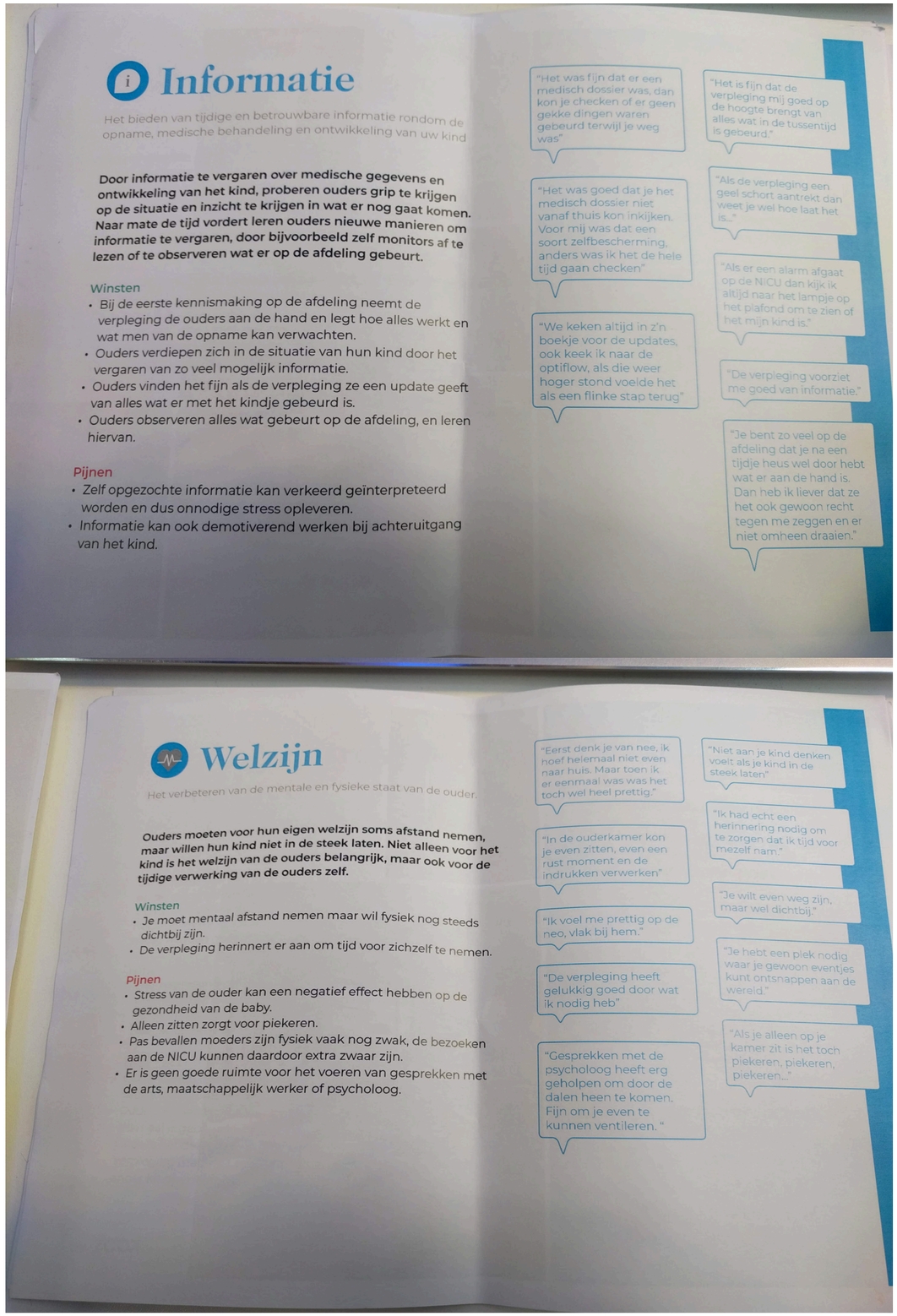
"Wij beloven dat wij u realistische inspiratie zullen bieden om hoop uit te putten, en hoopvolle momenten van het kind extra zullen belichten."

- Wij bieden u een optimistische omgeving en realistische (voor-) beelden om hoop uit te putten.
- Wij helpen u de gebeurtenissen rondom de opname geestelijk te verwerken.
- Wij beloven er alles aan te doen om uw kindje gezond de NICU te laten verlaten.









Informatie

Het bieden van tijdige en betrouwbare informatie rondom de opname, medische behandeling en ontwikkeling van uw kind

Door informatie te vergaren over medische gegevens en ontwikkeling van het kind, proberen ouders grip te krijgen op de situatie en inzicht te krijgen in wat er nog gaat komen. Naar mate de tijd vordert leren ouders nieuwe manieren om informatie te vergaren, door bijvoorbeeld zelf monitors af te lezen of te observeren wat er op de afdeling gebeurt.

Winsten
- Bij de eerste kennismaking op de afdeling neemt de verpleging de ouders aan de hand en legt hoe alles werkt en wat men van de opname kan verwachten.
- Ouders verdiepen zich in de situatie van hun kind door het vergaren van zo veel mogelijk informatie.
- Ouders vinden het fijn als de verpleging ze een update geeft van alles wat er met het kindje gebeurd is.
- Ouders observeren alles wat gebeurt op de afdeling, en leren hiervan.

Pijnen
- Zelf opgezochte informatie kan verkeerd geïnterpreteerd worden en dus onnodige stress opleveren.
- Informatie kan ook demotiverend werken bij achteruitgang van het kind.

"Het was fijn dat er een medisch dossier was, dan kon je checken of er geen gekke dingen waren gebeurd terwijl je weg was"

"Het was goed dat je het medisch dossier niet vanaf thuis kon inkijken. Voor mij was dat een soort zelfbescherming, anders was ik het de hele tijd gaan checken"

"We keken altijd in z'n boekje voor de updates, ook keek ik naar de optiflow, als die weer hoger stond voelde het als een flinke stap terug"

"Het is fijn dat de verpleging mij goed op de hoogte brengt van alles wat in de tussentijd is gebeurd."

"Als de verpleging een geel schort aantrekt dan weet je wel hoe laat het is..."

"Als er een alarm afgaat op de NICU dan kijk ik altijd naar het lampje op het plafond om te zien of het mijn kind is."

"De verpleging voorziet me goed van informatie."

"Je bent zo veel op de afdeling dat je na een tijdje heus wel door hebt wat er aan de hand is. Dan heb ik liever dat ze het ook gewoon recht tegen me zeggen en er niet omheen draaien."

Welzijn

Het verbeteren van de mentale en fysieke staat van de ouder.

Ouders moeten voor hun eigen welzijn soms afstand nemen, maar willen hun kind niet in de steek laten. Niet alleen voor het kind is het welzijn van de ouders belangrijk, maar ook voor de tijdige verwerking van de ouders zelf.

Winsten
- Je moet mentaal afstand nemen maar wil fysiek nog steeds dichtbij zijn.
- De verpleging herinnert er aan om tijd voor zichzelf te nemen.

Pijnen
- Stress van de ouder kan een negatief effect hebben op de gezondheid van de baby.
- Alleen zitten zorgt voor piekeren.
- Pas bevallen moeders zijn fysiek vaak nog zwak, de bezoeken aan de NICU kunnen daardoor extra zwaar zijn.
- Er is geen goede ruimte voor het voeren van gesprekken met de arts, maatschappelijk werker of psycholoog.

"Eerst denk je van nee, ik hoef helemaal niet even naar huis. Maar toen ik er eenmaal was was het toch wel heel prettig."

"In de ouderkamer kon je even zitten, even een rust moment en de indrukken verwerken"

"Ik voel me prettig op de neo, vlak bij hem."

"De verpleging heeft gelukkig goed door wat ik nodig heb"

"Gesprekken met de psycholoog heeft erg geholpen om door de dalen heen te komen. Fijn om je even te kunnen ventileren. "

"Niet aan je kind denken voelt als je kind in de steek laten"

"Ik had echt een herinnering nodig om te zorgen dat ik tijd voor mezelf nam."

"Je wilt even weg zijn, maar wel dichtbij."

"Je hebt een piek nodig waar je gewoon eventjes kunt ontsnappen aan de wereld."

"Als je alleen op je kamer zit is het toch piekeren, piekeren, piekeren..."

Zelf-actualisatie

Het gevoel geven van persoonlijke vooruitgang: het ouderschap.

Doordat de bevalling vaak zeer plotseling begint en je de eerste tijd de zorg voor je kind volledig uit handen moet geven, hebben veel ouders hulp nodig om zich ook daadwerkelijk 'ouder' te kunnen voelen.

Winsten

- *Kangoeroeën is* 'even lekker met je kindje zijn'. Een waardevol moment om echt even van het ouderschap te kunnen genieten.
- *Borstvoeding geven en kolven is fijn, want dan kun je tenminste iets voor je kindje doen.*

Pijnen

- *Het lijkt vanzelfsprekend om je voor je kindje te kunnen zorgen, maar dat kan bij opname in de NICU voorlopig niet.*
- *Ouders kijken aan het begin vanaf de zijlijn toe, en dit geeft een vervelend gevoel.*
- *Moeder heeft vaak last van schuldgevoel omdat ze het kind niet tot het einde heeft kunnen dragen.*

"De verpleging maakt je er bewust van dat je moeder bent geworden."

"Pas als je zelf de zorg voor het kindje op je kan nemen heb je het gevoel dat het echt jouw kind is."

"Het kindje werd even omhoog gehouden. Hier is ze, en daarna doei"

"Als je je kind gaat verzorgen dan denk je eerst dat je het niet kan. De verpleging zegt dan: ja, je kan het wel!"

"Er moeten betere kangoeroe plekken komen. Kangoeroeën is het lekkerste wat er is."

