Master assignment Health Sciences

Driving factors behind referral behavior

What factors influences general practitioners' choice of bariatric department as a provider when referring patients with different behavior regarding the healthcare choice and with different characteristics related to the disease?

GRADUATE STUDENT

Nadezhda Ivanova
S1755870
n.ivanova@student.utwente.nl

DECEMBER 2016

UNIVERSITY OF TWENTE.

MASTER THESIS

December 2016

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Student

N.G. Ivanova

S1755870

Supervisors:

University of Twente:

First supervisor: Prof. W. van Harten MD PhD

Second supervisor: Maartje Zonderland PhD

Medtronic:

Bernard Verbeek MSc

University of Twente

Master programme Health Sciences

Health Services and Management

Faculty of Science and Technology

Acknowledgements

This thesis is the result of my final assignment for completing master's program Health Science at the University of Twente. The research was conducted on behalf of Medtronic and in collaboration with Hospital X[1] in the South-West of the Netherlands. The research was performed from March to November 2016. It was challenging and rewarding experience for me that helped me to obtain better understanding in both spheres that I am interested in: Marketing and Health Sciences. I had the great possibility to work with and to learn from people who are among the best ones in these areas.

Hereby I would like to thank especially to my first supervisor Wim van Harten for the invested time, knowledge, valuable advice and the guidance through the entire project. Thank you for your help at any time I had questions, for the feedback I received every time and that made me believe I could improve my thesis. That, I should admit, was a great inspiration for me.

Of course, I would like to thank to Medtronic for the opportunity to perform my master assignment in such a highly professional and friendly atmosphere. I would like to thank especially to Bernard Verbeek and Maartje Zonderland who gave me the freedom in the research design but always were ready to provide a great help to conduct it. Thank you for the advice and support any time when I needed it. I would also like to give thanks to Femke van den Wall Bake, who was with me in many of the interviews and always gave me significant and valuable advice. She was also the person who helped me with the translation from Dutch to English.

In addition to that, I would like to give thanks to all the participants in the interviews. All these meetings were very valuable and interesting for me. I would not be able to complete this research without their invested time and help.

Finally, I would like to thank my family and friends for their support during all this time. Special thanks to Jasper and Monika who read the final version and helped me a lot with advice about its improvement.

I enjoyed writing this thesis very much and I appreciate the opportunity I had to meet with different specialists and gain such a valuable experience. I hope the results will be useful for any further research.

Nadezhda Ivanova

Enschede, November 29th 2016

[1] Due to confidentiality, the name of the Hospital and the city, where it is situated are changed respectively with "Hospital X" and "in the South-West of the Netherlands"

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Abstract

Introduction: Referrals from the general practitioners (GPs) ensure new patients for the bariatric departments and therefore, they are the basis for building revenue and achieving an excellent reputation for these departments. Choosing a specific provider for bariatric surgery, requires knowledge from the GP about the hospitals where this service is available and an evaluation of the possibilities (hospitals and specialists) by some criteria. Such criteria can be the reputation of the provider, relationship with specific specialist or hospital, quality attributes, availability of technical resources, etc. Therefore, understanding the decision criteria that influence the GPs' choice where to refer obesity patients is useful for hospitals with bariatric departments in order to build a successful marketing strategy on the healthcare market. To respond to the demand and remain competitive, it is important to define the factors that influence the GPs' preference of a specific provider. Also, it is important to get an insight into the role of the GP in future scenarios, with wide adoption of technology innovations and increasing patients' awareness. This knowledge will be used by hospital administrators to respond better to the patient's need, including improvement of health care quality and accessibility.

Methods: For this master thesis, an exploratory study was performed on the subject of GPs' referral behavior with respect to bariatric surgery providers for different categories of patients. In the first part, the factors that influence the GPs' referral choice were identified through a literature review. In the second part a qualitative interview study was performed to obtain additional information on the most important factors in the case of obese patients. The interviews were semi-structured.

Results: The interview's results have shown that when the GPs choose a hospital for their patients, they are focused on the closest location and the way how the hospital manages interpersonal relations with the patients. The GPs' choice most likely does not depend on socio-demographic characteristics of the patients as in most cases it is influenced only by the patients' previous experience.

The GPs prefer to obtain information about the quality of the hospital using patients' feedback and their own previous experience. At this moment quality performance indicators are not taken into consideration during the decision-making process. For obtaining information where a service is available, there appears a shift towards the usage of digital information sources.

Regarding the bariatric surgery, the GPs listed the following factors as important: good communication and guideline of the patients, criteria for eligibility, patients' examination, follow-up and availability of multidisciplinary team of experts. However, there is a discrepancy between the actual experience that the GPs shared through the interviews and their separate ranking of the factors. The previous experiences of the GPs have shown that most likely, patient's preference and eligibility criteria, decide the referral destination. The GPs, in general, are satisfied with the quality of care provided by the Dutch hospitals. However, most of them said that they would like to receive more information about the overall results of the bariatric departments. The GPs also indicated an interest in lectures by specialist with regard to bariatric surgery treatment.

In the GPs' point of view, an important factor for patients when choosing a bariatric surgery provider, is the experience of other patients. Furthermore, the GPs did not recognize any patients' group as limited in the choice of bariatric surgery provider. However, there are some indications that the patients with psychological problems in the past are limited.

