INSTITUTE OF TROPICAL MEDICINE ANTWERP

Maternal Healthcare in **Antwerp**: A Stakeholder Analysis

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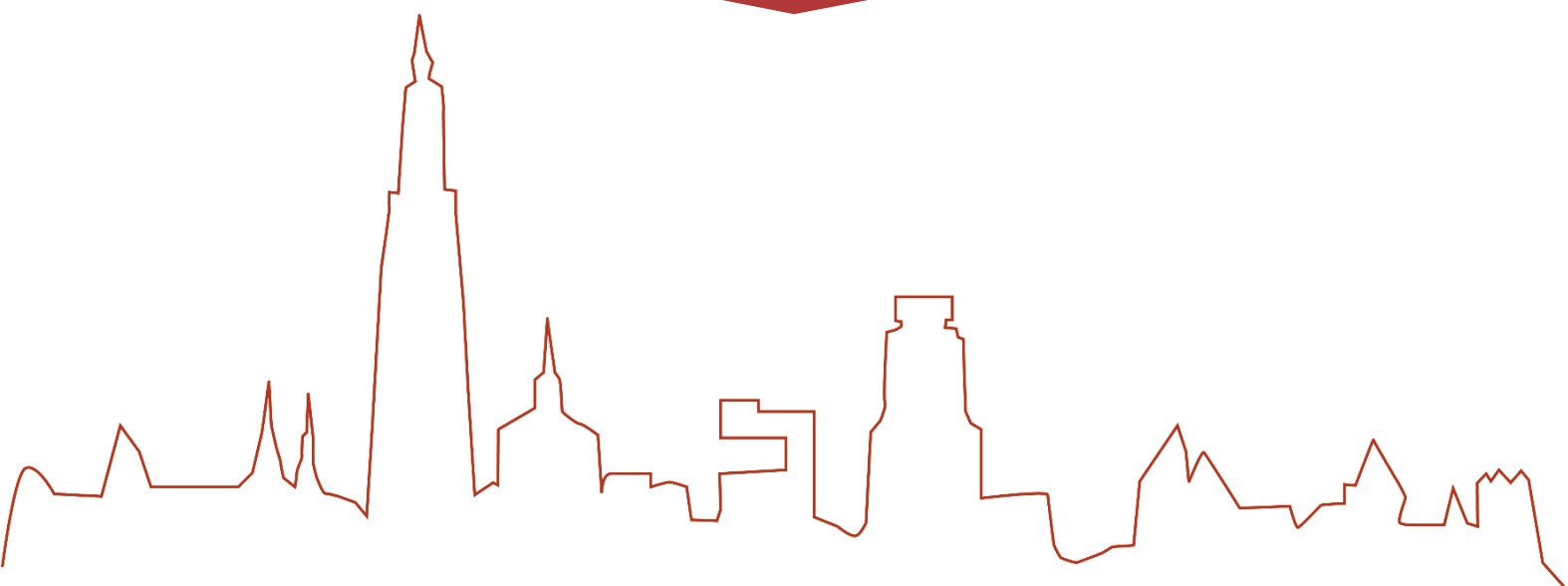

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Dutch summary

Maternale morbiditeit en mortaliteit zijn een probleem wereldwijd. In lage-inkomenslanden is dit probleem het grootst. In België is de uitdaging wat betreft maternale mortaliteit en morbiditeit minder aanzienlijk aangezien in een dergelijk systeem in principe elke vrouw de mogelijkheid heeft om in het ziekenhuis te bevallen, welke deel is van een kwalitatief en efficiënt gezondheidssysteem. Echter, maternale mortaliteit is een toenemend probleem in België aangezien de incidentie ervan stijgt. Dit is mogelijk te wijten aan een ontoereikende aanpassing van de maternale gezondheidszorg aan het toenemend aantal kwetsbare vrouwen in België. Deze kwetsbare groep bestaat bijvoorbeeld uit vrouwen zonder verblijfsdocumenten en vrouwen die financieel achtergesteld zijn. Het is dan ook belangrijk om perspectieven van relevante stakeholders hierover in Antwerpen te bestuderen om de kwaliteit van het systeem te kunnen verbeteren. In Antwerpen specifiek mist er literatuur wat betreft dit onderwerp.

De onderzoeksvraag in deze studie was: "Wat zijn de perspectieven van relevante stakeholders over het verzekeren van maternale gezondheidszorg in Antwerpen?"

De studie werd opgedeeld in drie delen. Het eerste deel bestond uit een literatuurstudie. Het tweede deel bestond uit het in kaart brengen van de verschillende relevante stakeholders, door middel van publieke informatie. Het derde deel bestond uit een interpretatieve kwalitatieve studie, waarbij acht interviews zijn uitgevoerd met een selectie van de relevante stakeholders die zijn beschreven in de eerste twee delen van de studie.

Uit de analyse zijn vier thema's gekomen, namelijk:

1) Maternale gezondheidszorg op een Antwerps stadsniveau;
2) Directe levering van mentale en fysieke maternale gezondheidszorg;
3) Belang van nauwe samenwerkingen; en
4) Tegenstrijdige percepties van stakeholders over beslissingen van overheidsinstanties.

Deze studie heeft aangetoond dat Antwerpen op een stadsniveau uniek is om haar multiculturele aspecten. Daarnaast uiten participanten dat het gezondheidssysteem meer ingericht moet zijn op een manier dat vrouwen meer geïnformeerde keuzes kunnen maken. Ook hebben participanten veelal de mening dat mentale gezondheidszorg een grotere rol moet spelen binnen de maternale gezondheidszorg in Antwerpen, al is dit in de laatste jaren aanzienlijk verbeterd. Daarnaast melden participanten dat er een tekort is aan samenwerkingen tussen allerlei Antwerpse maternale organisaties, zoals samenwerkingen tussen sociale services en ziekenhuizen. Daarnaast blijkt de gemeente een aanzienlijke rol te spelen bij het verdelen van budgetten, alhoewel dit volgens participanten nog niet soepel genoeg verloopt.

Evoluties hebben plaats gevonden op het gebied van maternale gezondheidszorg in Antwerpen. Echter zijn er nog significante uitdagingen en barrières te vinden in het huidige systeem van maternale gezondheidszorg in Antwerpen, zoals in de mentale gezondheidszorg en in

samenwerkingen tussen verschillende soorten organisaties.

English summary

Maternal morbidity and mortality is a major challenge globally. This problem is most significant in low-income countries. In Belgium, the problem of maternal mortality and morbidity is less significant, as essentially, every woman has the possibility of giving birth in a hospital, which is part of a high-quality and efficient health care system. However, we must not be complacent about maternal wellbeing in Belgium; as maternal mortality might be on the rise, possibly due in part to an insufficient adaptation of the maternal healthcare system to the increasing number of vulnerable women. This group comprises, for instance, undocumented women and women who are living in financial poverty. Therefore, it is important to study the perspectives of relevant stakeholders in Belgium to improve the quality of this system. In Antwerp specifically, there is a gap in research on maternal healthcare.

The research question in this study was: "What are the perspectives of stakeholders involved on ensuring the provision of maternal healthcare in Antwerp?"

The study was divided into phases. The first part consisted of a literature review. The second part consisted of mapping all relevant stakeholders. This was conducted by using publicly-available information. The third part consisted of an interpretative qualitative study, in which eight interviews were conducted with a selection of relevant stakeholders identified in the first two parts of the study.

Four themes emerged from this analysis, namely:

1) Maternal healthcare on an Antwerp city level;
2) Direct provision of mental and physical healthcare;
3) The importance of close collaboration between stakeholders; and
4) Contradictory perspectives of stakeholders about the decision-making of governmental agencies.

This study showed that Antwerp, on a city level, is unique because of its multicultural aspects. Moreover, participants said that the healthcare system needs to be organised in such a way that women can make more informed choices. Additionally, participants noted that mental healthcare needs to play a more significant role in the landscape of maternal healthcare in Antwerp, even though this has improved in the last few years. Besides, there is a call for more collaborations between organisations, for instance, collaborations between social services and hospitals. Moreover, the municipality appeared to have a great share in dividing budgets, however this is not always seen as smoothly yet.

Positive changes have taken place in the Antwerp maternal healthcare landscape. However, significant challenges and barriers remain in the current system of maternal healthcare, such as in mental healthcare or collaborations between several organisations.

Abbreviations and concepts

Word	Explanation
WHO	World Health Organization[1].
HICs	High-income country. A high-income country is defined by the World Bank as a country with a GNI per capita of $12,275 or more[2]. This number has increased since 1993[2].
LICs	Low-income country. Low-income country is defined by the World Bank as a country with a GNI per capita of $1,025 or less[2]. This number decreased since 1993[2].
Sustainable development goals	In 2015, all United Nations Member States adopted the agenda of the 2030 Agenda for Sustainable development[3]. There are 17 goals, which call urgently for action[3]. These goals recognise that ending poverty is closely associated with strategies that improve education and health[3].
MMR	Maternal Mortality ratio. This is a ratio expressing maternal deaths per 100,000 live births[4].
Vulnerable women	In this study, vulnerable women were understood as a broad concept for women with less financial resources, women without documents, women with a migrant background, women who do not speak the language and are not able to express themselves sufficiently, women who are disabled, or women who are part of another marginalized group. More specifically for this study, this group comprises women who are less able to receive the right kind of maternal healthcare.
Undocumented women	In this study, undocumented women were understood as the group of women who do not have legal residence documents. This creates difficulties in the medical field, as they are not insured. However, these women can apply for urgent medical care[5].
Urgent medical care application	If a woman has an undocumented residence status, she can apply for urgent medical care at the social centre (OCMW)[5]. The social centre provides free care during the prenatal, childbirth, and postnatal period[5]. The social centre conducts checks to verify the application[5].
Kraamzorg/maternity aftercare	Type of care mostly delivered in the Netherlands and Belgium. It is a specific kind of postnatal care, which mainly entails household chores such as cleaning and cooking, but also concerns family responsibilities such as taking children from/to school[6]. This type of care can make the first weeks after birth and transition to the home environment easier for the mother[6].
Independent midwives	In the Belgian maternal health landscape, independent midwives mostly work for a midwifery practice[7]. Normally, these independent midwives follow the (low-risk) pregnant women until birth, providing support and care[7]. When the woman is going into labour, an independent midwife can guide

	childbirth in the hospital, or the woman will be transferred to a midwife in the hospital[7].
Midwifery practices	Midwives in midwifery practices support and advice women personally during the prenatal, childbirth and postnatal period[8]. This guidance does not only entail medical support but also entails care at a mental or practical level[8]. Often, different professions can be based in a midwifery practice, such as coaches, psychologists, and midwives[8].
Healthcare provider	In this study, the word healthcare provider was used for all kinds of occupations specialised in healthcare. This includes midwives (independent or attached to a hospital), gynaecologists, obstetricians, nurses, and doctors who provide in maternal healthcare.

1 Introduction

1.1 Maternal healthcare in a worldwide context

Maternal mortality and morbidity are a major challenge globally. According to the World Health Organization (WHO), 830 women die every day from mostly preventable causes related to pregnancy and childbirth[9]. This means that worldwide, 295,000 women die every year during pregnancy, childbirth, or the postpartum period[9]. The most common complications are obstructed labour, eclampsia, severe bleeding, and complications of abortion, for which life-saving and cost-effective treatments exist[10,11].