"Je zit dan op een tuinstoel achter een gordijn. Het is niet dat je zeg: ik zit even lekker met mijn kindje"

" Hem voor de eerste keer in bad doen was zo bijzonder. Voor het eerst iets 'gewoons' doen..."

"Voor mij was moedermelk geven heel belangrijk, ik was helemaal in tranen toen dat mis ging."

"Als moeder ga je de schuld voor de situatie zoeken bij jezelf. Heb ik te hard gewerkt? Heb ik iets verkeerd gedaan?"

"Alle aandacht ging naar moeder en kind. Logisch, maar ik kan me voorstellen dat sommigen vaders zich gepasseerd voelen."

"Normaal doe je alles voor je kind, maar op de NICU wordt alles voor je gedaan."

Risico preventie

Het verminderen van risico's voor de gezondheid van uw kind

Kindjes op de NICU zijn erg kwetsbaar en fragiel. Als ouder wil je geen enkel risico nemen om zo het kindje een zo goed mogelijke kans te bieden. Ouders proberen hun kind daarom te beschermen voor alle mogelijke risico's op de afdeling.

Winsten

- *Ouders worden goed geïnformeerd over de gevaren van invloeden uit 'de buitenwereld' en protocollen en procedures om de risico's van buitenaf te beperken.*
- *Het kunnen wijzen op risico's die bezoekers kunnen meebrengen geeft ouders een gevoel van controle over de kwetsbare gezondheid van hun kind.*

Pijnen

- *Als er iemand niest of de regels niet zo nauw neemt op de afdeling kan dit boosheid opleveren vanwege de risico's hiervan voor de gezondheid van het kind.*
- *Bezoek op de afdeling brengt extra risico's met zich mee, waardoor sommige ouders hier zo veel mogelijk vanaf zien.*
- *Ouders willen het liefst zo lang mogelijk in het AMC blijven, want dat wordt gezien als de meest veilige omgeving voor het kind.*

"Ik heb geen behoefte aan vrienden over de vloer: alleen maar extra risico."

"Het geeft een onveilig gevoel wanneer je geen zicht hebt op de verpleging"

"Bij de overplaatsing weg van het VUmc dacht ik: echt niet! Hij blijft hier tot zijn 18e."

"Als ontvanger van bezoek voelde ik me trots, maar ook bedachtzaam door de risico's"

"Ik hoef mijn kleine en fragiele baby echt nog niet aan de rest van de wereld te laten zien. Alleen aan mijn meest naasten"

"Mijn kamergenoot liet iemand op bezoek waarvan bleek dat hij mogelijk de waterpokken had, toen moesten we bijna in quarantaine. Dat was heel frustrerend."

"Ik kreeg kaartjes met: Geniet ervan. Dan dacht ik: Geniet ervan... pf, als ie het overleefd, dan geniet ik er van denk ik"

Verbinding

Verbinding met lotgenoten en andere instanties die relevant zijn.

Voor veel ouders heeft sociale interactie tijdens het verblijf op de NICU geen prioriteit. Door angst en stress sluiten ze zich veelal af van de buitenwereld. Ondanks dat sociaal contact niet altijd gewenst is, kan het wel een positief effect hebben op het welzijn van de ouder.

Winsten

- *Sociale interactie kan een boost geven, ookal is het geforceerd*
- *Wanneer de situatie minder kritiek wordt ontstaat er meer ruimte voor sociaal contact.*
- *Wanneer ouders contact met elkaar hebben, verspreid dit zich als een olievlek en zie je dat er meer contacten onststaan.*
- *De ouders die in het Ronald Mc Donald huis slapen hebben meer een band met elkaar dan ouders die thuis slapen.*

Pijnen

- *In lastige situaties heeft men de neiging om naar binnen te keren.*
- *Om zichzelf voor pijnlijke situaties te beschermen houden ouders sociaal contact met andere ouders af, dan hoeven ze niet mee te rouwen als het niet goed gaat.*
- *Contact met andere ouders opbouwen kost energie, die je weinig hebt, terwijl zij ook al snel weer weg kunnen zijn.*
- *In de nieuwe situatie zal je als ouder minder snel weten dat er andere ouders zijn.*

"Ik heb geen behoefte om met anderen op de afdeling te praten. Ik ben meer op mezelf."

"In de nieuwe situatie met de SBU's zul je elkaar minder snel tegen komen."

"Alleen directe familie kwam op visite, geen vrienden, daar hadden we denk ik geen ruimte voor in ons hoofd."

"Er is weinig contact tussen ouders, behalve tussen die elkaar kennen van het Ronald Mcdonald."

"Ik heb niet veel contact met andere lotgenoten gehad terwijl ik er wel behoefte aan had. In de ouderkamer kwam ik niemand tegen."

"Dan is het: Goedemorgen iedereen! En dat geef een boost. Het IS ook een goede morgen."

"Teveel hechten aan andere ouders kost energie. Voor je het weet zijn ze weer weg."

"Ik had graag gedeeld wat ik meemaakte met lotgenoten, dan wordt je begrepen. Je moet het meegemaakt hebben"

"Er was een coffeecorner en een eettafel maar als je daar andere tegenkwam kwam er geen gesprek van. Iedereen is dan al met iemand anders"

Ik liep samen met de ander NICU moeder even naar beneden of naar buiten. Of we gingen even bij de liften zitten

Zintuiglijke prikkels

Het minimaliseren van negatieve zintuiglijke prikkels

Veel ouders verkeren tijdens opname van het kind in een staat van uiterste allertheid. Alles wat er om ze heen gebeurt komt daarom extra hard binnen en het kost meer energie om (negatieve) zintuiglijke prikkels in de omgeving te verwerken.

Winsten

- *Een omgeving met minder prikkels kan onbewust een kalmerend effect hebben op de ouder.*
- *Zintuiglijke prikkels kunnen ook, wanneer doelgericht ingezet ook een positief effect hebben op het welzijn van de ouder.*

Pijnen

- *De vele piepjes van de aparatuur op de afdeling geven de ouders een onrustig gevoel.*
- *Angst, verdriet en stress van andere ouders op de afdeling kan negatieve prikkels geven.*
- *De staat van 'hyper-allertheid' van de ouders maakt dat alle prikkels extra hard bij ze binnenkomen*

"Het is één grote discotheek daarbinnen, er gaat altijd wel een alarm af."

"1 persoonskamers zouden fijn zijn, minder prikkels van de andere kindjes."

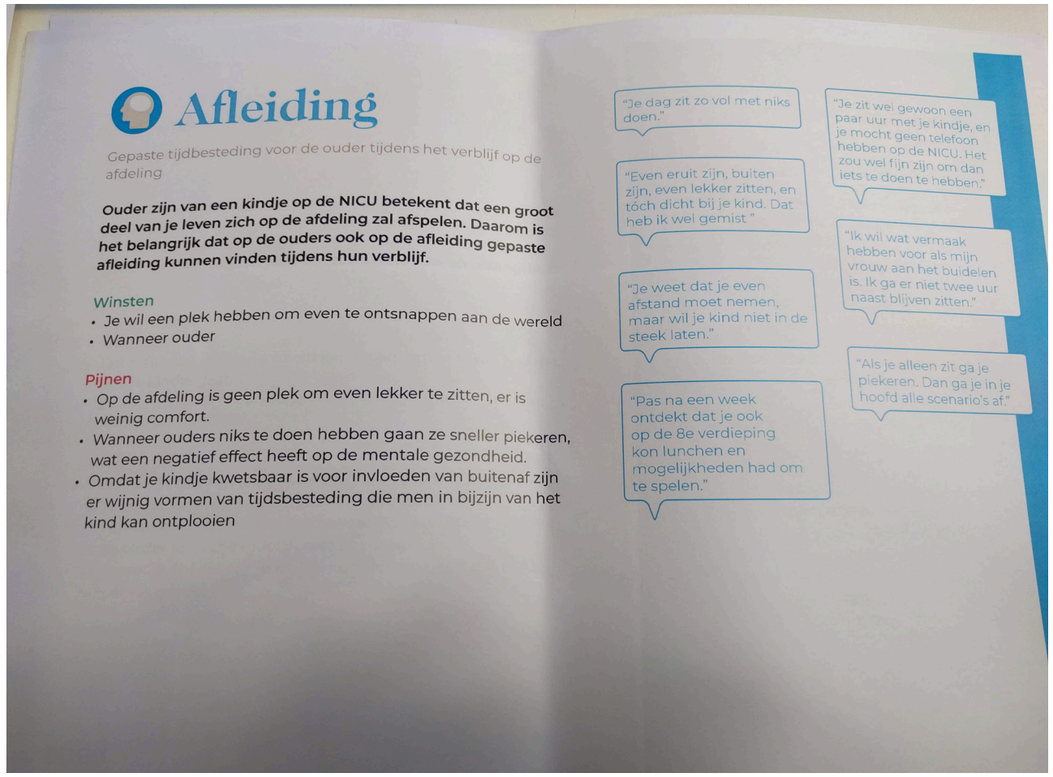
"Er is veel geluid en commotie van de andere couveuses. Je krijgt alle alarmen mee."

"Er was een vader die bleef slapen die om 2/3 uur s'nachts toch naar huis gegaan is, hij trok het niet van al die piepjes"

"Je wilt zo min mogelijk geconfronteerd worden met negatieve prikkels van andere ouders die het zwaar hebben. Je hebt genoeg aan jezelf."

"Naast kolven worden er ook heftige gesprekken gevoerd in de ouderkamers"

"De ongemakkelijke tuinstoelen, na een uur wil je daar echt van af"



Afleiding

Gepaste tijdbesteding voor de ouder tijdens het verblijf op de afdeling

Ouder zijn van een kindje op de NICU betekent dat een groot deel van je leven zich op de afdeling zal afspelen. Daarom is het belangrijk dat op de ouders ook op de afleiding gepaste afleiding kunnen vinden tijdens hun verblijf.