Conclusion: The obtained answers were very diverse, however they showed that together with the general factors that influence the GPs, when it came to bariatric surgery, they were interested in the entire trajectory of the treatment and not just the surgery itself. The following factors were therefore deemed important specifically for a bariatric surgery referral: eligibility criteria, follow up, multi-disciplinary team of experts, examination of the patients. There are indications that the patients with psychological problems are limited in their choice due to differences between the hospitals, when applying the criteria for eligibility. Furthermore, the obtained results show that at the current moment the patients seeking bariatric surgery have a main role in the hospital choice. That is contrary to the literature findings that generally the GPs make the hospital choice on behalf of most of their patients. The GPs use digital information sources to obtain practical information about hospitals, but prefer patients' experience and direct contact with the specialists as a source to assess the quality of the bariatric surgery providers.

Key words: "GP referral behavior", "GP referral", "hospital choice", "reasons", "choice behavior", "referrals and consultations", "physicians", "general practitioners", "interprofessional relations", "bariatric surgery".

Introduction

This study is performed in collaboration with the Bariatric department of Hospital X in the South-West of the Netherlands, Medtronic and the University of Twente. The main purpose is to gain a better understanding of the driving factors behind the general practitioners' choice of the referral destination for bariatric surgery.

This chapter describes the following aspects: healthcare system in the Netherlands, obesity, decision-making regarding the destination of the referral and the objectives of this research.

The healthcare system in the Netherlands

In 2006 by implementing the Health Insurance Act ("Zorgverzekeringswet"), the Dutch government introduced the "managed competition" in the healthcare sector. What this means is that healthcare consumers have a free choice of insurer; insurers can negotiate with healthcare providers; the competition itself is regulated by the government to reach the main public objectives, namely: accessibility, affordability and quality (Schut & van de Ven, 2011; Krabbe-Alkemade *et al.*, 2016). The managed competition in the Netherlands gives power to the insurers. They can restrict the access to the specific providers, offering plans with lower premium (selective contracting) (Reibling & Wendt, 2012). Even though the purchasers (insurers) may put some constraints on the patient choice, the Dutch insurance companies in their major part have contracted almost every hospital, hardly using selective contracting as a leverage. Therefore, the patients may select almost any hospital and because of the insurance policy they hold, they are less price sensitive (Krabbe-Alkemade *et al.*, 2016; Halbersma *et al.*, 2011). Furthermore, the current Dutch healthcare policy accentuates on the importance of the demand-driven health care (Lako & Rosenau, 2009). As can be seen in Figure 1 (van den Berg *et al.,* 2011), hospitals operate on two healthcare markets: purchasing and provision.

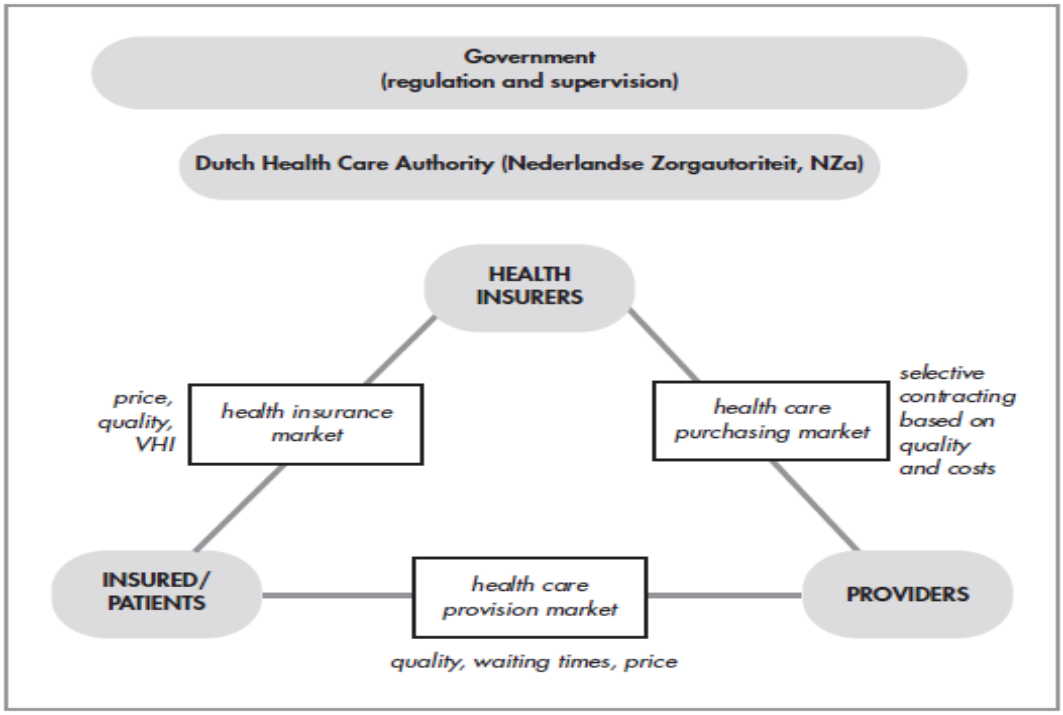

Figure 1 Health care market in the Netherlands

Functioning in a competitive market, hospitals are challenged to reach the deeper market information to identify the most promising opportunities and create strategies that respond to the healthcare demand.