One of the Sustainable Development Goals set up by the United Nations (UN) towards global health and well-being is aimed at reducing the Maternal Mortality Ratio (MMR)[12,13]. The MMR is a ratio that expresses the number of maternal deaths per 100,000 live births[12]. Statistics of MMR per country income group can be found in Figure 1[9,14]. One of the targets of the Sustainable Development Goals is to decrease the global MMR to less than 70 deaths per 100,000 live births by 2030[12]. The MMR has declined over the past few decades[9,14]. However, there are various barriers to this decline, including poverty, distance to health facilities, or lack of information about the benefits a health

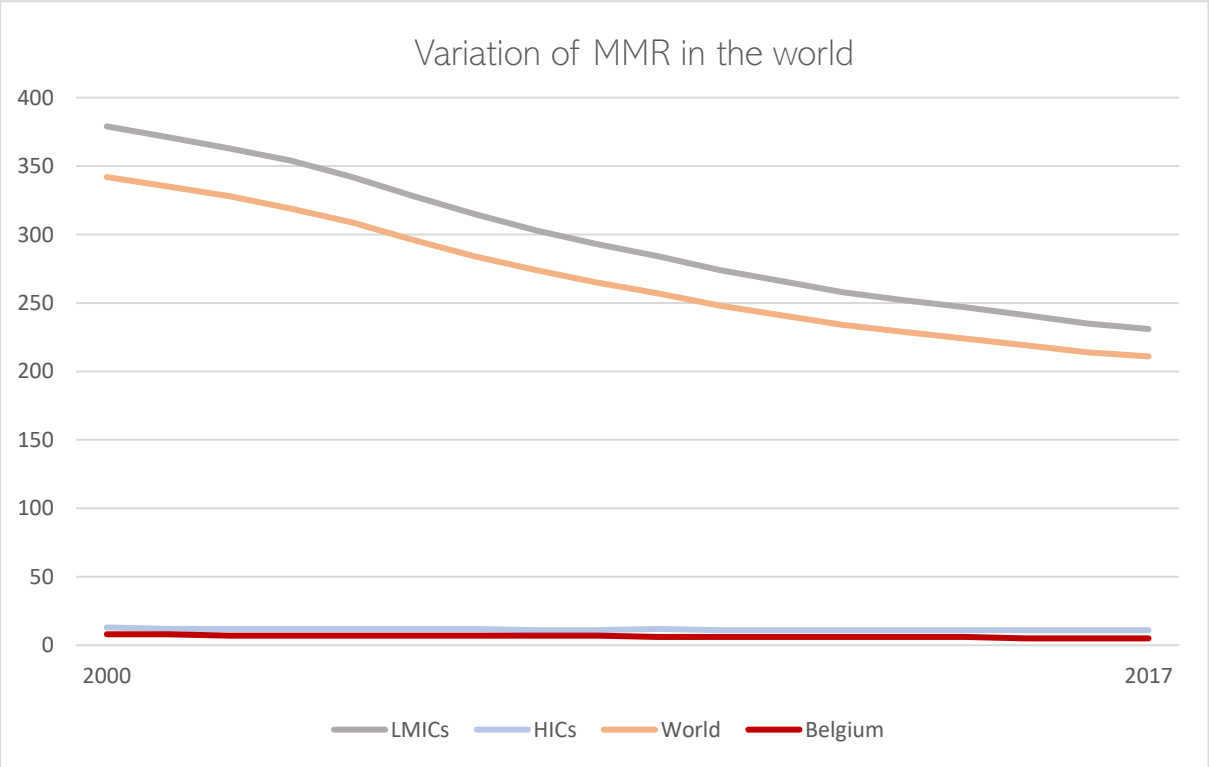


***Figure 1**: MMR per region per 100,000 live births[9,14]*

provider can offer[16]. Moreover, some hospitals provide suboptimal quality of care, due to overcrowding, shortage of human resources, or insufficient supplies and equipment[17]. Suboptimal quality of care can lead to poor experiences such as lack of autonomy and mistreatment of women during childbirth[18].

1.2 Challenges and progress of maternal healthcare in high-income countries

In high-income countries, most women give birth in hospitals and the average MMR is much lower[19,20]. However, maternal healthcare provision in high-income countries is not perfect. High-income countries often deal with the same problems as low-income countries but to a lesser extent. For instance, high-income countries also deal with human resource shortages, sometimes there can be a lack of evidence-based healthcare and women might encounter high costs of care[21]. A study from 2016 reports that poor coordination between hospitals, including poor coordination of referrals, can be an issue in both low- and high-income countries[22]. All countries thus seem to face challenges, although there are several differences between countries.

1.3 Maternal healthcare in Belgium

A high-functioning healthcare system exists in Belgium, a high-income country in Europe. General information concerning the Belgian maternal healthcare system is shown in Appendix 1. In Belgium, 6.2 women died per 100,000 live births during 2015–2019[13], which is lower than both the global and the high-income country average[13]. However, this number was nearly double the MMR in 2012–2016, which was estimated at 3.7 (Figure 2)[13].

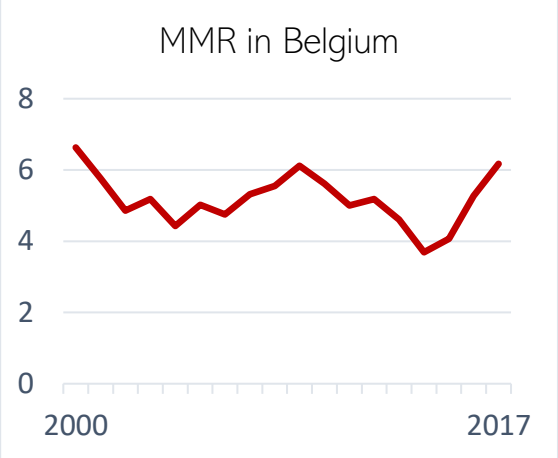


***Figure 2**: MMR in Belgium per 100,000 live births[14]*

This increase has been partly attributed to poor attention to the needs of vulnerable women, a group which is increasing in numbers[23]. This includes particularly pregnant women with a lower socio-economic status, without residence documents, a migration background, physical or mental disabilities, or/and difficulty getting health insurance coverage – all of which have been shown to be associated with adverse birth outcomes[24, 25, 26, 27, 28, 29, 30]. For example, some migrant or undocumented women lack access to information about maternal healthcare or have a language barrier, which makes it harder to obtain information and adequate care[23]. Although vulnerable women deal with significantly larger problems, the general public also faces difficulties with

Belgian healthcare. This might be explained by, according to its users, the complexity of the Belgian healthcare system, as this system is highly fragmented[31,32].

1.4 Maternal health in Antwerp

Antwerp as a city

Belgium is divided into three territorial regions. In the largest region, Flanders, 61,700 women give birth every year[33,34]. Antwerp, the biggest city in Flanders as well as in Belgium, was the topic of interest in this study[34]. Antwerp is a highly multicultural metropolis with over half a million inhabitants[34] (Table 1). Moreover, Antwerp has a relatively high birth rate, namely, 12.9 births per 1,000 inhabitants (however, this number is slowly decreasing), which is among the highest in the European Union (EU)[35]. In Belgium, the birth rate is 10.7 per 1,000 women, which is lower than the birth rate in Antwerp[36].

Health characteristics of the inhabitants of Antwerp can be seen in Table 2[37]. To put these characteristics into perspective, some of these health characteristics show a worse, whereas others show a better pattern than in the rest of Belgium. For instance, 17.4% of the inhabitants in Antwerp smoke, which compares to 19% of the inhabitants of Belgium[37,38]. However, 77% of the inhabitants of Belgium experience good subjective health, whereas this is only 71% in Antwerp[37,39].

Other general demographics and health characteristics of the city of Antwerp can be found in Tables 1 and 2.

Inhabitants	531,862
% immigrants *(outside Belgium)*	53%
Population density	2,604/km^2
Birth rate	12.9/1,000 inhabitants
Death rate	10.3/1,000 inhabitants

Table 1: *Demographics of Antwerp in the year 2022*[35]

Good subjective health	71%
Experiences stress	52%
Smoking	17%
Sufficient physical exercise	49%

Table 2: *Health in Antwerp in the year 2019*[37]

Structure of maternal healthcare in Antwerp

Antwerp is an example of a highly urbanised area in Flanders with a broad healthcare system including multiple hospitals with a maternity ward, maternity practices, and many services from the municipality that provides maternal healthcare in Antwerp. Thereby, an adequately organised urban maternal healthcare system in Antwerp is highly important.

Challenges of maternal healthcare in urban areas

An adequately organised urban maternal healthcare system does not come easy. Urbanised areas often face particular issues. For instance, congestions may lead to poorer health outcomes as this can lead to delayed care and missed appointments[40,41,42,43]. Another problem in cities is shortage of space and beds in

hospitals[44]. These problems can add stress for both staff and patients, and might reduce quality of care in urban areas[44]. Moreover, vulnerable groups can often be clustered in urban areas[44]. These groups are sometimes not knowledgeable about the functioning of the (maternal) healthcare system[45].

1.5 Research gap

There have been studies in the field of maternal healthcare provision in both low- and high-income countries[46,47,48,49,50]. However, in high-income countries, there is less knowledge about how cities play a role in maternal healthcare. In these countries, there is generally more knowledge on maternal healthcare at a national level. Thereby, there are no perspectives of maternal healthcare stakeholders in the city of Antwerp, acquired from past studies.

1.6 Objective

The objective of this study was to obtain insights into the perspectives of relevant stakeholders in the city of Antwerp on maternal healthcare in Antwerp. In such a manner, an understanding of the system providing maternal healthcare in Antwerp could be generated. To get to know this, the following question was answered:

"*What are perspectives of stakeholders involved on ensuring provision of maternal healthcare in Antwerp?*".

1.7 Relevance

Insights on the topics mentioned before can generate information useful on both a social and scientific level. For instance, understanding the perspectives of maternal healthcare stakeholders is essential to promoting optimal maternal healthcare including optimal coordination, financing, and understanding the needs of vulnerable groups.

Additionally, these insights can inform future research. In future research, indications of challenges in the city of Antwerp on the level of maternal healthcare that this report provides can be further explored. Moreover, solutions to these challenges can be studied in future research, desirably that these solutions will also be implemented. With such solutions, maternal healthcare might be improved, following that maternal morbidity and mortality might be reduced.

This study entails pilot research on the perspectives of maternal healthcare stakeholders in Antwerp. Thereby this report should not be seen as a complete overview of maternal healthcare in Antwerp, as this complete overview is yet to be explored.

1.8 Stakeholder analysis

In order to get an overview of all involved stakeholders providing maternal health and research this system of maternal healthcare in Antwerp, we conducted a stakeholder analysis through qualitative methods. This stakeholder analysis entails perspectives on aspects such as quality, communication, decision processes, equity, and capacities of

prenatal, childbirth, and postnatal healthcare in Antwerp. These aspects are expected to be able to influence the provision of maternal healthcare in an urbanised area such as Antwerp

2 Methods

2.1 Study design

We conducted the study in phases. In the first phase, we conducted a literature review to identify potential issues applicable to maternal healthcare in Antwerp. In the second phase, we mapped all relevant stakeholders including their collaborations and relationships. The third part concerned an interpretative qualitative study design to explore the perspectives of stakeholders on maternal healthcare provision in Antwerp, as this design could expose varying perspectives of different stakeholders[51]. We questioned the stakeholders through interviews, which is the main data collection method used in stakeholder analyses[52]. The interviews were semi-structured as perspectives on the provision of maternal healthcare that were most important for the participant would be evident in this way[51].