Winsten
- *Je wil een plek hebben om even te ontsnappen aan de wereld*
- *Wanneer ouder*

Pijnen
- *Op de afdeling is geen plek om even lekker te zitten, er is weinig comfort.*
- *Wanneer ouders niks te doen hebben gaan ze sneller piekeren, wat een negatief effect heeft op de mentale gezondheid.*
- *Omdat je kindje kwetsbaar is voor invloeden van buitenaf zijn er wijnig vormen van tijdsbesteding die men in bijzijn van het kind kan ontplooien*

"Je dag zit zo vol met niks doen."

"Even eruit zijn, buiten zijn, even lekker zitten, en tóch dicht bij je kind. Dat heb ik wel gemist."

"Je weet dat je even afstand moet nemen, maar wil je kind niet in de steek laten."

"Pas na een week ontdekt dat je ook op de 8e verdieping kon lunchen en mogelijkheden had om te spelen."

"Je zit wel gewoon een paar uur met je kindje, en je mocht geen telefoon hebben op de NICU. Het zou wel fijn zijn om dan iets te doen te hebben."

"Ik wil wat vermaak hebben voor als mijn vrouw aan het buidelen is. Ik ga er niet twee uur naast blijven zitten."

"Als je alleen zit ga je piekeren. Dan ga je in je hoofd alle scenario's af."

Appendix 9: Assessing current services

Assessing current and planned services to parents via Koos' service values

To be able to choose certain values that have to be offered to parents to improve parent experience at the new perinatal centre, the current and planned services were discussed with several caretakers. Below, current solutions are shown. From this analysis, the following values have been chosen: distraction, wellbeing, risk prevention, information, connection, self-actualisation, and stimuli.

Current and planned services to parents linked to the values of the pyramid of Bain:
1. Hope.
There will be a wall of hope at the new perinatal center, showing stories of other parents
2. Self-actualisation
There are ideas to teach parents more care though they are not concretised yet
3. Fear and stress-reduction
Via a NICU mailbox, updates on the care are delivered in the room when a parent has not been there
4.Wellbeing
Psychologists and medical social workers often talk to parents, and also will in the new department
5. Distraction
6. Quality
The Amsterdam UMC currently already offers very high quality caretakers who are trained to be very good at the most complex care.
7.Information
Currently much information is given via the Zorgpunt application though there are still some difficulties that parents encounter
8.Risk prevention
The Amsterdam UMC offers rules (not bringing small children, hygiene) to prevent risk
9. Sensory stimuli
By going to SBUs there is a great improvement in the amount of stimuli to prematures. Though, there is also a fear if there will be stimuli
10. Organisation
The Amsterdam UMC nurses offer help in the organisation of parent's life, for example cancelling work for the next period of time.
11. Connection
The new PNC there will be parent living rooms. There are not special occasions or ways to connect organised by the Amsterdam UMC
12. Access
Parents will get a pass and are always able to be near the child and sleep over in the new SBU and CC situation.

Appendix 10: How to cards

1

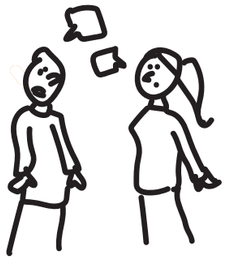
DISTRACTION/WELLBEING

As a parent, the experience of having a premature child is often described as a crazy non-desirable rollercoaster. It is very difficult, as you do not know if your child will survive, whether he or she will have problems later on. Parents experience high stress levels. It is difficult as a parent to remember to take care of yourself too.
In the new department there are single bed units. This is nice for parents, but can also create a place where they worry by themselves ('piekeren') and forget to take care of themselves.

How to..
create a moment of distraction for parents? How to help parents take care of themselves?

Quotes
"Not thinking about your child feels like abandoning your child."
"First you think: no, I don't need to go home right now. But when at home, it was actually quite nice whilst being there."
"I really needed to be reminded that I take care of myself too."
"You know you should take a little distance, though you don't want to leave your child." "Your whole day is easily filled with doing nothing"
"Being out of there, being outside, sitting a little, and still close to your child, I missed that" "As a dad, I want to have something to do if my wife is kangarooing, I am not sitting next to it for two hours"
"If you sit alone, you start to worry. In your head you think of all possible scenarios" . "If you are alone on your room it is: worry worry worry."
"You just need a space where you can escape the world for a little while"

2



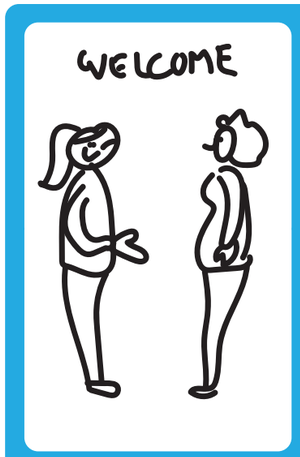
WELLBEING

As a parent, the experience of having a premature child is very difficult. As a parent it is easy to be on yourself and people don't directly allways want to connect with other parents. Though, if this happens, parents do see the connection later on as very valuable and helpful.
In the new department there are single bed units. This is nice for parents, but can also create a place where they worry by themselves (piekeren)

How to..
Help parents to connect with peers and not get lonely in the room?

Quotes
-In a hospital in Canada, parents told staff they felt more lonely in SBUs. (interview nurse AMC).
-There are some disadvantages of single rooms. We had little contact with other parents, for example. (Feedback night VUmc)
-'I would have liked to have more contact with other parents. That maybe could have helped me.' (Interview parent at other hospital with SBUs)
-'I don't need to talk to others here, I am more on myself'
-'Leaning too much on other parents costs energy, before you know it they are gone from the department.'
-'There was a coffee corner and a dinner room but if you met others there a conversation did not happen. Everyone is already with someone else.'
-'Only direct family came over, there was no space in our head for others'
-'In the new situation you will bump into eachother less often'
-'I would have liked to share what I experienced with fellow peers/parents. You need to have experienced it to understand'
-A parent of a previously hospitalized premature could potentially play a role (interview doctor)

3



INFORMATION PROVISION/SERVICE

As a parent, the experience of having a premature child is often described as a crazy non-desirable rollercoaster. Parents experience high stress levels and are often in their own bubble. The nurses are really seen as a support to parents, the doctors they see less often. Though oftentimes the communication and service goes well, sometimes the tone of voice or attitude is not appreciated by parents.

How to..
improve the hospitality of care providers (assistants, doctors and nurses) ?

Quotes
"As a parent, you receive many folders and forms. One of the parents told that there was someone to give an explanation, but the mother did not remember it all too well. The care professional told her: 'I already gave it to you'. The mother did not like this, she had gotten so many forms that she did not know anymore. (Feedback night AMC)."
-an alarm was ringing at the NICU, though there was no reaction of the nurses. They were all three behind the nurse station watching their phone. (Feedback night AMC)
-A woman had the following experience at a delivery room. A care professional told her that they were there to pick up her bed. She asked: 'what about me?' She felt kicked out, 'next'. She knew that there is a lack of beds at the IC, though the way of dealing with a mother can be more tactful(feedback night VUmc)
-We did a hospitality training, this was very nice, we should do it with obstetrics and neonatology together (interview teamleader)

4

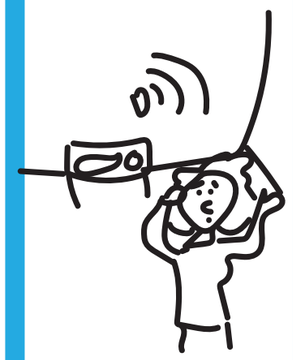
INFORMATION PROVISION

As a parent, having a premature baby is a stressful situation. By getting information parents try to get grip and control over the situation. The Amsterdam UMC offers an application called Zorgpunt with medical and practical information and face to face information. Still, there can be things that are unclear. Parents sometimes miss information despite the application. Agreements or information that is given face to face is not being updated to other nurses/doctors or being forgotten by parents. As a parent you get a lot of information.

How to..
capture agreements or face to face information in a sense that the parents and care providers all know about it? How to capture this information?

Quotes
-A doctor used the term 'BPD', as if the parents already knew that their child had this medical condition. The parents did not know yet that their child had BPD. This was very confusing to them. (Feedback night VUmc)
-As a parent, you receive many folders and forms. One of the parents told that there was someone to give an explanation, but the mother did not remember it all too well. The care professional told her: 'I already gave it to you'. The mother did not like this, she had gotten so many forms that she did not know anymore. (Feedback night AMC)
-At the recovery room for mothers, quite some mothers experience that they don't know if their child is healthy and whether it is a boy or a girl. (Feedback night AMC)

5



INFORMATION PROVISION

Parents find Single Bed units (single rooms with incubators) nice for privacy but dislike the fact that there is less view on the care. It feels less safe for parents. Where in a incubator room with multiple incubators you can see different nurses being busy with other patients, now you will not see if there is a nurse around or not. If an alarm goes off, a signal goes to the nurses. Also, parents can push a button to send an alarm to nurses if they feel like something is not right. Though, as a parent it can feel like it takes a long time. As you cannot see if a nurse is busy with an important case next to you or not.

How to..
give parents the idea that something is happening when an alarm goes off or if they have pushed the parent-alarm-button?
How do you know as a parent what is important enough to push the button?

Quotes
-'It gives an unsafe feeling when you don't have a view on the care.'
-'The alarm button was difficult: is it urgent enough to push the button now? Will the nurse arrive quickly? Some management of expectations there would be nice.'

6

INFORMATION PROVISION

Parents find being transfered to a different hospital difficult. They are not sure if they are ready and what to expect. At the other hospital they are often shocked. There is so much less personnel, things are being done differently! Is it still safe?

How to..
improve the experience of expectations being transferred to a post-IC or high care hospital where things are done differently?