In the Netherlands, for non-emergency care, the patients' trajectory necessarily goes through the general practitioner (GP), who acts as a gatekeeper of the health system. For obtaining specialist care the referral from the primary physician is required (Schäfer *et al.*, 2010). That makes the referrals from the GPs the main source that ensure new patients for the different hospital departments. Therefore, exactly the GPs' referrals can be accepted as a starting point that allows the hospitals to build their revenue and to achieve an excellent reputation.

Obesity

Nature of obesity and its medical consequences

Obesity (overweight) is a chronic disease, expressed through extended fat storage and characterized by disproportion of the body weight to the height (van Hout *et al*., 2003; Schigt *et al*., 2013). Usually obesity is quantified through body mass index (BMI). BMI is the ratio, where the numerator is "weight in kilograms" and denominator is "length in squared meter" (kg/m^2) (Schigt *et al*., 2013). Regarding the World Health Organization (WHO), BMI>25 kg/m^2 represents overweight (overweight grade 1), BMI> 30 kg/m^2 is obesity (overweight grade 2) and BMI> 40 kg/m^2 represent morbid obesity (overweight grade 3) (WHO expert consultation, 2004).

Obesity is a disease that significantly increases the risk of serious medical consequences, such as cardiovascular diseases (most frequently: heart disease and stroke), diabetes, infertility, sleep apnea, musculoskeletal disorders, cancer (endometrial, breast, and colon) (WHO, 2015; van Hout *et al*., 2003; Schigt *et al*., 2013). BMI exceeding 30 kg/m^2 reduces the median survival with 2 to 4 years, and when it is exceeding 40 kg/m^2 the median survival decreases with 8 to 10 years (Prospective Studies Collaboration, 2009). In many cases obesity is accompanied by psychological problems such as low social adjustment, low self-esteem, depression, interpersonal problems and somatization. These consequences of obesity result in a worse quality of life for the obese patients (Van Gemert *et al*., 1998; van Hout *et al*., 2003; Schigt *et al.*, 2013).

Prevalence

WHO listed that the amount of people suffering from obesity has doubled from 1980 to 2014. In 2014, 1.9 billion people worldwide were determined as "being overweight". Furthermore, 600 million of them are diagnosed as "obese" regarding the classification (WHO, 2016). The obesity is evaluated as an epidemic, that keeps trends of increasing in all countries from the Organization for Economic Co-operation and Development (OECD) since 1990s (OECD Obesity update, 2014). Even though the percentage of people with obesity in the Netherlands (12%) is far below the OECD average (18%), this percentage has doubled the past 20 years (van Hout *et al*., 2003; Schigt *et al.*, 2013; WHO, 2015; OECD Obesity update, 2014).

In 2002 the annual costs associated with obesity in Netherlands were assessed to be 505 million Euro. Furthermore, the Public Health Council estimated the indirect costs related to overweight to be 2 billion Euro per year (cited by Schigt *et al*., 2013). Linking the obesity with co-morbidities as diabetes, coronary heart disease and hypertension explains these large costs (Schigt *et al*., 2013). These costs are going to increase regarding the current rising trend of obesity prevalence.

Treatment

The standard treatment for obesity is related to diet and changes in the lifestyle. A part of these interventions are also expertly guided and supervised programs for physical activities. In addition, cognitive behavioral therapy can be included to the treatment. This conventional treatment should last at least a year and only if it fails surgery may be considered as a treatment option (Schigt *et al*., 2013).

The surgical treatment is performed mostly laparoscopically and usually includes reduction of the stomach alone or is combined with reducing the absorption of nutrients (malabsorption). The

most performed types of bariatric surgery are: sleeve gastrectomy (Figure 2); gastric banding (Figure 3); laparoscopic Roux-en-Y gastric bypass (Figure 4) (Figure 2-4; source: Schigt *et al.*, 2013).

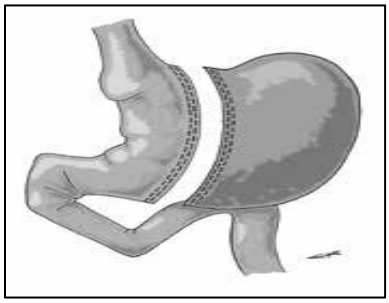

Figure 2 Sleeve gastrectomy

Sleeve gastrectomy is a restrictive procedure that reduce the stomach' volume (up to 80%). It is usually used for weight reduction and improving type 2 diabetes. This treatment leads to reduction of the amount of food that the patient can consume. However, the procedure is not reversible and hides a risk for long-term vitamin deficits (American Society for Metabolic and Bariatric Surgery (ASMBS), 2016; Schigt *et al*., 2013).