2.2 Concepts

We used a stakeholder analysis to explore the perspectives of relevant stakeholders. In the research question, different concepts were used. In the following section these concepts will be explained:

- **A stakeholder analysis**: a methodological tool that is used in management and health systems, to explore the context of systems[48].
- **Stakeholders**: in maternal healthcare, stakeholders are doctors, funders, health professionals, decision-makers, NGOs, researchers, civil society groups, and health managers related to maternal healthcare[53]. Patients are also stakeholders in maternal healthcare, but they were excluded in this study as this study was about the overview of the system of maternal healthcare facilities only.
- **Provision of maternal healthcare**: in maternal healthcare, provision of maternal healthcare includes the provision of prenatal, childbirth, and postnatal care that is thus provided by a system of healthcare services. In this study, provision was elaborated in aspects such as accessibility, equity, decision processes, capacities, communication, and quality.

2.3 Health system dynamics framework

For the interview guide, a theoretical model was used as inspiration for the interview questions—the health system dynamics framework. This model was used as it overarches all aspects of a healthcare system, which is important in conducting a stakeholder analysis[54]. The aspects of this model include leadership and governance; resources which consist of infrastructure and supplies, knowledge and information, human resources, and finances; service delivery; context; population; outcomes; and goals *(Figure 3)*[54]. More elaborate information on the health system dynamics framework can be found in Appendix 2.

2.4 Population and recruitment

To identify stakeholders in maternal healthcare in Antwerp, relevant stakeholders in Antwerp were mapped. This mapping included, for example, research on organisations such as the Kraamvogel, PANZA, Nova Vida, Kind & Gezin, midwifery practices, and all hospitals with a maternity ward. Characteristics, contact information, and relationships (through a map) have been noted.

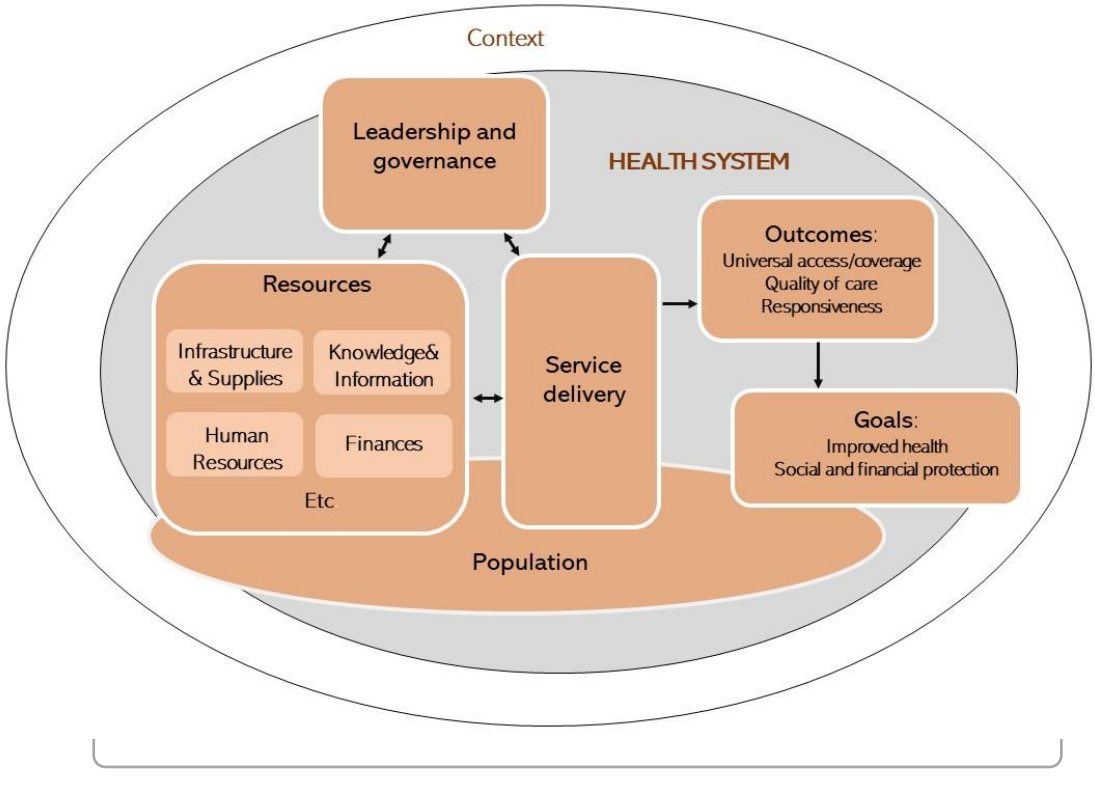


Figure 3: *The health system dynamics framework*[54]

After exploring which stakeholders exist in Antwerp and how they relate to one another, recruiting some of these stakeholders was needed. For this recruitment, emails were sent to relevant people in Antwerp from the personal networks of the study author and supervisors. However, it appeared that the response rate was insufficient for all interviews; we, therefore, needed to make side visits and ask already-interviewed participants if they could bring us in contact with other possible interviewees. In this way, enough stakeholders from different backgrounds were reached. Out of all possible stakeholders in Antwerp, people from two hospitals, three services of the municipality, an NGO, a midwifery practice, a federal project, and a researcher were interviewed. This number of stakeholder interviews was sufficient, as this was only a basic stakeholder analysis of the most important stakeholders.

2.5 Data collection

Interview questions were designed as open-ended questions. These questions arose from literature search and inspiration from the health system dynamics framework[50]. Table 3 shows examples of some questions that were asked in the interviews. All questions are in Appendix 3.
General interview questions were developed for all participants to answer, for example, questions 1, 3, and 4 (Table 3). The interview guide (which comprises all interview questions) was extended for direct providers of maternal healthcare such as hospitals and midwifery practices, as these interviews needed more in-depth questions about the direct delivery of maternal healthcare (for example, direct care during childbirth). An example of such a question is question 2 (Table 3). The interview guide was adapted for every interview in a way that was expected to be most useful for the participants as well as for the researchers. For example, some questions were not asked after a few interviews whereas some questions were added in the course of the study.
The interviews were conducted at the participants' location or online, via video calling. Four of the interviews were conducted online and four were conducted in person. In both ways, the interviews were audio recorded.

The interviews were conducted in Dutch or English by the main researcher (MvV). One of the research supervisors (LB) participated in two interviews to provide feedback to the main researcher.

1	How do you perceive the role of the local and national government in this healthcare system within the scope of the city itself?
2	Is everybody who wants to, able to reach this facility (in time)?
3	Do you in your work seek information from other cities (in Belgium or abroad), whether formally (conferences, documents) or informally (personal networks)?
4	What are some of your current concerns for the future of ensuring the well-being to pregnant women and their babies in Antwerp?

Table 3: *Examples of questions from the interview guide*

2.6 Data Analysis

After each interview, the recordings were transcribed ad-verbatim. After transcribing, the analysis phase was conducted to analyse the text and systematically work towards themes through coding. The analysis was conducted via ATLAS.ti version 22 (ATLAS.ti Scientific Software Development GmbH), which is software specifically made for organising data. Data collection and analysis were of an iterative design, as we went back and forth between the data collection and analysis. In the analysis phase, codes were first made at a descriptive and specific level. Within these codes, the essence of the coded sentence was made evident. These descriptive codes were placed in a category of a more abstract code. This step of placing codes under a more abstract code was done one more time, in a way that only around twenty codes were left. In the final step, these codes were categorised into four main themes.

After a first draft had been made, this was sent to half of the participants to check correctness.

2.7 Ethical considerations

Before the start of the research, the study was reviewed and approved by the Institutional Review Board of the Institute of Tropical Medicine in Antwerp. The participants' permission for recording and using the qualitative data was arranged via signing an informed consent document if the interview took place in person. If the interview took place online, the participant agreed to an informed consent orally.

3 Results

3.1 Description of stakeholders in Antwerp

Organisations related to maternal healthcare can be divided into three categories: medical aid, service organisations and governmental agencies. These organisations all contribute to prenatal, childbirth, or postnatal healthcare in some sort of way. Organisations of these three categories are mapped in Appendix 4. In this appendix, contact information and characteristics of the most relevant stakeholders are noted.

Medical aid

This category consists of hospitals, midwifery practices, and maternity aftercare. These services have the biggest share in caring directly for women. In Antwerp, six main hospitals provide maternal healthcare, which are shown on a map in Appendix 5. Some of these hospitals distinguish themselves from others, as some of these hospitals have a BFHI (Baby Friendly Hospital Initiative) certificate (Picture 2), which is a label indicating high-quality maternal and baby healthcare[55]. Other medical organisations are, for instance, midwifery practices. These practices provide care and support women with normal pregnancies, as this kind of care is not specialised in complex pregnancy cases[8]. Maternity aftercare (which translates to the typical word "kraamzorg" in Dutch) has a similar goal as midwifery practices do; however, maternity aftercare is care (such as checking how the woman is doing) and help (such as bringing children to school, cleaning), after the birth, which is mostly provided at home, whereas midwifery practices do not engage in such activities[7,8].

Service organisations

Organisations in this category are engaged in delivering special services for women and young families in Antwerp. Kind & Gezin and Huizen van het Kind are such organisations in Antwerp. They both have different specialisations, but they generally inform, help, and coordinate maternal healthcare[56,57,58]. They ensure that parents can optimally care for their young children[56,57,58]. Another service organisation in Antwerp is Kraamvogel, which is a key organisation in delivering expertise to healthcare providers about the prenatal, childbirth and postnatal period[59]. These social services do not provide medical care but provide a more qualitative follow-up in a way that all women, especially more vulnerable women, can be better supported in the period around birth.

Governmental agencies

In Belgium, several governmental agencies at various levels, such as the federal level (Belgium), the regional level (Flanders), and the municipality level (Antwerp), aid in maternal healthcare. For example, the Belgian government ensures medical care, while the regional level arranges for child

care (we were informed by an expert in the municipality). In the city of Antwerp, the social centre of the municipality has a large share in helping women with a precarious status[5]. This department can help with urgent medical care, for example[5].

Picture 1: *Brochures from the Kraamvogel*

Picture 2*: A BFHI-certificate in GZA Sint-Augustinus*

3.2 Relation of maternal health services

Maternal health services in Antwerp work together to deliver maternal healthcare. Figure 4 shows the main relationships between different maternal health services and the main ways in which they collaborate. Mostly maternal health services are shown (instead of also hospitals, midwifery practices, etc.) as this network of services is most intertwined. An explanation of all relevant stakeholders, including relevant maternal health services, can be found in Appendix 4.

In the following section, an example of a connection in Figure 4 will be given.

The Kraamvogel has set up Project Origine to help vulnerable women with maternal healthcare after birth. Women can be referred to Project Origine from different prenatale steunpunten (prenatal supporting centres), which in its turn are at physical locations of Huizen van het Kind. Moreover, the prenatal supporting centres also collaborate to a great extent with Kind & Gezin. However, the prenatale steunpunten will be closed by the end of 2022.