Quotes
-Parents are already advised to have a look at the hospital where they will be going (nurse VUmc). Still, sometimes it is the case that parents and the child have to be transfered within an hour.
-Many parents experience uncertainties around transfer, when and what will happen. Parents also have the feeling of having to leave. (parent feedback night minutes AMC)
-A concrete list of differences in hospitals would already be nice (parent feedback night minutes AMC)

7

SELF-ACTUALISATION

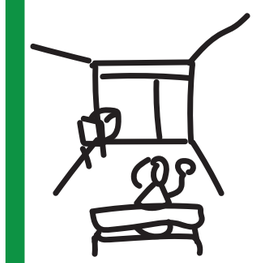
As a parent, it is important to be able to feel a parent. When your child is in an incubator, that can be difficult. You can not always hold the child and you can not always take care of the child.

The new department provides the opportunity for parents to sleep over and be often in the incubator suite.

How to..
help parents in getting to know their child? How to help them seeing what the child likes and does not like? How to help them communicate this to nurses?

Quotes
'Normally you do everything for your child, but at the NICU everything is being done for you.'
'The nurses make you aware that you just became a mother.'
In the beginning, parents watch their child from the sideline, this gives an unpleasant feeling.

8



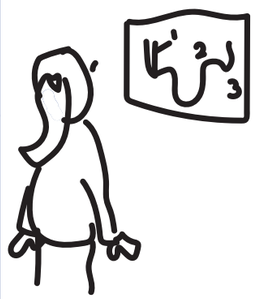
RISK PREVENTION

Parents find Single Bed units (single rooms with incubators) nice for privacy but dislike the fact that there is less view on the care. It feels less safe for parents. Where in a incubator room with multiple incubators you can see different nurses being busy with other patients, now you will not see if there is a nurse around or not.

How to..
create a view on the care for parents in the SBU? How to create a sense of safety for parents?

Quotes
-There is less overview on care and nurses in a SBU situation. That felt sometimes a bit strange and scary (parent feedback night VUmc)
-'It gives a unsafe feeling when you cannot see the nurses.'
'Having the feeling that action is being taken is important'

9



SELF-ACTUALISATION

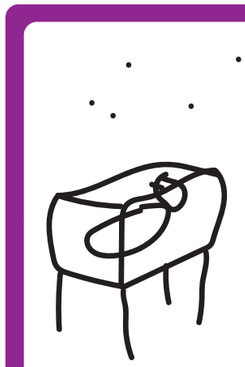
As a parent, it is important to be able to feel a parent. When your child is in an incubator, that can be difficult. You can not always hold the child and you can not always take care of the child.

The new department provides the opportunity for parents to sleep over and be often in the incubator suite. In the new department there will also be a skills lab where nurses, doctors and also potentially parents can practice care-taking skills.

How to..
help parents learn taking care of their child, such as giving probe feeding (sondevoeding) in a more interactive way (than giving A4 sheet instructions)?

Quotes
'Normally you do everything for your child, but at the NICU everything is being done for you.' In the beginning, parents watch their child from the sideline, this gives an unpleasant feeling.
'When you start taking care of the child you first feel like you cannot do it. The nurses then state: yes you can do it!'
'From the moment you can take care of the baby you have the feeling it is really yóur child.'
'Parents are happy with the private rooms in other hospitals. There they can often also be part of the care (depends on the hospital).' (Feedback night VUmc)

10



STIMULI | PRIKKELS

Creating an atmosphere with perfect stimuli for the child is very important for its health and development. Why? Because a baby should have been still developing in the uterus of the mother. Therefore, ideally, there would be an atmosphere for the baby with the scent and sound of the mother, sound as if you are in the uterus, feeling warmth and the parents nearby, not too much noise but also not noiseless, no interruptions of sleep, etcetera. Having parents much around is good for the development of the child. High stress levels on the other hand of parents are of bad influence on the development of the baby.

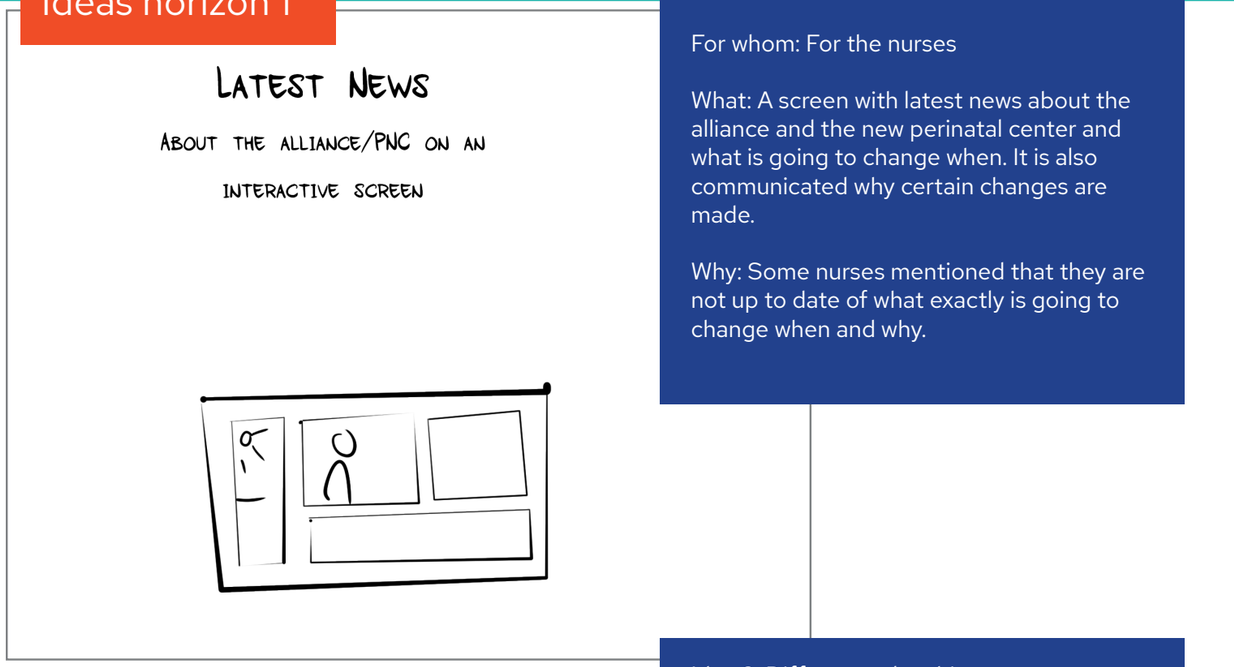
The new department
In the new department, parents and the premature baby can be more often near eachother with privacy in the room. Though, some parents also have other small children that they need to take care of or live far away. Some parents might not be able to visit often.

How to.. prevent stimuli deprivation? How to create stimuli for babies of parents that cannot often be near the child due to any reason?

Quotes
-'one-person rooms are nice, there is less stimuli from other children.'
-It is important to know what we do for babies with a stimuli deprivation. Would we need to have a replacement mother or grandma, a social worker or something? What do we do for these children? (interview doctor)
-What do we do for children with too little stimuli, of whom the parents cannot always be there. Do we do something with music? Social work? (nurse)

Appendix 11: All initial ideas

Ideas horizon 1

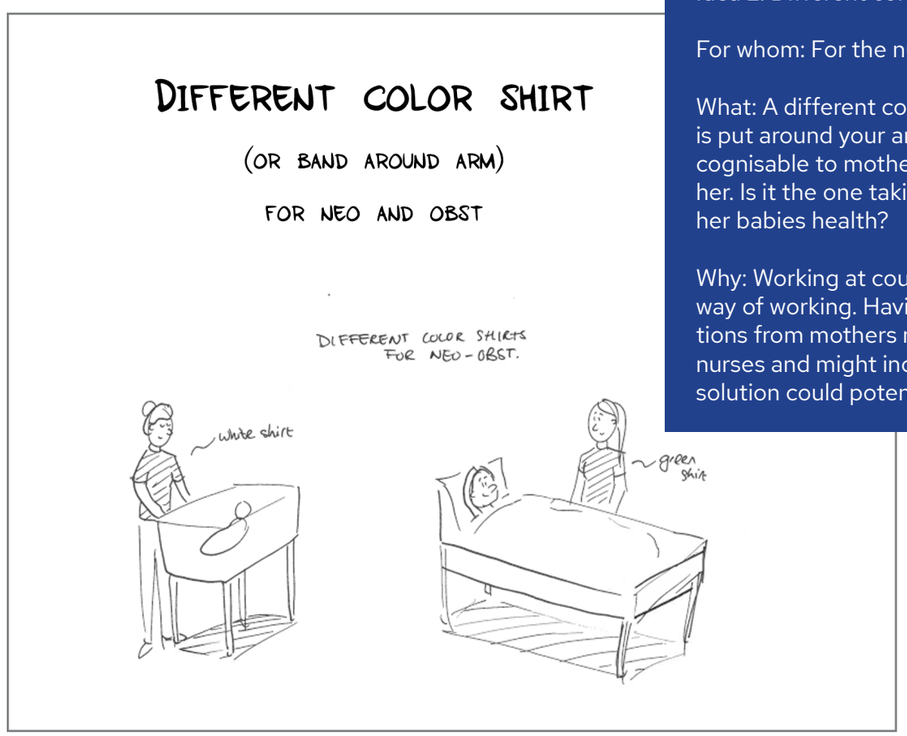


Idea 1: Latest news

For whom: For the nurses

What: A screen with latest news about the alliance and the new perinatal center and what is going to change when. It is also communicated why certain changes are made.

Why: Some nurses mentioned that they are not up to date of what exactly is going to change when and why.