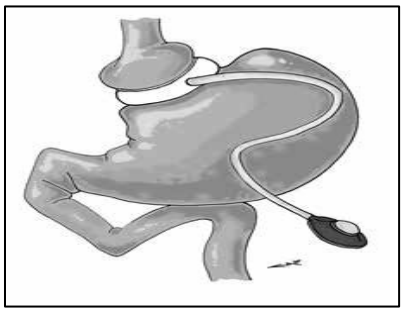

Figure 3 Gastric banding

Gastric banding is a treatment that also provides reduction of the amount of the consumed food therefore, it is a restrictive procedure. It is achieved by imposing a special ring (gastric band), in the upper part of the stomach, just below the esophagus. This treatment is related with shorter hospital stay and does not include the cutting of the stomach. Furthermore, it is completely reversible. However, the achieved results are less weight loss in comparison with the other procedures and there is a higher rate of re-operation. (ASMBS, 2016; Schigt *et al*., 2013)

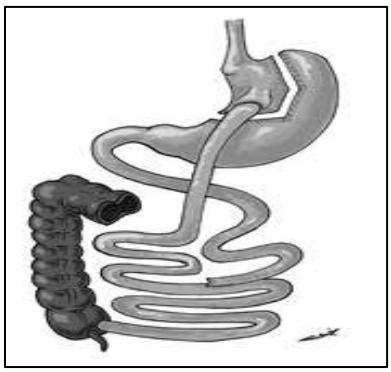

Figure 4 Gastric bypass

The gastric bypass involves not just restrictive methods but it also reduces the absorption of the nutritious due to redirection of the food stream. This treatment is called the "golden standard" by ASMBS. It provides the most substantial weight loss within all types of surgery. However, the procedure is not reversible and it is related to higher rate of complications in comparison with the gastric band (ASMBS, 2016; Schigt *et al*., 2013).

In the Netherlands, the GPs can refer patients for bariatric surgery when their BMI >=40 kg/m^2 or between 35 and 40 kg/m^2 in the cases where the patients have co-morbidities. In the both cases, there is a requirement that the conventional treatments have been applied first, and did not result in weight loss or upkeep the achieved results. The only exception is that the bariatric surgery can be applied as a primary treatment for patients with BMI >50 kg/m^2 (van Avendonk *et al.,* 2012). In the Netherlands 3500 obesity patients underwent surgery in 2008 (Buchwald & Oien, 2009). For 2011 this number is increased to 5000 (Buchwald & Oien, 2013). At this moment, different sources propose that between 16 and 28 Dutch hospitals perform bariatric surgery (van Hout *et al*., 2003; Schigt *et al*., 2013). The increasing demand, however, may lead to more hospitals including this treatment in their planning.

Surgical option appears to be the more effective treatment for weight loss in comparison with the conventional treatment (Karlsson *et al*., 2007; Picot *et al*., 2009; Madura & II, 2012). It is because of an improvement of the co-morbidities, related to obesity for most of the patients (Buchwald *et al*., 2004). However, there are patients who cannot succeed with the long -term management of

the weight loss due an inability to cope with the required lifestyle changes. The behavior and psychological status of the patient are very important for the success and long-term results. Therefore, an involvement of a psychologist in the treatment is crucial in the development of the patient to cope with the changes in the long-term (Karlsson *et al*., 2007; van Hout *et al*., 2003). The bariatric surgery itself requires multi-disciplinary teams that include internists, surgeons, nurse specialists, gastroenterologists, dieticians and psychologists. The selection of the eligible patients should be very careful and the long-term follow-up is a necessity (Schigt *et al*., 2013).

Decision-making regarding the destination of the referral

Free choice within healthcare is implemented to gain two main advantages. On one side, that corresponds to the increasing patients' demand to be part of the decision-making. On the other side, this choice is accepted by the government as an instrument to make the waiting lists shorter and to achieve an improvement of the quality (Victoor *et al.*, 2012 a). The leading assumption is that patients are those who choose, however many studies put the patients' choice under question (Victoor *et al.,* 2013; Rademakers *et al*., 2014; Vrangbæk *et al*., 2007; Dixon *et al*., 2010 b; Bryan *et al*., 2006). Regarding their role in the choice of referral destination, the patients can be divided into two categories: those, who actively participate in the choice; and those, who are without any input in the process (Victoor *et al*., 2013; Rademakers *et al*., 2014).

Non-active patients

Even though the patients' choice became a very important element of healthcare system, in practice the GPs have perceived that this choice is not valued by all the patients (Dixon *et al*., 2010 b; Victoor *et al*., 2013). A large amount of the patients just goes for the provider recommended by their GP (Victoor *et al*., 2013). Besides, the GPs have perceived the patients' demand for choice as very limited and usually expressed into a demand to be sent to the nearest hospital (Dixon *et al*., 2010 b). In the Netherlands, most patients who receive a referral, do not search for hospital information by themselves. Furthermore, 75 percent of these patients chose the hospital or a specialist that their general practitioner advised them to (Rademakers *et al.*, 2014). In fact, many studies have shown that the choice of a hospital for the most patients is made by their GPs (Rosen *et al.*, 2005; Djis-Elsinga *et al.*, 2010; Brik & Henriksen, 2012). Even when the patients have chosen the hospital by themselves the main source of information was their general practitioners' recommendations (Rosen *et al*., 2005; Brik & Henriksen, 2012; Burge *et al*., 2006). All this leads to the conclusion, that the most of the patients are non-active regarding the choice of the referral destination.