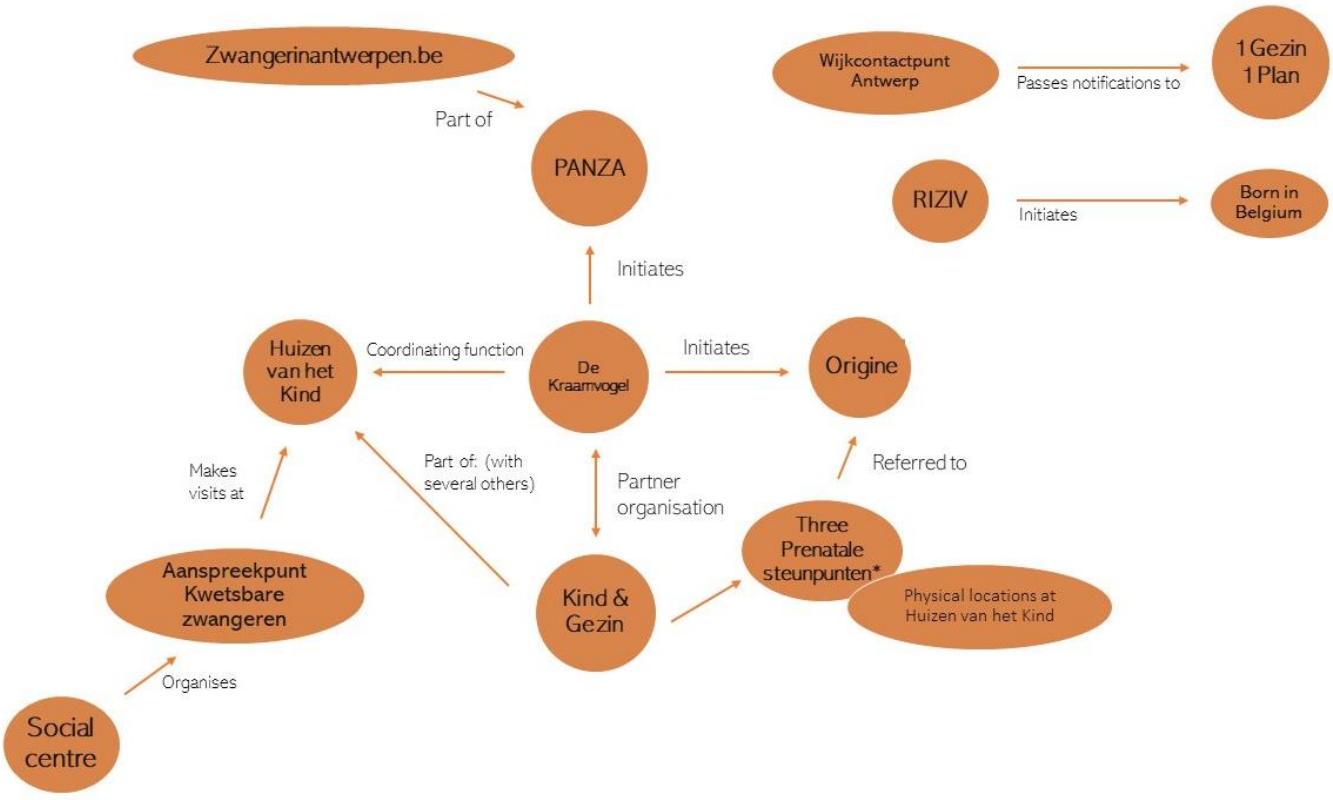


Figure 4: *The relationships of stakeholders (connections are known by conversations with experts in the field)***

*The prenatale steunpunten/ prenatal supporting centres will be closed by the end of 2022, as told by one of the participants.

** Translations of organisations can be found in Appendix 4.

3.3 Characteristics of participants

In the second part of the results section, the perspectives of stakeholders are presented. This includes eight interviews with nine participants, as one interview was conducted with two participants at once. Seven women and two men were interviewed, with estimated ages varying from mid-twenties to mid-fifties. All participants were chosen because of their expertise in the field of maternal healthcare, as the participants have been working in the field of maternal healthcare at one of the stakeholder organisations for several years. Table 4 shows the characteristics of all participants.

3.4 Period

The interviews were conducted between 29 March 2022 and 10 May 2022.

# *	*Stakeholder organisation type*	*Role*	*Sex*	*Age-range*
P1	Maternal health NGO	Expert in maternal health	Female	35-55
P2	Hospital	Head-midwife	Female	35-55
P3	Federal maternal health project	Project worker	Female	20-35
P4	Midwifery practice	Pregnancy coach	Female	35-55
P5	College	Midwifery researcher	Female	20-35
P6	Service for maternal health of municipality/government	Intersectional employee	Female	20-35
P7	Service for maternal health of municipality/government	Administrator	Female	20-35
P8	Municipality	Policy advisor	Male	35-55
P9	Hospital	Gynaecologist	Male	35-55

Table 4: *Participant characteristics*

**Sidenotes:*

- *Organisations where participants work are vaguely described in Table 4 to protect the privacy of participants.*
- *All quotes from participants 2, 3, 4, 5, 6 and 9 are translated from Dutch to English (translated with Deepl - only slightly adapted if the translation did not reflect the original quote well). The original quotes are placed behind the translated quote.*
- *The new, correct term of the OCMW is ''Social centre'', as told by one of the participants. However, many participants used the term ''OCMW''; hence, we have also used this term in the results section.*

Theme 1: Maternal healthcare on an Antwerp-city level

The understanding of maternal healthcare on the level of the city

When participants talked about maternal healthcare in Antwerp, they found it difficult to talk about the city of Antwerp on its own. The participants talked more easily about maternal healthcare at a broader level, namely, at a level of Flanders or Belgium.

Characteristics of the maternal healthcare system of Antwerp

Multiple participants mentioned that the city of Antwerp is unique for various things. Two participants stated that Antwerp is unique because of the amount of multicultural and multilingual people living there. This requires a different approach to providing care, which has not always been seen in Antwerp. It was mentioned by an expert in maternal healthcare that care is still mainly for the financially and culturally privileged people:

"I think Antwerp really needs, not a privileged healthcare. I think what we do have for the moment is white, middle-class healthcare system."

However, participants also stated many positive sides of the city of Antwerp. PANZA and the Kraamvogel were generally viewed as really positive for the city of Antwerp. Moreover, one participant also expressed that it was really good that Huizen van het Kind is on physical locations, in contrast to other cities where it mostly is a digital platform.
A few participants mentioned that clinical maternal healthcare in Antwerp always has been progressive and that people from other cities came from far to Antwerp for childbirth.

Maternal healthcare at a city and rural level

A participant from the municipality mentioned that there are a lot of advantages for women living in the city, as all hospitals in the city of Antwerp are easily geographically accessible. This participant mentioned that some other cities or regions other than Antwerp need to collaborate to offer a complete range of maternal healthcare services.

Theme 2: Direct provision of mental and physical healthcare

Challenges in information transfer

It was a general wish of participants that women are more informed about procedures, possibilities, and rights by for example midwives. It was often mentioned that women did not know which sources of support or means of clinical care existed. This was illustrated by a researcher saying:

''It is only in retrospect that they think, ah, I only heard afterwards from the midwife that I could have actually been here during my pregnancy too.''

''Het is dan pas achteraf dat zij pas denken, ah, ik hoor pas achteraf van de vroedvrouw dat ik hier eigenlijk ook al tijdens mijn zwangerschap had kunnen zijn.''

Barriers to accessing care

Several participants questioned the accessibility of maternal healthcare facilities

for all women in Antwerp. The participants mainly specified financial barriers for women who could not access maternal healthcare. Another barrier—language—was reported by two participants. However, this barrier was perceived to be solved more easily than financial barriers. This was explained by an intersectional employee:

''Uh, there are other barriers, such as language services and so on, but I think that if we invest enough in this with the entire network, and we work with interpreters, for example, most of the barriers can be overcome, but when it comes to the financial picture, that's a very difficult one.''

''Uh, er zijn nog andere drempels zoals taaldienstverlening en dergelijk, maar dat denk ik dat weg te werken valt, als we daar genoeg op inzetten met heel het netwerk, en we werken bijvoorbeeld met tolken, de meeste drempels zijn echt wel weg te werken, maar als het gaat over het financiële plaatje, dan is dat een hele moeilijke.''

A gynaecologist mentioned that care for undocumented women and women with a lower income in certain ''luxurious hospitals'', is less accessible than in others. As explained by the gynaecologist, women pay high prices in such hospitals for unnecessary examinations. This participant mentioned that officially all hospitals need to provide maternal healthcare to women to the extent the funding from the OCMW provides, although women with fewer financial resources often go to other hospitals.

Controversy in equity

Generally, there were contradictory opinions about the possibility of equal access for all women to maternal healthcare in Antwerp. For example, one participant working for a municipality service suggested that health inequality is still a substantial topic in Antwerp that needs to be tackled urgently, which refers to the multiculturality that exists in Antwerp and the insufficient adaptation of the system to this. Such an opinion was expressed by multiple participants. An intersectional employee stated the following:

[answering to the question about what are challenges or possible improvements in Antwerp]: ''Access to regular care for every citizen, regardless the status.''

''Toegang tot reguliere zorg voor elke burger, ongeacht zijn status.''

This was nuanced by a gynaecologist that mentioned that all women are treated the same in hospitals in Antwerp, as midwives and gynaecologists are not aware for example if a woman has OCMW funding or health insurance:

''If I take care for somebody here, or here in the department, we really do not know if they are insured or not.''

' 'Als ik hier iemand verzorg, of hier op de dienst, wij weten echt niet of die verzekerd is of niet.''

Challenges in woman-centred care

Around half of the participants stated that women in Antwerp need to be able to make their own choices more than they are able to do now. Which was reflected well in a quote from a pregnancy coach:

''It is 2022, we should be able to say that a patient can choose for herself, patients' rights should really be followed, and the people should choose how they want their guidance.''

''Het is 2022, we zouden echt wel mogen zeggen dat een patiënt zelf mag kiezen, patiënten rechten moeten echt wel gevolgd worden en de mensen moeten kiezen hoe ze hun begeleiding willen.''

Participants named various reasons why women could not make their own choices in Antwerp facilities. This mainly related to not knowing what possibilities exist and thereby not reaching the right facilities; because of having to speak up too much to a healthcare provider; or following the normal path because it is standardized.

Pregnancy coach:

''It is 2022, we should be able to say that a patient can choose for herself...''

A few participants mentioned that care from independent midwives is more woman-centred than from midwives from the hospital (independent midwives are midwives who do not work for the hospital but are mostly employed by a midwifery practice). A head midwife mentioned that support needs to be appropriate to the woman giving birth, which can be better delivered through an independent midwife. This participant emphasised that an independent midwife knows the woman more thoroughly than a midwife in the hospital:

''It is also something that I very much applaud, [to make use of the services of] the independent midwife, because when a woman gives birth here, she really gets the care and attention that every woman deserves. You can't always offer that in a hospital. Even if you strive for it, it is not always possible or feasible.''

''Dat is het ook iets wat ik heel hard aanjuich die zelfstandige vroedvrouw omdat die vrouw als die hier komt bevallen echt wel de zorg en de aandacht krijgt die elke vrouw verdient. Dat kun je in een ziekenhuis niet altijd goed bieden. Ookal streef je ernaar dat is niet altijd mogelijk of haalbaar.''

Overmedicalization of care

Half of the participants brought up that care is often more medicalised than needed in Antwerp. A pregnancy coach expressed this struggle:

''...Pregnancy is absolutely not a disease...''

''...zwangerschap is absoluut geen ziekte...''

Examples that were cited related to medical interventions that were carried out too quickly because it is procedure or interventions that were carried out because they match the provider's agenda. A head midwife illustrated this by saying:

''You can lead a bit of active management, absolutely, but not if it's to regulate the healthcare provider's schedule, then I am definitely not okay with that.''

''Je kunt een beetje een actief management leiden, absoluut wel, maar niet als het is om de zorgverlener zijn agenda te regelen, dan ben ik daar absoluut niet mee akkoord.''