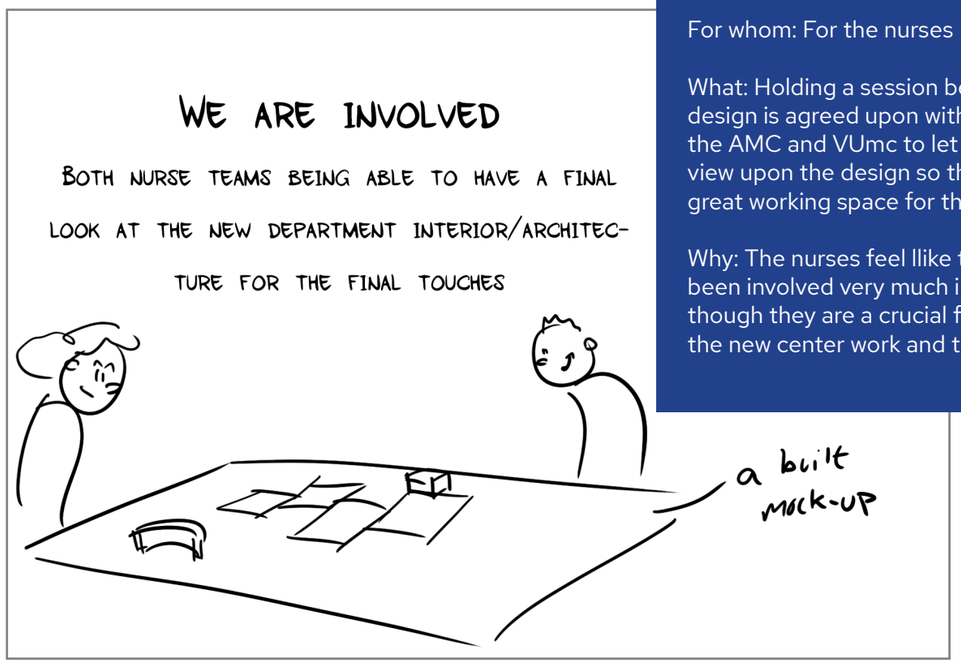


Idea 2: Different color shirt

For whom: For the nurses at couplet care

What: A different color shirt or a band that is put around your arm, makes it easier recognisable to mothers what nurse is helping her. Is it the one taking care of her health or her babies health?

Why: Working at couplet care is a different way of working. Having even more questions from mothers makes it stressful for nurses and might increase workload. This solution could potentially help.

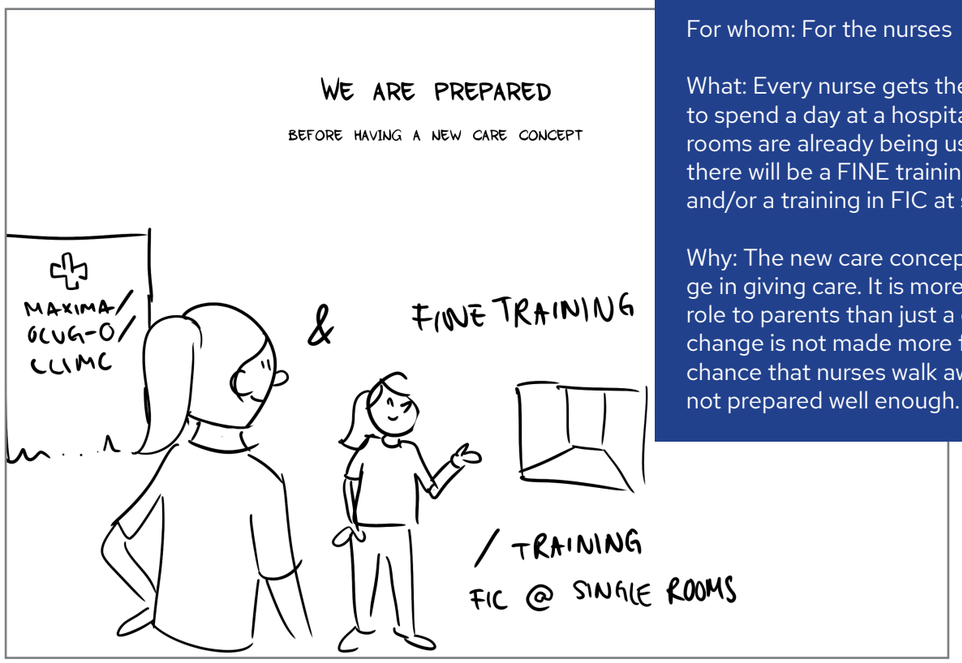


Idea 3 We are involved

For whom: For the nurses

What: Holding a session before the final design is agreed upon with nurses at both the AMC and VUmc to let them have a final view upon the design so that it will be a great working space for them.

Why: The nurses feel llike they have not been involved very much in the design, though they are a crucial factor in making the new center work and thrive.



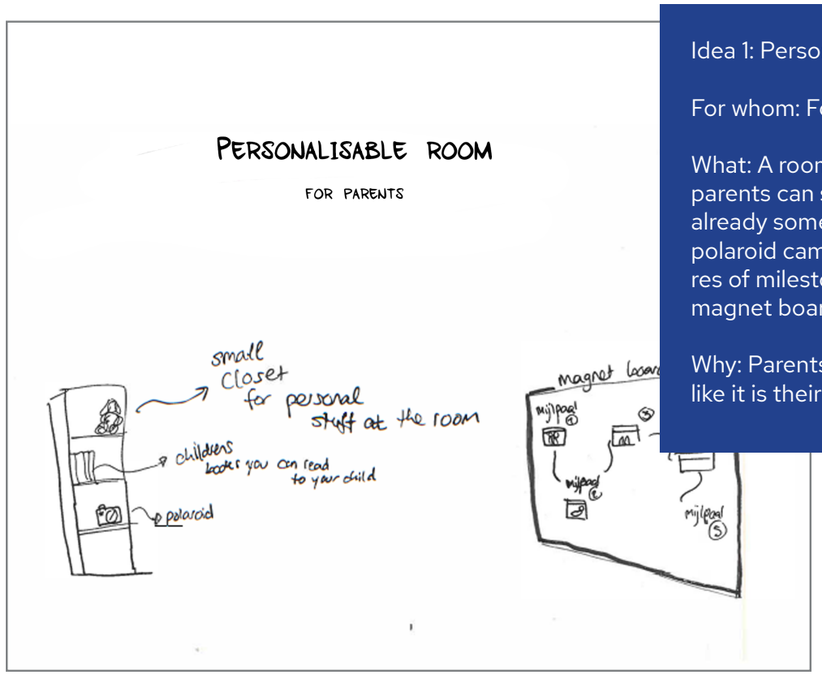
Idea 4 We are prepared

For whom: For the nurses

What: Every nurse gets the opportunity to spend a day at a hospital where single rooms are already being used. Next to this there will be a FINE training for everyone and/or a training in FIC at single rooms.

Why: The new care concept is a big change in giving care. It is more of a coaching role to parents than just a caring role. If the change is not made more fluently, there is chance that nurses walk away as they are not prepared well enough.

Ideas horizon 2

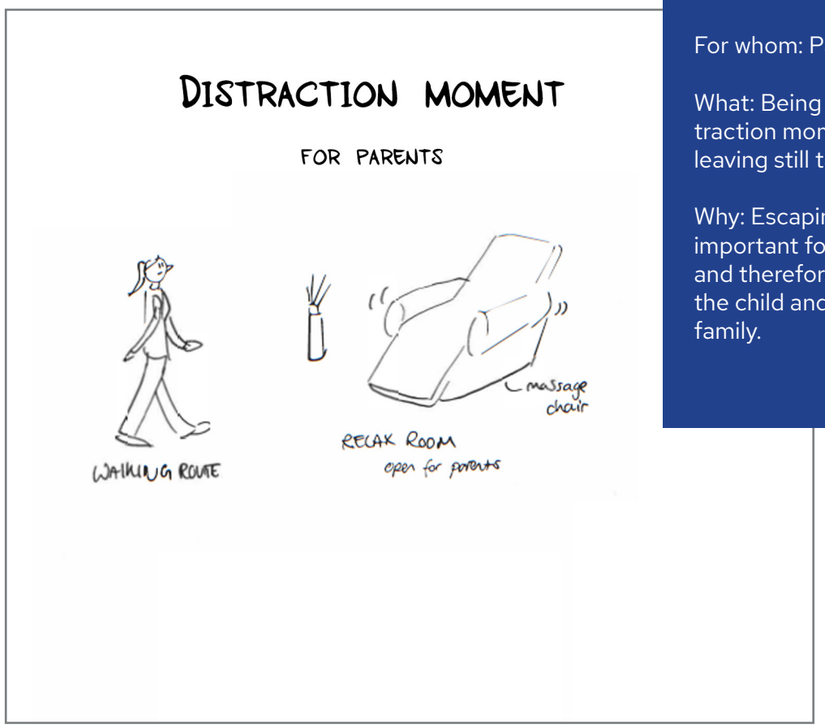


Idea 1: Personalisable room

For whom: For parents

What: A room with a small closet where parents can store personal stuff. There are already some childrens books available. A polaroid camera can be lent to take pictures of milestones which can be put up on a magnet board in the room.

Why: Parents have stated they did not feel like it is their place.