Active patients

The patients, who actively participate in the choice, according to the literature are minority (Victoor *et al.*, 2013; Rademakers *et al.*, 2014). However, a substantial proportion of the patients assess the offered choice for a provider as very important (Dixon *et al*., 2010 b). Moreover, the tendency in the Netherlands is that the current polices aim to strengthen the position of the patient by implementing strategies that make healthcare performance transparent and encourage awareness and independence among the patients (Van Rooijen *et al*., 2013; Schäfer *et al*., 2010). Successful implementation of such strategies will increase patient autonomy, especially in the category that consists of self-conscious, well informed and active patients. Therefore, it is important to explore the role of the GPs in the choice of provider for this category at the current moment and the perceived role in the future regarding the healthcare policy' objectives.

Patients, for whom the choice is limited

Regardless of the choice behaviour, there is a third group of patients, who have specific characteristics that limit the possible choices. That is the case for elderly patients who are often with several chronic diseases that occur at the same time. This group consists of patients over 65 years old, who are with higher health risk due to co-morbidities and decreased overall physical shape. As in many European countries, the population in the Netherlands is ageing rapidly (Bouwknegt *et al*.,2013; Haas *et al.*, 2015; Van Rooijen *et al*., 2013). Based on 16 percent of the Dutch population in 2013, elderly population percentage is expected to increase to 26 in 2035 (Smits *et al.*, 2014). The older patients are responsible for a substantial proportion of hospitalization and the healthcare costs (Haas *et al*., 2015). Many older patients with chronic health conditions require intensive monitoring (Takahashi *et al.*, 2012). When the GPs are working with elderly patients or patients with advanced conditions, they are more likely simply to refer them to the local hospital (Ringard, 2010). Therefore, it is important to understand the motives behind the hospital choice for this patient group.

Moreover, growing demand for health and social resources due to the aging population leads to the need for different approaches to specific problems (Martín-Lesende *et al.,* 2013). One of these new approaches is the growth in applying technologies such as telemonitoring ("remote self-monitoring of health parameters with electronic transmission of data to a healthcare provider", Hanley *et al.,* 2013) (Hanley *et al*.,2013; Martín-Lesende *et al.,* 2013). Such a technology adoption could be very helpful in health care of elderly patients and patients with co-morbidities. Therefore, it is important to gain an insight what would be the influence of such a technology adoption on the choice of the referral destination for these groups of patients and their GPs.

The role of the GP

The similarity in the hospital's choice for all patients is the invariable participation of their GP. The process of decision-making about where to obtain secondary care is a shared decision between the patient and his GP.

The decision-making process is shaped by numerous personal and behavioral characteristics of the both participants and the contextual factors (Rosen *et al*., 2007). In fact, the GP is the agent that can offer advice or make suggestions to the patient to aid in making the choice (Dixon *et al*., 2010 a). However, some studies indicate that when advising the patients on their choice, some GPs do not always reveal the entirety of information about the different possibilities. The reasons for this is that it is too time consuming for the GP (Dixon *et al*., 2010 a; Vrangbæk *et al*., 2007). The literature findings indicate that the majority of patients are not active, this leads to the conclusion that the GP plays the main role in the patient choice.

The factors that influence the GPs' hospital or specialist choice are widely investigated in the literature (Forrest *et al.*, 2002; Kinchen *et al.*, 2004 a; Brik & Henriksen, 2012; Rosen *et al.*, 2007; Ketelaar *et al.*, 2014; Bussche *et al.*, 2010; Forrest *et al.*, 2006; Barnett *et al*., 2011). However, in the literature there is a lack of information about how the different patients' choice-behavior influences these factors.

When analyzing the influence of the GP on the choice, there are findings that indicate that the GPs are more likely to give information about the providers' quality, when the patients are more active regarding their choice. For non-active patients, the GPs usually give only practical information about providers, such as location and working time (Victoor *et al*., 2013). The logical assumption is that the role of the GP in the choice of secondary provider is shaped by the behavior of the patients. In particular, the factors that influence the GPs' hospital choice may depend on the way how the patients behave in the decision-making process regarding the referral destination.

Furthermore, there was no study that investigates the GPs' hospital choice for a bariatric surgery provider.

Considering all above, the subject of this thesis will be the GPs' referral choice, influenced by the different categories of patients at the current moment, as well as possible trends in the referral patterns for the future. This will give opportunity to the consultants and hospitals to reach a better understanding of the factors that are more likely to bring success in attracting more patients. These results will be used to support the bariatric department of Hospital X to secure and grow the referral flows by defining the best competitive strategy. Such a research can be interesting as well for insurers, when applying the selective contracting, since the demand for care determines also their work.

Objectives:

The main objective of this master thesis is to investigate what the driving factors that influence the GP's choice to refer a patient to a particular department for a bariatric surgery are. The importance of the factors will be investigated through the GP's view for three different categories of patients: patients who are not active regarding the choice, patients who are active regarding the choice and patients who have characteristics, related to the disease, that limit the choice. To reach this objective the following research question has been formulated:

What factors influence general practitioners' choice of bariatric department as provider when referring patients with different behavior regarding the healthcare choice and with different characteristics related to the disease (e.g. the need for intensive monitoring)?