And:

''And that's something that does bother me, when I hear from other hospitals that women come in at night and [...] an epidural catheter is already inserted so that if an epidural is needed they can start it right away, and then I think, maybe the woman is going to give birth very quickly and has absolutely no need of an epidural, then I think that is very unfriendly to women.''

''En dat is iets wat wel stoort, als ik hoor van andere ziekenhuizen, dat die 's avonds binnen komen, dat een [..] er al een epidurale catheter bij plaatst voor als ze dan een epidurale nodig hebben, dat ze dat dan direct kunnen aan beginnen, en dan denk ik, misschien dat die vrouw heel vlot gaat bevallen, en absoluut geen behoefte aan een epidurale, dat vind ik eigenlijk zeer vrouwonvriendelijk.''

Importance of mental healthcare

All participants who mentioned mental healthcare noted that it is very important in maternal healthcare and that there is space for improvement in Antwerp, although there already has been good progress.
Half the participants who discussed mental healthcare mentioned that mental health in maternal healthcare should be a greater part of the education of midwives and psychologists. A project worker mentioned:

''It starts with education, from all sides. With that also more awareness of the psychosocial vulnerability {...}, that you actually start training and informing care providers about its importance as early as possible [mental healthcare during pregnancy]''

''Opleiding begint het mee, en van alle kanten. Daarmee ook meer bewustwording rond het psychosociale kwetsbare {..}, dat je eigenlijk al zo vroeg mogelijk zorg verleners gaat opleiden en informeren over dat belang daarvan.''

Multiple participants mentioned that they would like to see more adequate screening for mental health problems in maternal healthcare. A few participants mentioned "The Born in Belgium tool" as an adequate screening method. However, several participants mentioned that there is no uniformity in the way healthcare providers screen women for mental health vulnerabilities. They desired more uniformity in the work of healthcare providers, as in this way, women with mental health problems are not missed.
A project worker mentioned:

''In the sense that we actually want to sensitise and motivate healthcare providers to start screening as standard in the first anamnesis, to actually look at the psychosocial vulnerabilities as early as possible in the pregnancy, because we now see that the focus remains very medical in many organisations and care providers.''

''In die zin dat we hulpverleners eigenlijk willen sensibiliseren en motiveren om standaard te gaan screenen in een eerste anamnese om eigenlijk zo vroeg mogelijk in de zwangerschap naar de psychosociale kwetsbaarheden.. omdat we nu zien dat de focus nog heel medisch blijft bij veel organisaties en hulpverleners.''

Project worker:

''...to actually look at the psychosocial vulnerabilities as early as possible in the pregnancy''

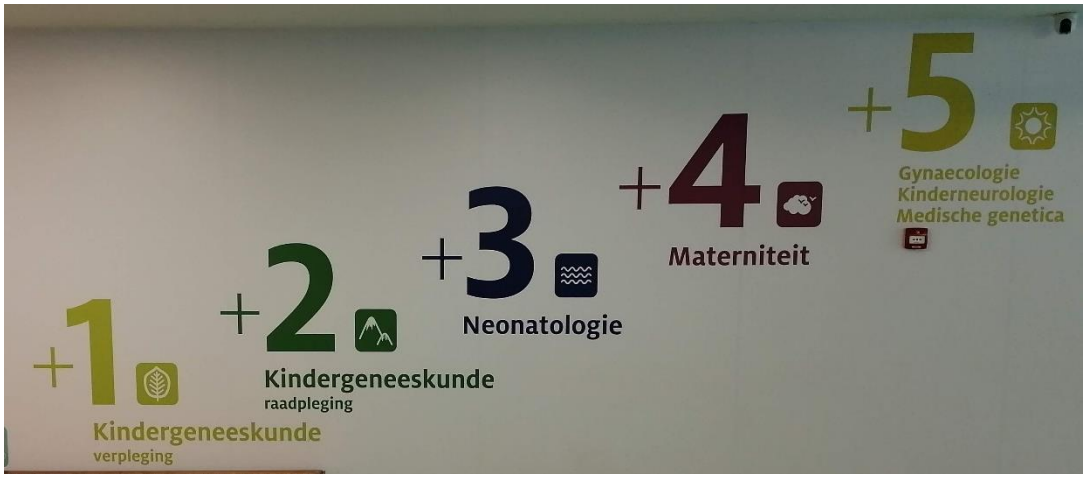
A researcher also expressed this feeling:

''But with some it's just a, 'how do you feel?' While the other person really does look for knowledge or resources to use so that they have a uniformity in their questioning''

''Maar bij de ene is het gewoon een, 'hoe voel je je?' Terwijl de andere persoon echt wel opzoek gaat naar kennis of middelen om te kunnen gebruiken zodat die bij zichzelf een uniformiteit in zit in de bevraging..''

In general, participants desired a more holistic approach to maternal healthcare. For example, a pregnancy coach mentioned that often, women were just given medications, while the reason behind de medical issue was not checked:

''People who vomit a lot, for example, yes, uh, medication is still used, but sometimes it's good to look at how someone got there, that vomiting sometimes has another reason.''



Picture 3: *Directions for the mother and child centre in UZA*

''Mensen die bijvoorbeeld heel veel overgeven, ja kunt uh medicamenten blijven nemen, maar soms is het ook wel goed om te gaan kijken, hoe komt iemand daar, dat overgeven heeft dan soms ook een andere reden''

Some participants also held the opinion that women were not checked enough on a more spiritual/religious/cultural level. An expert in maternal healthcare stated:

''And there's no religion or spiritual... We do not talk about it in Flanders. I think it's in the Western society.''

Multiple participants were irritated that the waiting list for a psychologist is long. Two participants mentioned that in this way it is hard to screen women as there is no appropriate follow-up, even though one of these participants mentioned that healthcare providers such as midwives and gynaecologists pay attention to these mental problems. A gynaecologist mentioned:

''Try to find a clinical psychologist who can handle this problem of six-month waiting lists. That is almost impossible to find. So we just don't have enough qualified and graduated social workers. And that is, you can pay a lot of attention to something, but we always come up against, where can they [the women] go?''

''Probeer eens een klinisch psycholoog te vinden die dit probleem aankan met wachtlijsten van 6 maanden. Dat is bijna niet te vinden. Dus we zitten gewoon met te weinig bekame en afgestudeerde hulpverleners. En dat is, je kan heel veel aandacht hebben voor iets, maar we botsen altijd weer op, waar kunnen ze dan terecht?''

Theme 3: Importance of close collaboration between stakeholders

Ways of communicating and working together

Participants seemed to be diverse in the amount of communication they participated in. A participant working as a pregnancy coach mentioned that communication happens mostly with other midwives, through the VBOV (midwife association),

while other organisations are not contacted that often.

Participants working in a hospital emphasised that they have good collaboration with service organisations such as Kind & Gezin, other hospitals, vulnerable women themselves, and midwifery practices. One participant, a gynaecologist, mentioned that independent midwives working in the hospital were formally met every two months to discuss challenges and progresses. Other hospitals were often contacted as there is lots of informal contact about complex pregnancies or births, according to this participant. Content that is discussed between hospitals according to a head midwife entails policy making, connecting organisations, sharing innovative ideas and/or procedures, and advise on new purchases.

Participants working in social services generally mentioned that they have contact with a wide range of organisations, such as the hospital and the municipality. However, participants from these service organisations generally mentioned that collaboration between all kinds of organisations, especially between social services and hospitals, needs to be improved urgently, whereas participants from hospitals often express that this collaboration is already good.

Generally, a wide range of participants easily communicate with stakeholders in other cities. A participant mentioned that she often asks advice in other cities, related to the prenatale steunpunten (prenatal supporting centres) that will be closed at the end of 2022, which was generally viewed as problematic by multiple participants. An intersectional employee expressed this by saying:

''For example now, the closing of the Antwerp prenatal support centres, we are the last province where there are still prenatal support centres from Opgroeien, so I'm going, I'm going to hear in the other big cities where the prenatal support centres have already been closed down in recent years, how did they approach this in order to lead those, those pregnant women to regular care?''

''Bijvoorbeeld nu, het sluiten van de Antwerpse prenatale steunpunten, we zijn de laatste provincie waar nog prenatale steunpunten zijn vanuit opgroeien, dus ik ga, ik ben gaan horen in de andere grote steden waar dat de prenatale steunpunten in de voorbije jaren al gesloten zijn, hoe hebben zij dat aangepakt om toch die, die, zwangeren toe te leiden naar de reguliere zorg?''

Barriers to communicating and working together

Contrary to the many ways participants listed they communicated, it was generally viewed by participants that a lot of organisations in Antwerp work on their own "islands", although this mechanism is slowly improving, which was mentioned by an intersectional employee:

''You notice that the island mechanism is, uh, uh, gradually, uh, being deployed in order to no longer work on islands but to work together in an integrated manner..''

''Ge merkt dat de eiland werking, uh stilaan, uh allee, d'r wordt op ingezet om om om niet meer op eilandjes te werken maar wel geïntegreerd samen te werken.''

This island mechanism can be explained by the vision that every organisation or hospital makes its own policy related to its own vision. However, according to some participants, working together more is needed to prevent instances such as

duplication of work or slow transfers of women and information to other hospitals. Working together more is, according to participants, urgent in many fields. This feeling was especially expressed relating to the collaboration between hospitals and social services.

Barriers to communicating that were mentioned included that stakeholders have little time or that stakeholders do not know which meetings exist. Moreover, it was generally viewed that there is some competition for clients (i.e. pregnant women) between geographically-closer hospitals, which can result in less communication and content sharing between hospitals. This was experienced as a shame, for example by a head midwife, as innovative ideas were not always shared in this way:

''We do notice, for example, that actually much more is shared with the maternities that are geographically further away than the neighbouring hospitals. Because then it becomes so...you notice that...then it becomes so much more competitive."

''We merken wel bijvoorbeeld dat eigenlijk veel meer wordt gedeeld met de materniteiten die geogarfisch verder van ons gelegen zijn dan de buurtziekenhuizen. Want dan wordt dat zo... je merkt dat toch wel.. dan wordt dat zo wat concurrentieler gezien.''

Moreover, another participant mentioned that competition is considerable between midwives and gynaecologists and between specialists and Kind & Gezin. An expert in maternal healthcare concluded that cooperation is not happening because there are too many egos in Antwerp that are all battling for the best care and most innovative ideas:

''And it's very hard work to let them cooperate together because they are on too many different places, egos, on who is providing the best care or the easiest care or the newest project.."

Wish for networking more

Generally, participants were eager to work and communicate together more by creating a big network. Participants gave a few examples of how networking in Antwerp is promoted and advanced.

Two participants mentioned that they were excited about a new event, namely, a networking day that has been organised for the first 1000 days of a child. An intersectional employee expressed her enthusiasm;

''All the network partners come together and exchange information about the importance of the first thousand days of a baby's life, so that means that any network partner actually receives information about, uh, what is needed in the first thousand days, how can we work together in an integrated way, what gaps there are, what kind of gaps... So I think that in Antwerp, big steps are definitely being taken to make the network more relevant to the issues that are needed."

''Allemaal netwerk partners komen bij elkaar en er wordt uitgewisseld rond de belangrijkheid van de eerste duizend dagen, van een baby'tje, dus dat betekent dat eigenlijk eender de welke netwerkpartner daar, uh, informatie krijgt rond, wat is er allemaal nodig in die eerste duizend dagen, hoe kunnen we geïntegreerd samen werken, welke hiaten zijn er nog, welke.. Dus ik denk dat er in Antwerpen zeker en vast echt wel, wel grote stappen worden gezet om het netwerk te appeleren op de zaken die nodig zijn. ''

Moreover, multiple participants mentioned the network of PANZA as positive, as PANZA brings organisations that help vulnerable women together. One participant mentioned, however, that PANZA failed in a way, as it only is a network structure that does not help vulnerable women directly.