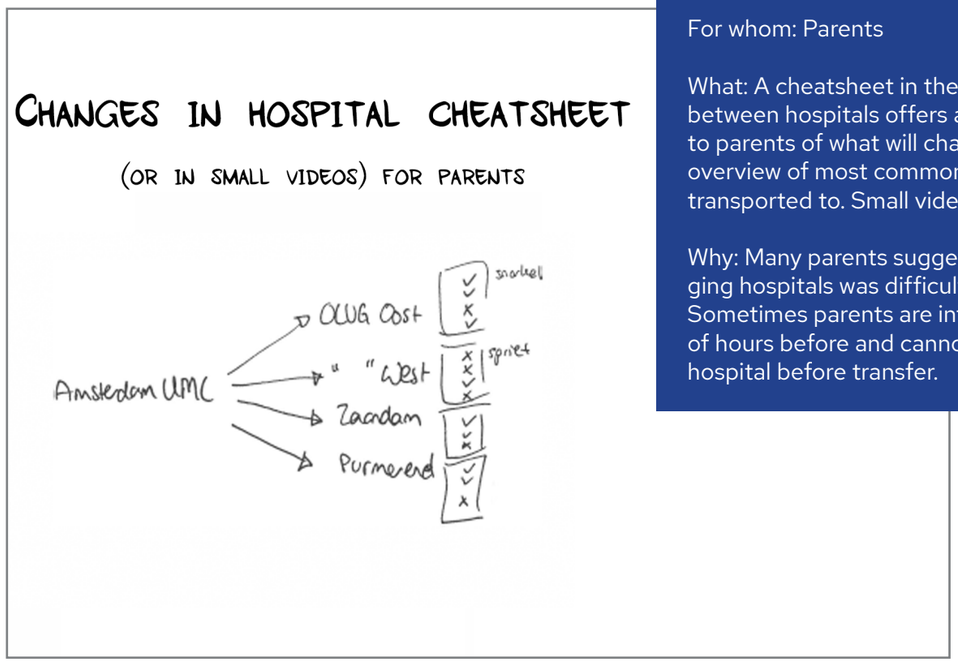


Idea 2: Distraction moment

For whom: Parents

What: Being able to have a personal distraction moment at the hospital (while not leaving still taking a moment for yourself).

Why: Escaping the stressful situation is important for parents wellbeing and health, and therefore also a plus for the health of the child and the (later) bonding of the family.

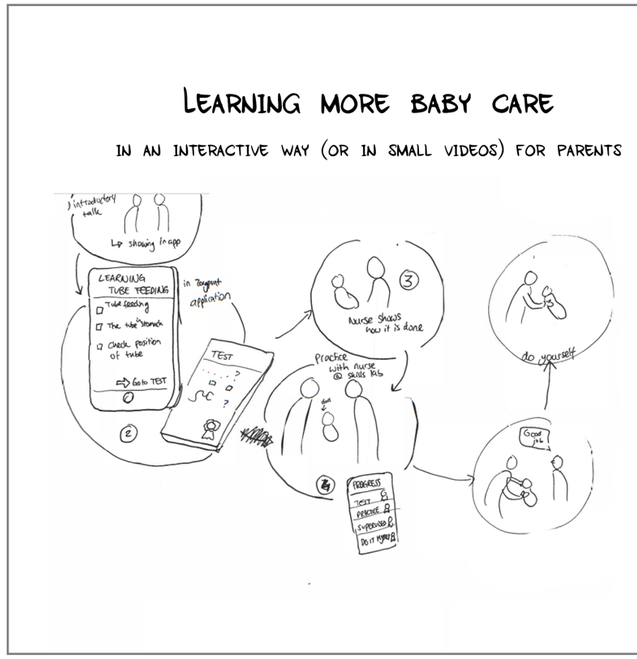


Idea 3 Changes in hospital cheatsheet

For whom: Parents

What: A cheatsheet in the differences between hospitals offers a quick overview to parents of what will change. There is an overview of most common hospitals that is transported to. Small videos also possible.

Why: Many parents suggested that changing hospitals was difficult every time. Sometimes parents are informed a couple of hours before and cannot visit the next hospital before transfer.

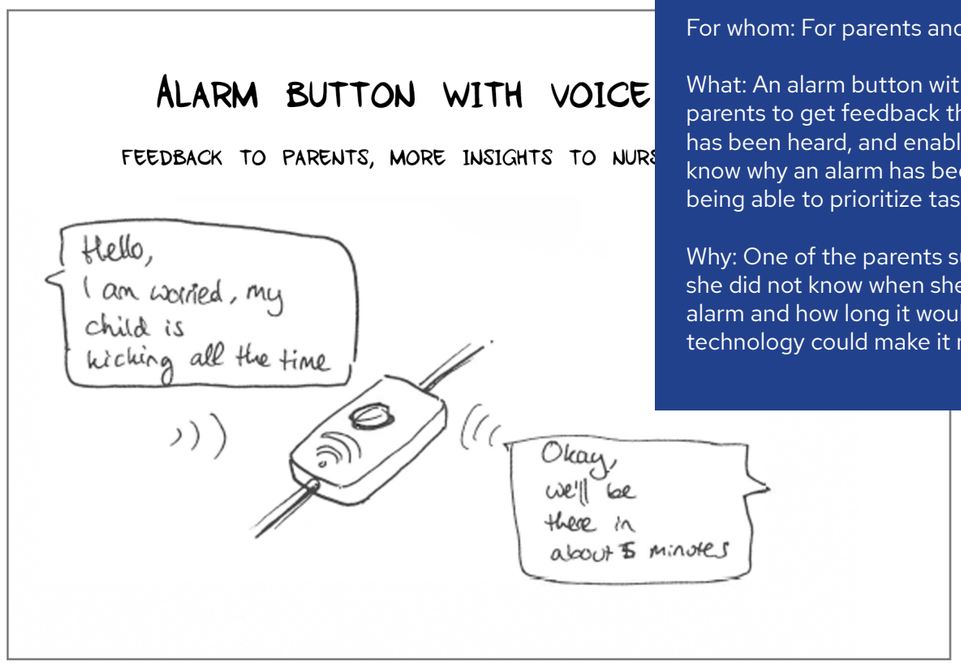


Idea 4 Learning more baby care

For whom: For parents

What: Learning more baby care (such as tube feeding, etcetera) in a more interactive way, for example in the Zorgpunt app. The new SBU's make it possible for parents to be the main caretakers, and nurses to be their coaches. Making learning more fun and interactive can improve the experience.

Why: Learning baby care is important for the family bonding and for parents to be able to feel like a parent.

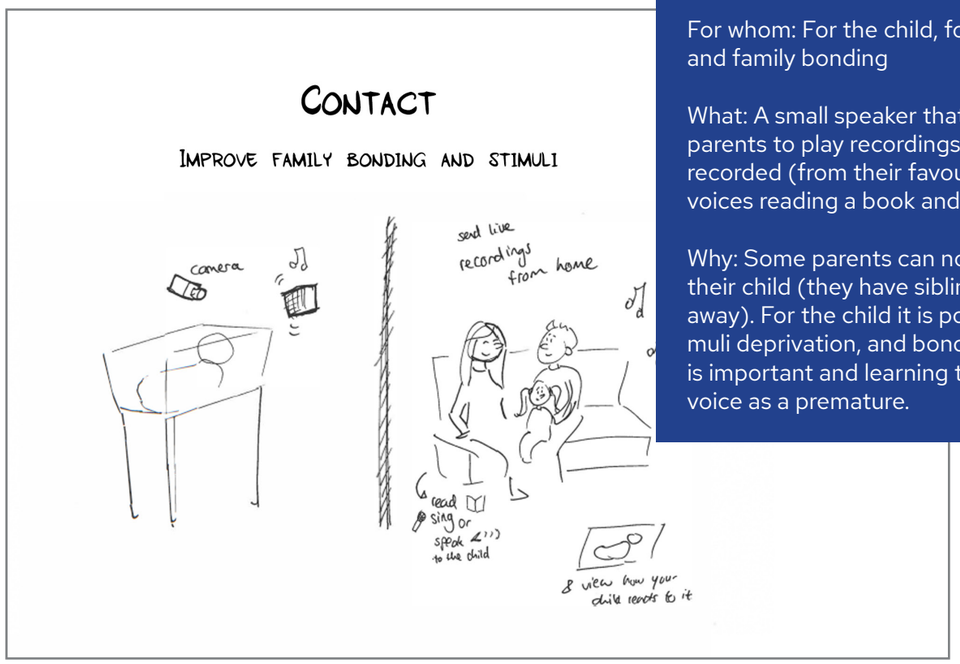


Idea 5 Alarm button with voice

For whom: For parents and nurses

What: An alarm button with voice, enabling parents to get feedback that their alarm has been heard, and enabling nurses to know why an alarm has been pressed and being able to prioritize tasks.

Why: One of the parents suggested that she did not know when she could push the alarm and how long it would take. Voice technology could make it more intuitive.

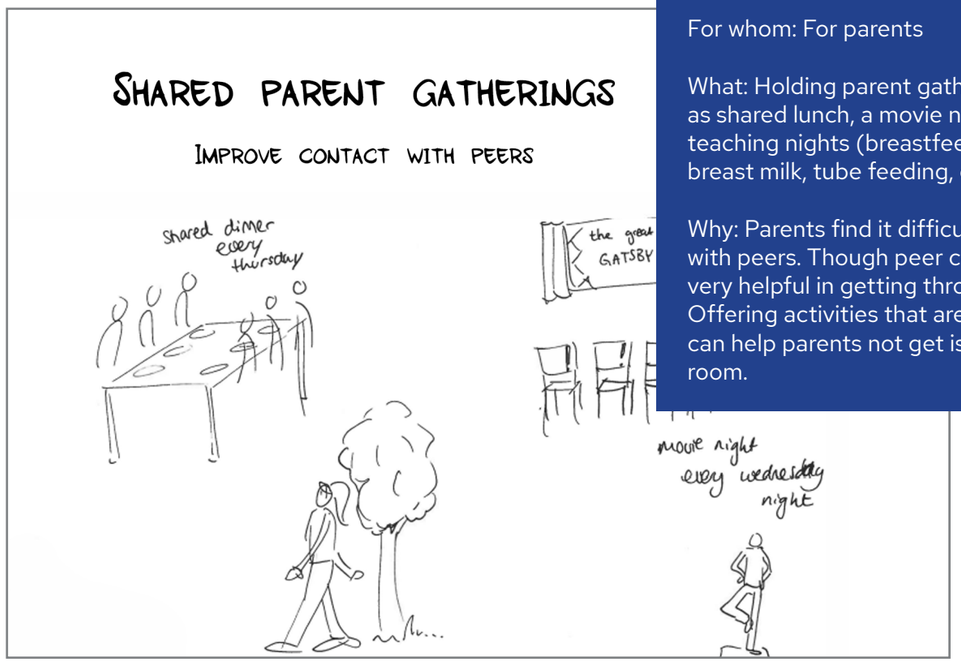


Idea 6 Contact

For whom: For the child, for the parents, and family bonding

What: A small speaker that can be used by parents to play recordings that they have recorded (from their favourite song to their voices reading a book and siblings voices).