Several sub questions have been formulated to help answering the main research question. These questions have as a purpose to shed light on all aspects involved in the research question. The sub questions to be answered are as follows*:*

1) *What factors influence general practitioners' choice of bariatric department when referring patients who are not active regarding the choice?*
2) *What factors influence general practitioners' choice of bariatric department when referring patients who are active regarding the choice?*
3) *What factors influence general practitioners' choice of bariatric department when referring patients who have disease' related characteristics that limit the choice?*
4) *Do the general practitioners perceive that their role in the referral process as mediators is going to change in a future scenario, where healthcare strategies that encourage awareness and independence among patients are implemented and that it consequently increases the number of the active patients?*
5) *Do the physicians perceive that their role in the referral process as mediators is going to change in a future scenario for patients, that requires intensive monitoring, due to technological developments such as telemonitoring?*

The results will give opportunity to the consultants and hospitals to reach a more complete picture of the factors that are more likely to bring success in attracting more patients. These results will be used to support the bariatric department of Hospital X in the South-West of the Netherlands to secure and grow the referral flows by defining the best competitive strategy. Such a research can be interesting as well for insurers, when applying the selective contracting, since the demand for care determines also their work.

Methods:

During this master thesis project, an exploratory study was carried out. The first part consisted of a literature review to identify the factors that influence the general practitioner choice of the referral destination in general and for bariatric surgery specifically. The literature study sought to define a theoretical framework for the process of hospital choice and the factors that influence it. This framework was used to design the topics and the interview questions. A qualitative interview study was performed to answer the main question and the sub-questions.

Literature review

Selection criteria

The first part of this research was a literature study. The purpose of this study was to identify the different reasons that influence the general practitioners' choice where to refer a patient. Furthermore, the literature study was used to define an appropriate theoretical framework regarding the referral behavior. A review of existing literature was performed through wide-ranging search in Scopus[2] and PubMed[3] using the University of Twente license. The search field type was "Article Title, Abstract, Keywords".

Study selection:

The studies were included only if they covered the following **inclusion criteria**:

- Written in English. The studies with abstracts in English and full text in a different language were also included in the screening on the abstract level. The purpose was, if they were relevant, to be further checked if they were available in English elsewhere; or the author to be checked for other relevant studies in English;
- Articles and reviews;
- Studies from Western countries (as the health insurance systems in other countries differ quite a lot);
- Publication date 2000 (inclusive) – present.

All the remaining articles, after applying the inclusion criteria, were screened on title level. The screening question was "Does this article describe factors that influence choice of a secondary healthcare provider?" Where the answer was "Yes" or it was "not clear", the articles were screened on abstract level. The screening question at this level became "Does this article reveal information about the identification of the factors that influences choice of the hospital in the referral process?"

The abstracts were scanned for relevance. The inclusion criteria at the title and abstract screening level was broad and included studies that report empirical research (quantitative or qualitative), that:

- Concern factors that influence general practitioners' choice of hospital/ specialist on the behalf of the patients;
- Factors from general practitioners' perspective;
- Or give insights into what the role of the patient is and/or what factors influence patient's choice of hospital.

Only the articles with full text available were included. The full access in Scopus was defined after check of the button "view at Publisher". For PubMed, the selection included text availability "full text". Additionally, for PubMed only the studies where the species was "Humans" were included.

[2] https://www.scopus.com/home.uri
[3] https://www.ncbi.nlm.nih.gov/pubmed

Exclusion criteria:

- Studies, that investigate the general decision of the GPs whether to refer a patient, without further investigation of the choice, where to refer;
- Studies that investigate the effects of the referrals (outcomes for the patients or cost-effectiveness for the healthcare);
- Studies that reveal factors for specialist other than primary care physicians (as dentists).

The studies, that were considered relevant and selected for reading subsequently, were checked for relevant references. If the references answered the questions asked through the current search strategy, they were also included for reading.

Performance of the literature search:

The search strategy is presented in the following figure:

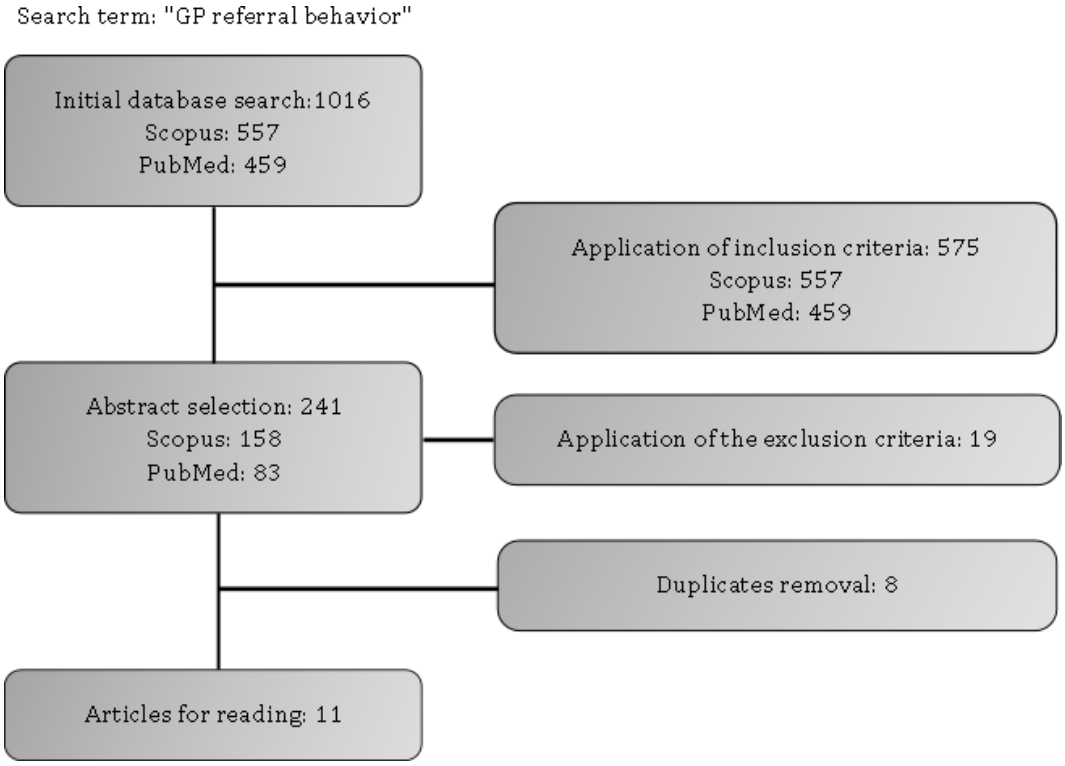

Figure 5 Search strategy

For all the terms the searching in Scopus and PubMed was performed in a similar manner. The search strategy and the final search terms were validated through consultation with a librarian from the University of Twente.

Furthermore, a large set review was performed in Google Scholar[4]. The used search terms were the same as the ones used in Scopus and PubMed. The studies were limited for the period in the inclusion criteria. The results were selected for relevance and only the first 50 of them were scanned on title level and where applicable, with respect to the search questions, on abstract level. The results from the search in Scopus and PubMed, as well as the additional search items added from the references lists and Google Scholar search can be seen in Table 1, as follows:

[4] https://scholar.google.nl/

Table 1 Results from literature searching

search terms	initial results in Scopus	results in Scopus after applying the inclusion criteria	initial results in PubMed	results in PubMed after applying the inclusion criteria	chosen for full reading from the both databases within the search terms used
"GP referral behavior"	557	404	459	171	11
"hospital choice" AND "GP referral behavior"	19	13	16	5	10
"choice behavior" AND "referral and consultations" AND "physicians"	138	83	98	40	5
"general practitioner hospital choice" AND "criteria OR selection OR reason"	159	94	111	19	6
"GP referral" AND "hospital choice" AND "bariatric surgery"	1	1	1	1	1
"hospital choice" AND "bariatric surgery"	74	58	198	134	1
"demand-driven care" AND "hospital choice"	3	1	3	2	4
"competition" AND "general practitioners" AND "referrals"	49	28	18	8	3
	For reading after removal of all duplicates				**27**
	Finally, for reading after adding the important studies from the reference lists and studies from Google Scholar				**35**

As a search result, there were 35 studies included for full reading that can be found in Appendix A. Six of the studies were included after they were defined as important, as a part of reference lists of other studies. Two of them did not cover the inclusion criteria for the publication date but as they were found important in providing theoretical framework for the current master thesis they were included for reading. Furthermore, one PhD thesis was included after searching the articles written by H. O. Birk. His initial studies were defined as very important for the current thesis and it was investigated whether he has other publications. His PhD thesis was included as providing an appropriate model that explained the factors behind the hospital choice.

Interviews

Development of the interviews:

The literature study was used as a basis for defining the theoretical framework and development of the interviews' topics. The interviews are one of the most used methods in qualitative research (Gill *et al.,* 2008; Britten, 1995; Harris &Brown, 2010). Semi-structured interviews were applied in this thesis. This is the most wide spread method in the healthcare due to its flexibility (Gill *et al.*, 2008). The questions were open-ended which gives a possibility for additional questions and clarification during the interviews. This method allows deeper examination of the motivation, experience and opinions of the participants on the studied phenomena (Gill *et al*., 2008). The semi-structured interviews were considered as a suitable method for collecting data since this study is explorative and its purpose is to understand the factors that influence the hospital choice for bariatric surgery in-depth.

The information obtained from the literature was used to formulate the questions for the interviews that may lead to the answer to the main question and sub-questions. Following the theoretical framework, provided by the literature, the topics for discussion were predetermined as well as the core questions for each topic. Furthermore, the literature study revealed those factors that are most often examined as important ones for the GPs' hospital choice. We have used these findings to create a list of factors, which the GPs were asked to rank in according to their importance for a bariatric surgery provider's choice. The list was extended with additional factors, that were not investigated in the studied literature but for Medtronic it was important to define their role in the choice. The list of factors was provided to the general practitioners at the end of the interview in order to avoid their influences on GPs' interview answers. The final topics together with the included core questions, as well as the list of the factors, can be found in Appendix B. They are written in English and translated in Dutch for the participants, who preferred to participate in the interviews in Dutch.

Procedure:

The first two interviews were performed as pilot ones. That allowed us to identify whether the questions are clear for the respondents and whether they can provide answers to the research questions or some changes should be considered and made (Gill *et al.,* 2008).

The provided answers from the first pilot interview were clear. However, the analysis has shown that they did not reveal much additional information in comparison with the existing literature about the factors that influence GPs' hospital choice. To reach more specific information about what influences the GPs' hospital choice specifically for bariatric surgery, additional questions were added to the initial version. They are related to: the specific hospital quality indicators that may influence the choice, the considerations of the GP to refer patients for bariatric surgery and the possible options for the hospital to facilitate the choice.