A call for sharing data

A general wish from the participants was that information about patients could be transferred more conveniently to other healthcare providers. A few participants mentioned that the GDPR (general data protection regulation) is one of the barriers to adequate information sharing.

Picture 4: *The main square of the city of Antwerp*

Picture 5: *A ship close to the port of Antwerp*

A policy advisor expressed this feeling toward the GDPR;

''The registration or transmission of data is for a lot of organisations a very big problem, especially with the GDPR from European Commission''

As information is not shared, participants noticed that women had to tell their stories multiple times, which could be exhausting for women, as well as that healthcare providers had to do double the work. An intersectional employee explained this issue:

''You still regularly notice that, uh, patients or citizens, or whatever you want to call them, have to do the same explanation in different places, which is actually a shame, if they [higher-level organisations] would agree to an exchange of data then it would be perfectly possible for care providers to do this among themselves.''

''Je merkt nu nog wel regelmatig dat, uh, patienten of burgers, of hoe dat je ze wilt noemen, dat ie toch ook verschillende plaatsen dezelfde uitleg moeten doen, wat opzich eigenlijk wel zonde is, als zij zouden instemmen in een gegevensuitwisseling dan zou dat in principe perfect kunnen dat hulpverleners onderling die uitwisseling doen.''

Participants mentioned that a project to make information sharing more convenient is the "Born in Belgium tool", a platform for data sharing. This was viewed as an exciting new evolution. An administrator from the municipality explained this project:

'When a woman is pregnant and they see there is something wrong, mentally or physically or whatever, then they can put it in the system [Born in Belgium tool] and then they search in her… Around her house to get the right support. And then you can hopefully see more interaction when it comes to information. And she doesn't have to say over and over.''

Theme 4: Contradictory perceptions of stakeholders about the decision-making of governmental agencies

Impact of recent decisions: decision 1

Context decision 1: In the GZA Sint-Vincentius hospital in Antwerp, it was decided that from 1 July 2022, independent midwives will not have access to the hospital anymore, which only allows midwives from the hospital to childbirth[60].

The decision of one hospital to stop independent midwives assisting births there was an important topic for the participants. It was noticeable that some participants were passionate about the decision, as it affected them personally and influenced their profession. The majority of the participants were negative about the decision. The negative reactions mainly resulted from a feeling that women should choose who assists them during birth—as independent midwives can offer more woman-centred care—as well as the feeling that hospitals and independent midwives should work together and trust each other more. An expert in maternal healthcare expressed her feeling about the decision:

''And I really regret the decision of the hospital because I think the future is cocreation, multidisciplinary, working together''

Two participants, an intersectional employee and a gynaecologist, were ambivalent about the decision. The first participant was, for example, worried about who would be responsible if something went wrong in the hospital during childbirth guided by an independent midwife. She expressed this nuanced feeling:

''In principle, you can graduate as a midwife and decide at any time to start an independent practice, and you are also qualified to do deliveries, regardless of whether you have enough experience, and regardless of whether your vision is in line with that of the hospital partner.''

''In principe kan je afstuderen als vroedvrouw en eender wanneer beslissen om een zelfstandige praktijk te starten, en ben je ook bevoegd om in één keer bevallingen te doen, ongeacht of je genoeg ervaring hebt, en ongeacht ook of dat u visie strookt met die van de ziekenhuis partner.''

The second participant experienced that there was a specific group of independent midwives that did not share the same vision as the hospitals, which resulted in guidelines not being followed. This participant mentioned that he saw the decision coming:

''Because those independent midwives had a different vision than a large part of the hospital, and there already was, it is then presented in the media as if it was a bolt from the blue, but it was, everyone knew that that problem had been dragging on for years.''

''Omdat die zelfstandige vroedvrouwen een andere visie hadden dan een groot deel van het ziekenhuis, en daar was al wel, dat wordt in de media dan voorgsteld alsof dat dat een donderslag bij heldere hemel was, maar dat was, iedereen wist dat dat probleem al jaren lang aan sleepte.''

Expert in maternal healthcare:

''The future is cocreation, multidisciplinary, working together..''

Impact of recent decisions: decision 2

Context decision 2: In 2015, Maggie de Block (minister of social affairs and public health) decided that the stay in hospital would be shortened, both for vaginal births and c-sections[61].

This decision of the government triggered several responses of the participants. The general opinion of the participants that discussed this topic related to the view that midwives working in midwife practices were not prepared sufficiently by the government. In this way, these midwives were not ready for the wave of new mothers that wanted to make use of care in a midwifery practice, as the hospital care was not sufficient for them. A researcher explained this:

''With the shortened hospital stay, it took a lot of organisation to make sure that enough midwives were able to reach people postnatally.''

''Met die verkorte ligduur, dat was een hele organisatie om er voor te zorgen dat er voldoende vroedvrouwen ook postnataal bij de mensen konden komen.''

However, a project worker mentioned that due to this change women were more familiar with healthcare professionals that have an occupation independent of the hospital setting, such as family doctors and independent midwives, which was viewed as positive.

''Also because of the shortened hospital stay, people are more aware of what a midwife actually does, it can also be a general practitioner, it doesn't really have to be a midwife, but just the fact that she knows that there are options.''

''Ook door die verkorte ligduur kennen mensen ook iets meer van, wat doet een vroedvrouw nu eigenlijk, het kan ook huisarts zijn eh, het moet

niet echt een vroedvrouw zijn, maar gewoon het feit dat ze weet dat daar opties zijn.''

Lastly, a gynaecologist mentioned that the decision was good, as women do not have to stay in hospital long, as a home environment is better for the new mother.

Picture 6: *A maternity ward in AZ Monica*

Distribution of budgets

In the interviews, it became clear that funds that the municipality spends come from different sources, such as the federal government, the Flemish government, and the local government. A policy advisor explained this process:

'The medical thing is almost everything federal competence. And when its about care, it's about home care for the elderly, care for child care, that's a Flemish competence. And then we as city or a small community, we have to work in the guidelines that are set with the federal government in Belgium and the Flemish government.''

Efforts in budget mental healthcare

There was some contradiction as to whether there is sufficient financial investment in mental healthcare. The general opinion of participants was that there always can be more investment in mental health in maternal healthcare. One participant working on a federal project stated that the proportion of money going to mental healthcare is very small:

''… if we look to the total budget of our healthcare system, what goes to the mental [health] always is still small.''

''…als we kijken naar het totale budget van onze gezondheidszorg, wat er gaat naar het mentale is nog altijd klein.''

In contrast, one participant drafting policy for the municipality stated that they invest a lot in mental healthcare. However, this participant also questioned if they invest money in the right projects for mental healthcare:

''But what we want to know is do we invest in the right projects that have made a good impact or the best impact? So I think you can invest always more. I think now for us, with the funds we invest in Antwerp, do we invest them in the right projects? That's for us.''

Policy advisor:

''…do we invest in the right projects that have made a good impact or the best impact?''

Strict policy of OCMW

One participant working in a municipality service mentioned that the OCMW in Antwerp often denies urgent medical care applications for various reasons, such as, there is no possibility for a home visit or there are files missing.

''If they apply [for urgent medical care], that is a very strict regulation. That file then appears before the committee and so on. And very often, the files are refused for various reasons.''

''Als zij een aanvraag doen dan, dat is een hele strenge regelgeving. Dat verschijnt dan voor de commissie en dergelijke dat dossier. En heel vaak is het zo dat dossiers geweigerd worden op basis van verschillende redenen.''

Moreover, a policy advisor mentioned that there are so many applications as well as a strict policy in Antwerp that it is hard to get through, while it is easier to get access in more rural areas or other cities.

''And I think in Antwerp, it happens more than in other cities because we are more severe... Or some persons, that are in Social centres that are more strictly than others. And we're working on that every day.''

This participant, however, also mentioned the other side of the problem: the municipality does not want to attract women from other cities or rural areas to apply in Antwerp through a flexible application procedure.

''…there are too many people already in Antwerp, so we don't want to (…) attract a lot of people because in the city you have everything''

An administrator mentioned that sometimes, when applications were denied, project Origine would help women. This participant, however, also mentioned that project Origine is not a sustainable solution to the problem.

''But it [Origine] is not structural, it's just they are getting funds to provide it when they don't get the funds at the OCMW. So it's not a real good structural solution. But it is good that it exists''

4 Discussion

4.1 Main findings

In this study, we researched the perspectives of stakeholders involved on ensuring the provision of maternal healthcare in Antwerp.
This study gives insights into different processes in maternal healthcare in Antwerp. Participants discussed that Antwerp is unique for its multicultural landscape, while the maternal healthcare system is not fully adapted yet to this multicultural society. For example, care appears to be less accessible for women without residence documents. Moreover, clinical care is very progressive and of great quality in Antwerp. Concerning mental healthcare, participants generally agreed that good developments have happened, such as greater budgets and more attention to mental health issues. However, there are still many improvements possible such as improvements in long waiting lists, more education on this topic, and uniformity in screening for mental health issues.
Moreover, related to direct individual care, improvements can be made by letting women make their own choices more, as women are often not informed about the possibilities they can choose from.
Collaboration-wise, policies are often made separately related to the own vision of the organisation or healthcare provider. Despite the fact that developments in this field (such as more communication with other cities as well as more informal communication) have occurred, working together and sharing information more are needed. Besides, there were very contradictory opinions on this topic. For instance, participants from hospitals generally expressed that they experience more collaboration between hospitals and social services, than participants working in a social service do.
Moreover, participants shared that the social centre plays a considerable role in Antwerp maternal healthcare as a way of providing vulnerable women funding for urgent medical care, such as care around childbirth. However, the policy of the social centre in Antwerp appears to be very strict, which is sometimes seen as shameful as this creates more barriers for vulnerable women.
Different decisions that have been made at higher levels, such as the government, result in both negative and positive opinions. Negative perspectives, however, seem to dominate. The government seems to prepare healthcare providers insufficiently when an impactful decision is made.

4.2 Comparison with other literature

In the past, studies on the topic of maternal healthcare have been carried out in both Belgium and other countries. These past studies show both similarities and contradictions with our study. A similarity between our study and a study about social services for vulnerable women in the

Netherlands from 2018 was seen[62]. This study shows the importance of specialised care for the most vulnerable citizens, just as we show in our study. Other similarities exist with previous studies. For example, an earlier study from 2002 emphasises that informed choice-making is often a challenge in maternal healthcare, which is similar to what our study shows[63]. Moreover, past research from 2017 shows that teamwork and networking/collaboration are very important aspects of maternal healthcare[64]. In our study, this has been noted as one of the most important findings. However while there seem to be many similarities between our study and past studies, we also found contradictions between our study and past research. For instance, multiple past studies show that road traffic can be a great barrier to reaching the right healthcare at an appropriate time[40,41,42]. However, in our study, traffic has not been identified as a great barrier to reaching care. Moreover, our study indicates that there are power struggles between midwives and gynaecologists, whereas this is not shown in a study particularly on collaborations between midwives and gynaecologists from 2017[64]. Lastly, a great gap exists within studies from Belgium. Our study has identified that the social centre in Antwerp is very strict for women without a residence status who apply for urgent medical care; however, there are no studies on this topic in Antwerp or other cities yet. Hence, this needs to be explored further to be able to compare our results.