Why: Some parents can not always be with their child (they have siblings or live far away). For the child it is possible to get stimuli deprivation, and bonding with parents is important and learning to recognise their voice as a premature.

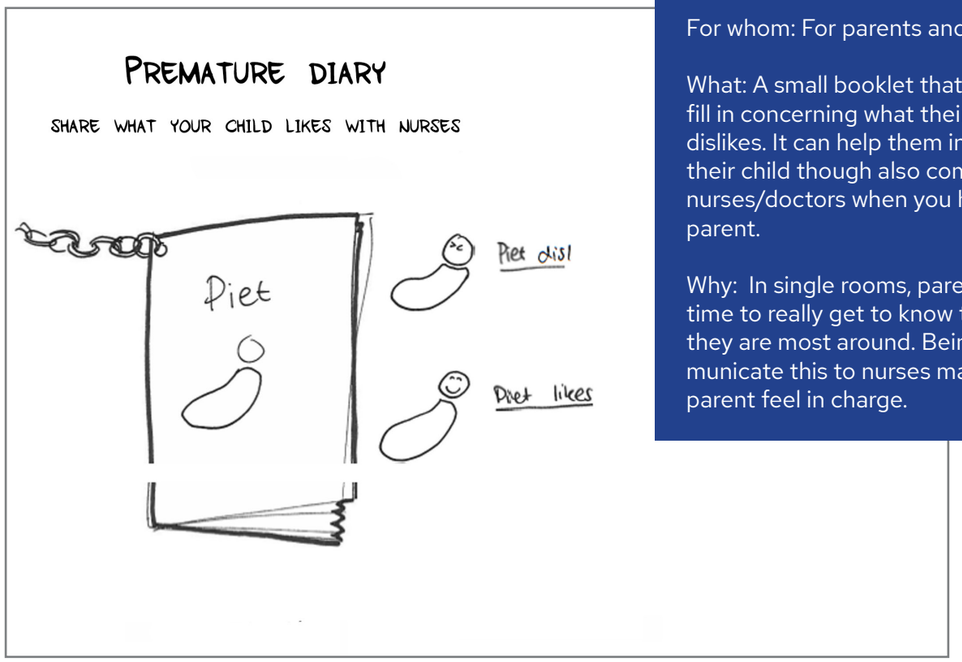


Idea 7: Shared parent gatherings

For whom: For parents

What: Holding parent gatherings such as shared lunch, a movie night, or shared teaching nights (breastfeeding, pumping breast milk, tube feeding, etc)

Why: Parents find it difficult to 'just talk' with peers. Though peer contact can be very helpful in getting through the process. Offering activities that are done together can help parents not get isolated in the room.

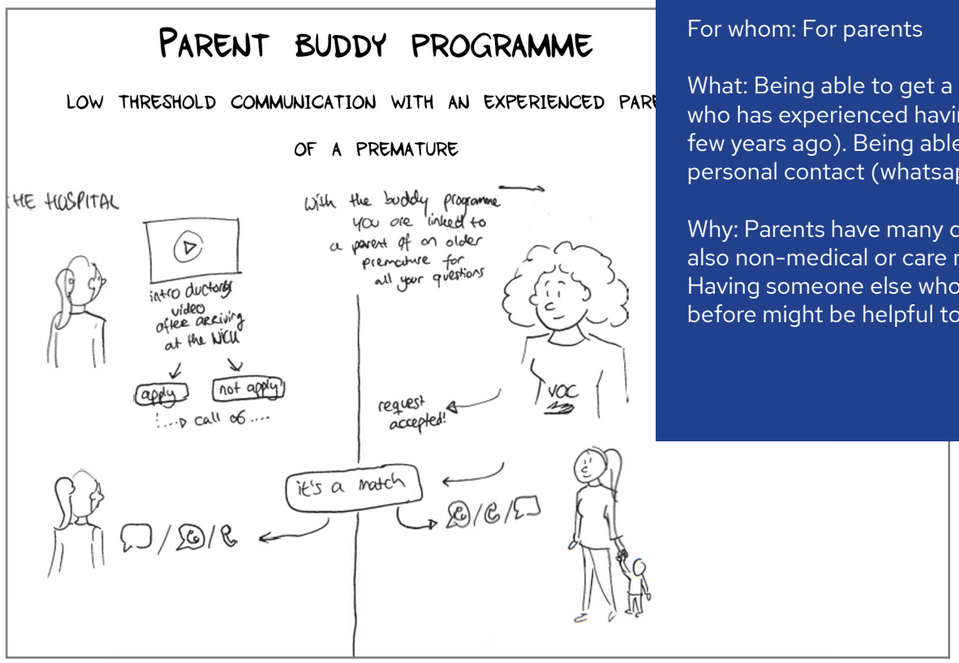


Idea 8 Premature diary

For whom: For parents and nurses

What: A small booklet that a parent can fill in concerning what their child likes and dislikes. It can help them in getting to know their child though also communicate this to nurses/doctors when you have to leave as a parent.

Why: In single rooms, parents have more time to really get to know their child and they are most around. Being able to communicate this to nurses makes you as a parent feel in charge.

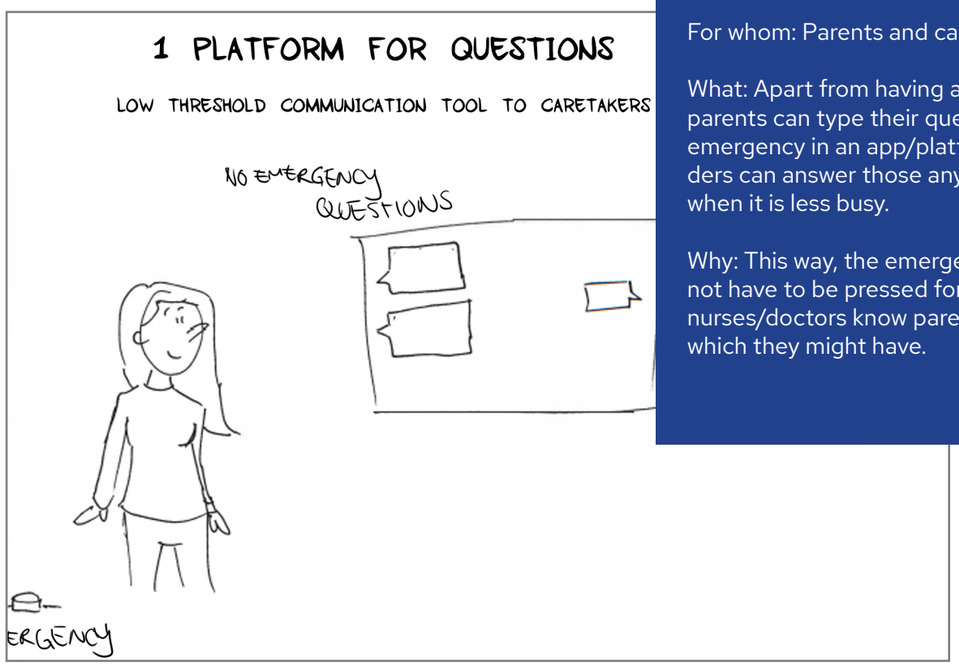


Idea 9 Parent buddy programme

For whom: For parents

What: Being able to get a buddy (someone who has experienced having a premature a few years ago). Being able to have low-key personal contact (whatsapp, calling , etc)

Why: Parents have many questions, though also non-medical or care related questions. Having someone else who experienced it before might be helpful to parents.



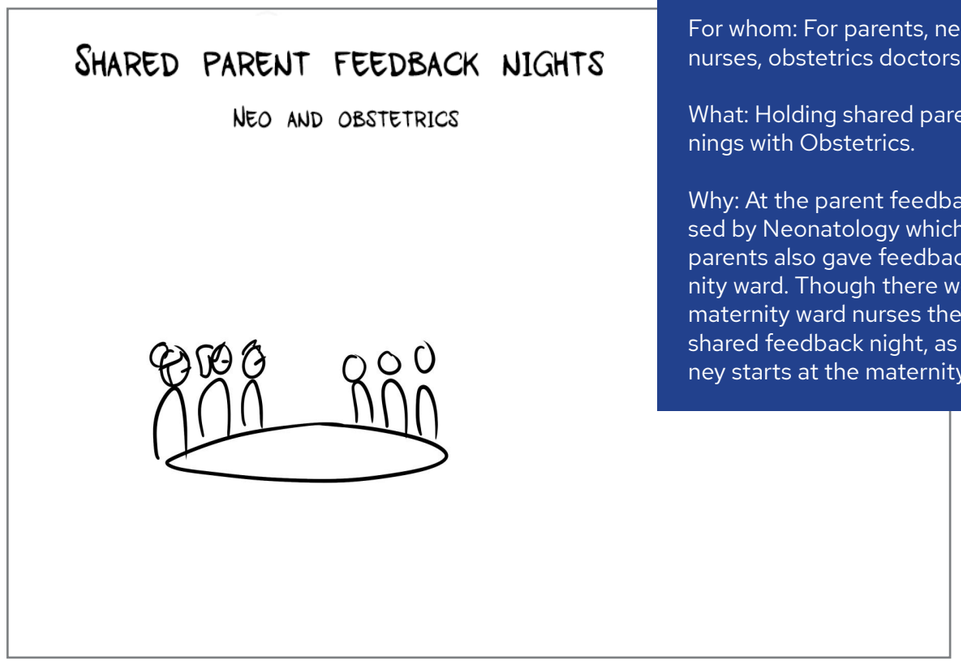
Idea 10: One platform for questions

For whom: Parents and care providers

What: Apart from having an alarm button, parents can type their questions with less emergency in an app/platform. Care providers can answer those any time, or walk by when it is less busy.