4.3 Strengths and limitations

A significant strength of our study is that, to our knowledge, a similar study has not been conducted in Antwerp. This study is unique since it provides insights on the landscape of maternal healthcare in Antwerp that have not been studied yet.

Another strength of this study is the variation of the sample group, which is quite representative of the study population in a way that people from all kinds of facilities are interviewed, as well as people of varying ages and backgrounds.

Another strength of this study is the usage of a member check. This member check has been conducted by visiting one participant, and by emailing multiple participants. These participants were asked to review a draft of the report and check if anything was incorrect in their opinion.

A limitation of this study is the number of participants interviewed. In the short time period of this study, only eight interviews were possible. In this way, a full scope of the perspectives of the most important stakeholders was not achieved. Although the participants brought up similar subjects during the interviews, we still got new insights during the last few interviews. Thereby full data saturation was not achieved.

4.4 Recommendation for practice

This study found that some processes in Antwerp need change. For example, communication happens mostly informally, which results in irregular meetings. In practice, a solution that could be implemented is the formalisation of communication, for example, through more set meetings. Especially organisations most in need of such meetings could benefit from this, for example, within the collaboration process of social services and hospitals. This

could be implemented by set meetings between staff from the hospital and employees from Kind & Gezin and Huizen van het Kind. This can meet the need of being more knowledgeable about other stakeholders.
There is a great wish for more uniformity, screening, and education at the level of mental health in maternal healthcare. A possible solution is that healthcare providers such as midwives follow training on this subject, while still working within their regular profession. In this way, this solution might also provide answers to the long waiting lists for psychologists, as these informed healthcare providers can form a temporary relief for the pressured psychologists.

4.5 Recommendation for future research

This study reveals many challenges and barriers to the field of maternal healthcare, both for organisations and women themselves. Future research could further identify these challenges and barriers. With such research, recommendations could be constructed for possible solutions, so that the quality of the landscape of maternal healthcare in Antwerp could be improved. For example, challenges in collaborations between facilities could be further explored such that possible solutions could be designed. Accordingly, guidelines on improving collaborations could be implemented, for example, increasing the number of formal meetings.
Moreover, several other aspects that are not included in this research or too minimally asked could be studied, such as the efficiency of ambulance transfers for pregnant women or the possible challenges faced in heavy traffic in Antwerp, when wanting to reach a maternal healthcare facility. Experts in the field of ambulance transfers as well as traffic could be asked about this, as there was minimal knowledge on these topics in this research.

5 Conclusion

Challenges and strengths were found in several fields of maternal healthcare in the city of Antwerp. Challenges were found in mental healthcare, collaborations between facilities, the accessibility of care, and woman-centred care in Antwerp, although great improvements have been made in for example mental healthcare and collaborations. Concerning decision-making at higher levels, the decision-making processes at the government level created a lot of controversy for relevant stakeholders.

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Appendix 1: Background information on the maternal healthcare system in Belgium

This Appendix provides background information on the system of maternal healthcare in Belgium, such as scheduled meetings with healthcare providers, guidelines in Belgium, fundings, payments and providers of maternal healthcare. This is described for the three phases of maternal healthcare, namely, prenatal, childbirth and postnatal care.

Phase	**Time period**	**Contact**	**Funding/ Payment**	**Provider/ other notes**
Prenatal (gestational age)	8–10th week	First time	Payment depends on health insurance.	Care provided by a midwife or gynaecologist.
	Until 30th week	Every 4–6 weeks		
	From 30th week	Every 2–3 weeks		
	After 36 weeks	Once/twice a week		
	Week 12, 20, 30	Three ultrasounds total		
Childbirth	Starting in 37 weeks	Induce childbirth due to medical reasons	Payment depends on place of childbirth (e.g. choice of single or double room). Most costs are covered by health insurance and additional hospitalisation insurance.	95% of women in Belgium have a clinical follow-up in a hospital by a gynaecologist or midwife.
	41 weeks	Post-term - Possibility to induce childbirth for non-medical reasons wish mother/doctor		
Postnatal care	Stay in hospital 2–3 days	Depends on wishes/medical reasons	Starting budget for every birth in Belgium from Groeipakket (federal government) = € 1,167.33. Maternal aftercare (kraamzorg) is mostly covered by basic health insurance up to the amount € 150–300, depending on health insurance package. Payments for postnatal follow-up after childbirth are depending on health insurance.	Maternal aftercare/ kraamzorg Postnatal visit is often provided by gynaecologist.
	Within 14 days after childbirth	Kind & Gezin's first home visit		
	6–8th week	Gynaecologist consult		

Table 1: *Detailed information about routine prenatal, childbirth and postnatal care in Belgium*[65,66,67,68,69,70,71,72,73,74*]

**Literature removed from the table to facilitate readability*

Appendix 2: Health system dynamics framework

The health system dynamics framework is based upon the notion of complex and adaptive systems[54]. Health systems are social systems, composed of many organisations and factors that interact with each other and with society[54]. This framework is based on the WHO building blocks[50]. However, this system adds something to already existing systems[54]. This framework adds something as it can explain more profoundly how one level in a health system can influence, through interventions and events, another level in a health system[54]. Moreover, this system adds that it emphasises the importance of values, it adds a central axis linking human resources, governance, service delivery and population, and it adds the key elements of complexity in analysis and strategy development[54]. Thereby this system does take into consideration the entire complex system of influencing factors in a health system[54]. The goal of this knowledge and thereby this health system is to improve health and wellbeing[54].
All aspects that are used in this model to explain a health system are explained in the following table:

Aspect	Description	
Outcomes	Outcomes of healthcare are the results of the organisation of healthcare, such as universal coverage, quality of care, and responsiveness.	
Goals	Goals are the expected result of healthcare delivery, such as improved health or social and financial protection.	
Values	Health systems are not mechanically engineered. Health systems are social institutions that emphasise values. Values in such systems are often based on effectiveness, efficiency and sustainability. Values are often reflected in concepts such as solidarity, equity and autonomy.	
Context	The context of a health system often reflects a constant need for response to transitions, new technologies, and changing expectations. Moreover, the context can change due to political decision-making and historical evolution.	
Service delivery	The delivery of service is the process in which providers, health facilities programmes, and policies are coordinated and implemented.	
Population	The population in the health system consists of patients or customers. However, these citizens can also be providers, funders, and suppliers.	
Governance	Governance entails policy guidance to the entire health system. The governance takes care of the coordination and regulation of different functions.	
Resources	***Financing***	*Financing involves the acquisition of financial resources in a matter that it effectively contributes to achieving the desired goals and outcomes.*
	Human resources	*Human resources concern to professional staff, which are meaningful if workers are available, performing up to standard and competent.*
	Infrastructure	*Infrastructure and supply entail ensuring enough health facilities with proper reach and proper and enough equipment.*
	Information & Knowledge	*Information and knowledge are crucial for monitoring, evaluation, clinical decision-making, and research.*

Table 2: *Aspects of the health system dynamics framework[54]*

Appendix 3: Interview guide

Can you tell me a bit about this organisation? How is it involved in the field of maternal health?

- Has its role changed recently?

Can you tell me about yourself and your role in this organisation? How long have you worked here?

Can you tell me about how you perceive the current situation of maternal health in the city of Antwerp, in terms of:

- Provision of care, including space, human resources and preferences of women

- Quality of care, including safety and patient-centeredness

- Elements of care accessibility, whether geographic or financial, or otherwise

- Vulnerability of certain populations or women which might prevent them from receiving adequate care, such as language barriers, poverty, undocumented migrant status, etc

For these elements, can you tell me about the role of the organisation?*

Who are some of the key actors which determine the state of provision and use of maternal healthcare in Antwerp? For each organisation/key actor, please specify the role.

How do you perceive the role of the local and national government in this health area within the scope of the city itself?

How do you see the communication channels between the key actors? Does your organisation participate in any of these channels? Is there coordination happening? If so, on which issues?

Are referrals happening coordinated? How does the ambulance system work? Is it coordinated well? Are there any possible improvements?

What are in your mind the elements of the system of achieving good access to maternal care in Antwerp which work well or have improved recently?

Which are the elements which experience challenges or could be improved? Do you see any issues with seeking to improve these? What are some of the barriers?

Do you in your work seek information from other cities (in Belgium or abroad), whether formally (conferences, documents) or informally (personal networks)? Can you give me an example of how you do this? How has it helped?

What are some of your current concerns for the future of ensuring well-being to pregnant women and their babies in the city of Antwerp?

Are there any key organisations which you think should participate in the processes around maternal health in Antwerp which are currently left out/chosing not to engage? Which? Why?

*For healthcare facilities providing maternal care, such as hospitals, more targeted questions will be asked:

Capacity of the facility

· What is the capacity of this health facility considering number of beds for maternal healthcare? Are these beds divided between the nature of care (prenatal, childbirth, postnatal care). Are there different ward for this?

· Did this department encounter any problems with capacity? Is this a chronic problem in this facility? Has this changed in the years?

· If there is a lack of beds, how is this handled? Is there a set protocol? Are other facilities cooperating well when this happens?

· Does this facility receive referrals from other facilities? [please describe]

· Does this facility refer maternity patients to other facilities [please describe]

Accessibility

· Can you tell something about the accessibility of this facility?

· Is everybody who wants to, able to reach this facility (in time)? If no, can you make an indication of what women do not have access to this facility? Why do these women not have access to this facility? Can you explain something about what is done to help women access care in time

Appendix 4: Mapping of relevant stakeholders

Service organisations

Name and translation	Contact information	Description
Kind & Gezin / ***(Child & family)***	www.kindengezin.be / different locations/ antwerpen.secretariaat @kindengezin.be / 078 150100	**Kind & Gezin** is an official organisation of the agency Opgroeien, which is part of the Flemish government[56]. Kind & Gezin's goal is to deliver adequate support for women who have children and for women who are pregnant, by means of supporting the social and perinatal network, providing skills for raising children, and by providing development opportunities[56]
Huizen van het Kind / ***(Houses of the child)***	ww.huisvanhetkind antwerpen.be / different locations / huisvanhetkind. Antwerpencentrum @antwerpen.be / telephone depending on location	**Huizen van het Kind** is an organisation of the Flemish government, which is a collaboration between several organisations which aid parents with raising children, healthcare, leisure and childcare[57]. There are 17 locations of Huizen van het Kind in Antwerp which provide their own range of offers[58]. At three Huizen van het kind, there are prenatale steunpunten (prenatal supporting centres) who deliver prenatal support to women who cannot receive adequate care from a midwife, family doctor or gynecologist[75]. The three prenatale steunpunten offer individual guidance, administrative help and medical examinations[75]. For example, they can help migrant women without documents[75]. However, the prenatale steunpunten will close at the end of 2022, according to several experts in the field.
Kraamvogel / ***(Maternity bird)***	www.kraamvogel.be / Volksstraat 7 2000 Antwerpen / info@kraamvogel.be / 03 238 11 00	**The kraamvogel** is one of the key organisations, as one of the Flemish expertise centres on maternity care[59]. The Kraamvogel is an expertise centre on the prenatal, childbirth, and postnatal period[59]. It is a partner organisation of Kind & Gezin[59]. Kraamvogel has recently launched Origine[59]. Through Origine, independent midwives can be deployed to deliver postpartum care to women without any residence documents because they often leave maternity wards early due to financial issues[54]. After these women are helped, they are transferred to the postnatal follow-up of Kind & Gezin[59].

PANZA	www.panza.be / no location / panza@kraamvogel.be / no telephone	**PANZA** *(which stands for: Perinataal Antwerpen netwerk Zwangerschap in armoede; Perinatal Antwerp network pregnancy in poverty)* is an organisation which is set up by Kraamvogel, the municipality, Hogeschool Antwerpen, The University of Antwerp, Dokters van de Wereld and Kind & Gezin which goal is to tackle perinatal inequality[76]. PANZA has various partners that create a framework that aids to achieve this common goal[76]. Most organisations in this table are somehow related to PANZA, as PANZA is a broad umbrella organisation.
Nova Vida	www.novavida.be / Campus Spoor-Noord, Noorderplaats 2, 2000 Antwerpen / nova.vida@ap.be / no telephone	**Nova Vida** is an organisation set up by the Hogeschool Antwerpen, where midwife students with guidance of their supervisor/teacher guide and informs new parents in prenatal and postnatal care[77]. They follow the guidelines of the KCE (expertise centre healthcare)[77]. A similar initiative is, for example, Buddy bij the wieg, where midwifery and remedial educationist students can support vulnerable women during pregnancy and in the period after giving birth[78]. *Sidenote: Not shown in stakeholders map.*
Born in Belgium professionals	www.borninbelgium professional.be / unknown location info@borninbelgium pro.be / 02 474 98 52	**Born in Belgium Professionals** is developed as a RIZIV-project (Which is the National Institute for Sickness and Invalidity Insurance)[79,80]. Born in Belgium professionals is a digital tool that is developed by and for professionals of vulnerable pregnant women[79]. The tool helps to screen women during pregnancy that might experience psychosocial vulnerabilities[79]. Subsequently, the woman can be helped with personalised care[79]. It is a tool that can be used anywhere in Belgium, including Antwerp[79].
Zwangerin antwerpen.be / *(pregnantin Antwerp.be)*	Zwangerin antwerpen.be / no location / panza@ kraamvogel.be / 32 3 224 60 66	From 2008, a website to assist women with needs around pregnancy was aired through a collaboration of Karel de Grote Hogeschool and De Kraamvogel, which was named **zwangerinantwerpen.be**[81]. PANZA keeps this website up to date[81].
1 Gezin 1 plan / *(1 family 1 plan)*	No own website/ Different locations / centrum .linkeroever'@1g1p. antwerpen.be / 03 376 19 02	**1 Gezin 1 Plan** offers free help for children and families with a request for help[82]. This organisation helps to find a family the right kind of care, possibly with networkpartners[82]. To get in contact with 1 Gezin 1 Plan, the family has to contact a wijkcontactpunt (which translates to a district contact centre)[82].
Aanspreekpunt Kwestbare Zwangeren / *(Talking point vulnerable pregnant women)*	No own website/ Lamorinierestraat 137 2018 Antwerpen / kwetsbarezwangeren@ antwerpen.be / 03 292 83 30	**Aanspreekpunt Kwetsbare Zwangeren** keeps consultation hours, regarding information about urgent medical care, at the Huizen van het Kind regularly[83]. The Aanspreekpunt Kwetsbare Zwangeren is closely intertwined with the social centre[83].

Table 3: *Contact information and explanation about services organisations*

Medical aid

This table provides all hospitals in Antwerp that have a maternity ward.

**Sidenote: The Antwerp hospital chain ZNA and GZA will fuse to form a new hospital chain: Ziekenhuis aan de Stroom (ZAS)[84]. In 2024, the fusion will be completed[84]. In the time of writing, this merge has not been announced yet.*

Hospitals

Name	Contact information	Description
ZNA chain*		The ZNA chain stands for Ziekenhuis Netwerk Antwerpen, which can be translated to Hospital network Antwerp. The ZNA chain includes 15 facilities, including, for example, a nursing home and a residential care centre[85]. These facilities are all in the region of Antwerp. The ZNA hospital chain is the earlier OCMW hospital chain, which was stopped in 2003 because there were high debts[86]. Since 2016, ZNA and GZA started a structural collaboration, which includes a mutual board[87]. This collaboration is of great scale, as it includes, for example, more than 1000 doctors[87]. This collaboration also includes a mutual electronic patient file[87].
ZNA Middelheim	Lindendreef 1, 2020 Antwerpen / mi.info@zna.be / 32 03 280 31 11	**ZNA Middelheim** is part of the ZNA chain. It is the largest general hospital in Antwerp[88].
ZNA Jan Palfijn	Lange Bremstraat 70, 2170 Merksem / jp.info@zna.be / 32 03 640 21 11	**ZNA Jan Palfijn** is part of the ZNA chain. It is just as ZNA Middelheim a general hospital[89]. Respectively, ZNA Jan Palfijn has a large maternity unit[89].
GZA chain*		**GZA** is a hospital chain, which stands for GasthuisZusters Antwerpen, which translates to GuesthouseSisters Antwerp. This name relates to the founding of this hospital chain, as in the start of this chain, hostesses cared for sick patients[90]. The GZA chain has a structural collaboration with the ZNA chain, as noted earlier.
GZA Sint-Vincentius	Sint-Vincentiusstraat 20, 2018 Antwerpen / sint.vincentius@gza.be / 32 03 285 20 00	**GZA Sint-Vincentius** is part of the GZA chain. GZA Sint-Vincentius has a BFHI-certificate, which concerns a label for qualitative maternal and baby healthcare[91].
GZA Sint-Augustinus	Oosterveldlaan 24, 2610 Antwerpen / sint/augustinus@gza.be / 32 3 443 30 11	**GZA Sint-Augustinus** is part of the GZA chain. Sint-Augustinus is a specialised hospital regarding maternal and child care, with a focus on prenatal diagnostics, fertility and intensive care for pregnant women and newborns[92]. According to an expert in the field, 3500 births per year take place in GZA Sint-Augustinus.

UZA	Drie Eikenstraat 655, 2650 Edegem/ vragen@uza.be / 32 3 821 30 00	**UZA** is the university hospital in Antwerp. This hospital often treats complicated cases[93]. UZA has a BFHI-certificate[94].
AZ Monica	Harmoniestraat 68, 2018 Antwerpen / info@azmonica.be / 32 3 240 20 20	**AZ Monica** is a smaller generic hospital and has a BFHI-certificate[94]. AZ Monica is part of a hospital network named Helix, which is a collaboration of five hospitals in the region of Antwerp, including UZA[95].

Table 4: *Contact information and explanation about hospitals*

Non-hospital medical care

Name and translation	Description
Midwifery practices	Although not specific to Antwerp, there are various midwifery practices in Antwerp. A more broad explanation of the concept of midwifery practices can be found in the section "concepts and abbreviations". An overarching organisation, named *the Vroedvrouwenkring Centraal-Antwerpen* connects midwives with each other in Antwerp[96,97].
Maternity aftercare / *(kraamzorg)*	In Antwerp, many organisations take care of women after birth at home. A broader explanation of the concept of midwifery practices can be found in the section "concepts and abbreviations".

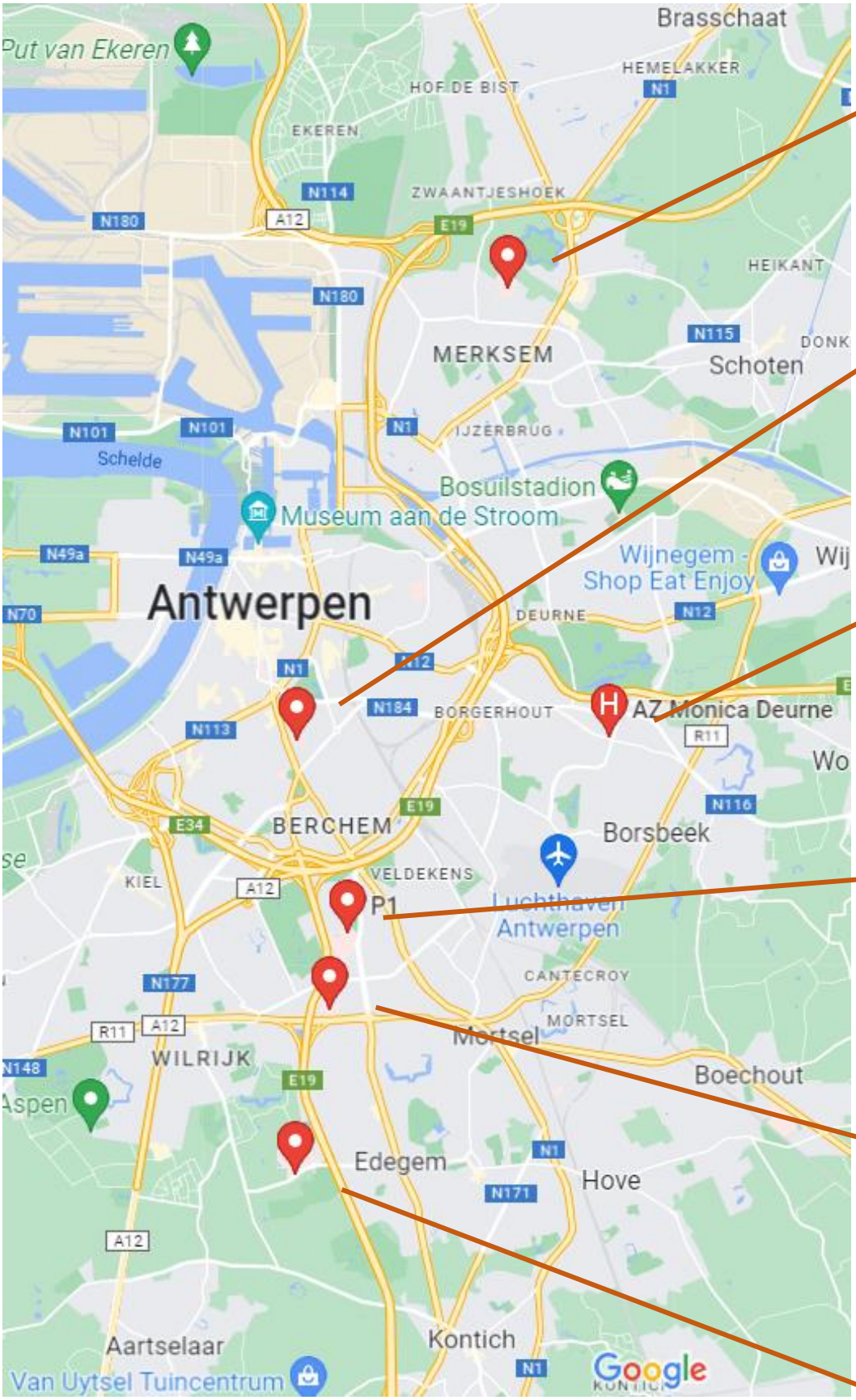
Table 5: *Explanation about non-hospital medical care*

Governmental agencies

Name and translation	Description
Sociaal centrum plein / *(social centre)*	The social centre, among others, helps women with a precarious residence status[98]. This department of the municipality of Antwerp can help women with a precarious status with budgets, for instance with urgent medical care[98]. *Sidenote: The social centre is named on the map of maternal service stakeholders (however this is not a maternal service), as this organisation is closely intertwined with maternal services.*
Opgroeien *(growing up)*	Opgroeien is an agency of the government of Flanders, which aims to help each child, both in Flanders and Brussels, to be able to grow up safely and with opportunities for the future[99]. For instance, Kind & Gezin is established by Opgroeien[99].

Table 6: *Explanation about governmental agencies*

Appendix 5: Map of hospitals



ZNA Jan Palfijn

GZA Sint-Vincentius

AZ Monica

ZNA Middelheim

GZA Sint-Augustinus

UZA