Why: This way, the emergency button does not have to be pressed for everything, and nurses/doctors know parents questions which they might have.

Ideas horizon 3

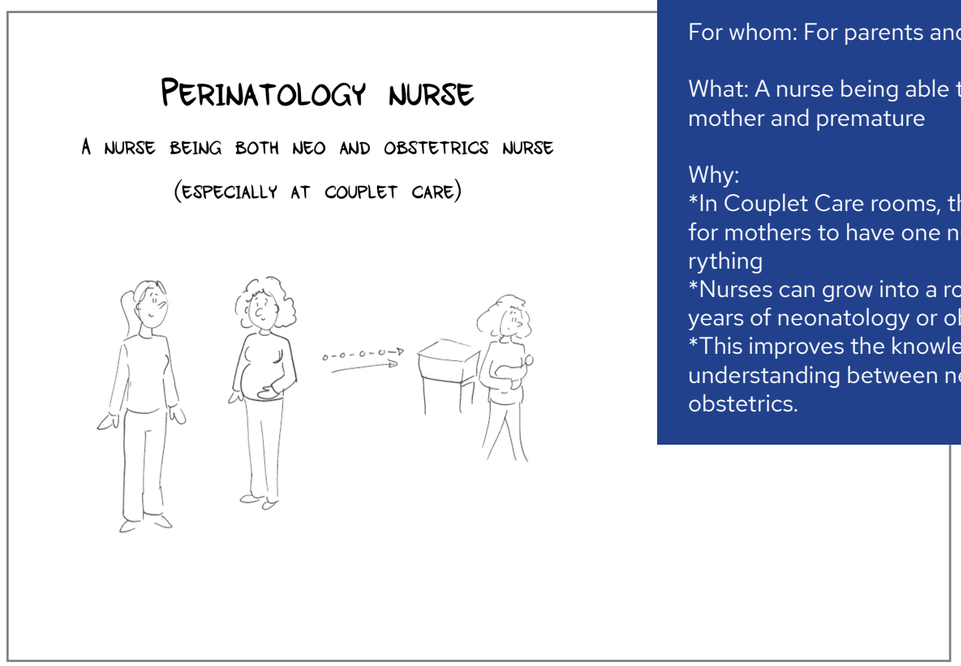


Idea 1: Shared parent nights

For whom: For parents, neo doctors and nurses, obstetrics doctors and nurses

What: Holding shared parent feedback evenings with Obstetrics.

Why: At the parent feedback night organised by Neonatology which was attended, parents also gave feedback on the maternity ward. Though there were no obstetrics/ maternity ward nurses there. Why not do a shared feedback night, as the parent journey starts at the maternity ward.

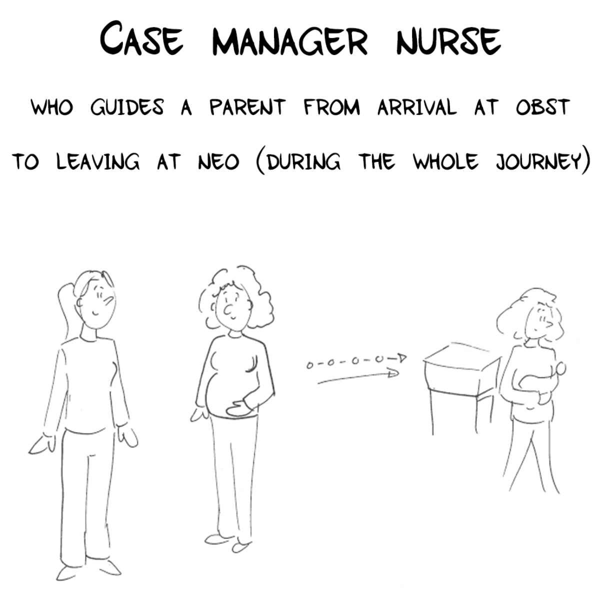


Idea 2: Perinatology nurse

For whom: For parents and nurses

What: A nurse being able to care for the mother and premature

Why:
*In Couplet Care rooms, this makes it easier for mothers to have one nurse to ask everything
*Nurses can grow into a role after many years of neonatology or obstetrics nursing
*This improves the knowledge sharing and understanding between neonatology and obstetrics.



Idea 3: Case manager nurse

For whom: For parents and nurses

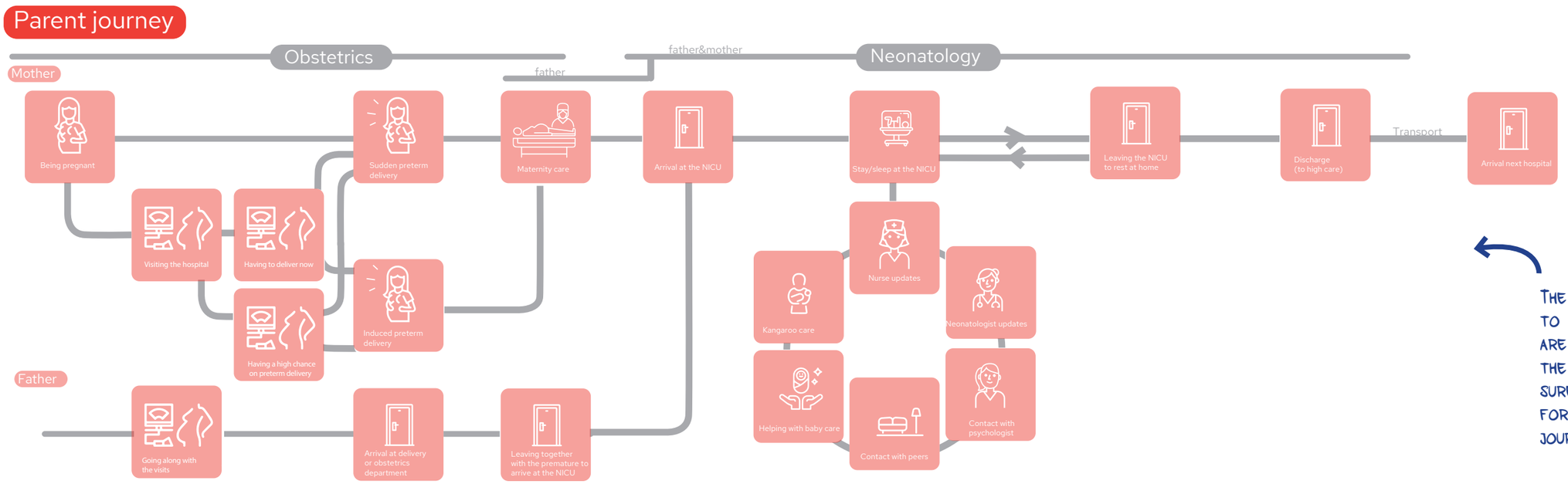
What: A nurse that is responsible for the care of one patient (parent).

Why: Parents have one standard person that they can ask everything. Also for nurses it might be interesting to grow into this role.

Appendix 12: Cost estimation concepts

Concept 1: coaching training	€ 995,00	group of 4 - 12 people are trained who train other nurses	https://www.sn.nl/opleidingen/praktische-coachingsvaardigheden/
Concept 2: Coffee moments	5000	Integrated option in the VOSMOS system	https://www.glamorousgoat.nl/app-calculator-wat-kost-een-app-laten-maken-bereken-het/
	0	Creating fixed coffee times with the buddy system (buddy 1 coffee time and buddy 2 coffee time)	
Concept 3: Shared parent gatherings	600-1200 per month	Lunch for parents from Monday-Friday met 34 SBUs en 6 CC kamers. Kosten schatting lunch 2 euro pp/pd.	Could be more expensive or cheaper depending on the food products you offer, how often the shared lunch is held and how many parents participate.
Concept 4: Celebrating successes w parents in the rooms	520	One or two polaroid cameras (a 100 eu) at the department. Picture rack for 40 rooms (a 7,99 eu)	https://www.coolblue.nl/product/819833/polaroid-originals-onestep-zwart.html
			https://www.xenos.nl/wandrek-met-clips-50x75-cm-wit?channable=e56642.ODcxNjk2Mzk1ODkwNw&gclid=Cj0KCQiAvJXxBRCeARIsAMSkApqGbcMZr09z9EU4fMGMYSnnr0gYz2Y
			https://www.xenos.nl/wandrek-metaal-80x50-cm-zwart?channable=e56642.ODcxNjk2MzAwMjgyMg&gclid=Cj0KCQiAvJXxBRCeARIsAMSkApoR73zuBOdFyG8R3LYMCL5DWhIJ7nn
Concept 5: Communicate voice/home sound	120-1200 euros	Box costs 30 euro per piece. Possible: anti-theft/lost installation. Other option is placing the box only when parents are not around. Depends on if box is placed at every room, or if box is only used while parents are away.	https://www.bol.com/nl/p/jbl-go-2-zwart-draadloze-bluetooth-mini-speaker/9200000090189222/?bltgh=oTcDNmyh3Sp4Cj5gg7xNpQ.1_33.38.ProductTitle
Concept 6: Shared teaching at skills lab	0 euros	Could potentially save time (and thus costs)	
Concept 7: perinatology nurse		Costs of training and education.	
Concept 8: case manager nurse		Costs of training and education	

Appendix 13: The parent journey at PNC with a focus on neonatology



THE PARENT JOURNEY WAS MADE TO EXPLORE HOW PAINPOINTS ARE LINKED TO THE PHASES OF THE PARENT JOURNEY AND MAKE SURE THAT IDEAS ARE CREATED FOR DIFFERENT PHASES OF THE JOURNEY