It was also defined that for the last topic it remains unclear what part of the patients are active regarding the choice and what percentage of these patients follows the GP's advice. Therefore, two of the questions in this part had to be reformulated.

In the initial version of the interview, the participant was asked to rank the factors of the predetermined list in accordance with their importance for taking a decision. A 5-point Likert scale was used for the ranking. Each factor had to be ranked by the GP as: "unimportant", "slightly unimportant", "neutral", "slightly important" or "important". Likert scale is often used to assess the attitudes of the participants to some characteristics (Sullivan & Artino, 2013). However, the result, after the pilot interview, showed that the GP has ranked all the factors with the two highest grades.

Although the respondent may have positive attitude for all the factors, ranking them as equally important does not allow proper distinction. Using this ranking method, we cannot distinguish which factors are crucial and which ones do not play any role in the actual choice. Therefore, the way of assessment of the factors were changed by usage of the Best-Worse approach. This scaling overcomes the mentioned issue through providing better distinction among the factors and it is proved to work when the list of factors is more than ten (Finn & Louviere, 1992; Goodman *et al*., 2005). The respondents were asked to reveal the three most important and the three least important factors to them. As we assumed a possibility of existence of an important factor that is not included in the list, we added the option "other", where the GP can indicate a specific factor.

The changes were tested during the second interview, which also was considered as a pilot one. The obtained answers were sufficient as well as the ranking of the factors. Therefore, no additional changes were made. The second interview was included in the analysis. The first one was also included after the Respondent 1 was contacted again and he was asked to answer the additional questions together with the new ranking of the factors over the phone.

The final analysis includes eleven interviews in total. Ten of the interviews were performed face-to-face, in person. For Respondent 1, the additional questions, as we mentioned above, were asked over the phone. Respondent 11 agreed to cooperate only in writing; therefore, the procedure in this case differs as no additional questions or clarification were possible. However, as all the general questions were answered and the ranking was made, we included this interview in the analysis. All the interviews, performed face-to-face, were recorded with the agreement of the participants. The respondents were assured that after finishing the analysis of the interviews, the records will be deleted. The written version was sent and received back from Respondent 11 on e-mail. Nine of the interviews were performed in English, one in Dutch and the Respondent that answered the questions in written form, gave her answers in Dutch.

All the interviews are anonymous and the names of the respondents are not revealed. However, specific demographic characteristics and general information about the participants are shown in the chapter "Results".

Recruitment of participants and achieved response rate:

The interviews are performed with general practitioners from the contact list of Hospital X. Only physicians who already have an experience in referring patients for bariatric surgery were selected. All the participants have their practices in the South-West of the Netherlands. There, the departments, that provide bariatric surgery, are not limited only to one hospital. In this sense, the GPs and their patients have the possibility to choose a hospital for this kind of surgery and because of the developed public transport structure in the region, the distance to all the hospital did not required traveling longer than 30-40 minutes. Therefore, the conditions in the South-West of the Netherlands allows hospital choice for the obese patients.

The initial list, provided by Hospital X, consisted of 112 eligible GPs. For three of them email addresses were not provided. An introduction e-mail with an invitation to participate in the research was sent to all the other 109 GPs. To increase the respond rate, the e-mail was sent from Hospital X account on behalf of one of the leading surgeons there.

A week after the e-mail invitation was sent, follow-up calls have been held. The phone calls were performed by Medtronic in Dutch in order to increase the response rate. One GP did not have email or phone so he dropped. Seven of the GPs were not reached because a phone number for them was not indicated. In one of the practices there was not a GP at all. One of the GPs has stopped practicing and three GPs were not reached, because they had changed the practices where they used to work. So, in total of the initial list of 112 GPs, 13 dropped out. The remaining 99 GPs were

reached personally or through their assistants on the phone. Eleven of them agreed to participate. That means the response rate was 11.11% (Waterloo, 2005).

The general practitioners are a group which is harder to collect data from. They are defined as an "elite population" as they are often approached to participate in the researches (Flanigan *et al.,* 2008). They are very busy and often they are part of an organization that makes the decision about their time. Furthermore, most of them have assistants that filtered the received e-mails (Flanigan *et al.,* 2008). That explains why in general, the studies that examinee physicians and medical personnel have lower response rate. Flanigan *et al*., (2008), defined that the studies that examined physicians has a mean response rate of 54%. The study of Burn *et al*., (2014) that approaches GPs, declare that from 180 invited GPs, 15 agreed to participate, e.g. the response rate is 8.33%. Furthermore, face-to-face interviews included by Dixon *et al.*, (2010 b) achieved 25 interviews with GPs only after suggestion of a financial incentive. Indeed, this incentive is proved by Martins *et al.*, (2012), to increase respond rate from 43.7 % to 70.5%.

The achieved response rate was lower than we expected. The initial goal was to reach 20 interviews. However, we had as an eligible group just the GPs who referred patients for bariatric surgery to Hospital X, which is a limited amount. In many cases a follow-up conversations were held with the assistants of the GPs, so we cannot verify whether the request reached the GP. If the GPs did not receive the invitation email and were not informed by the assistant, that may increase the response rate. We should also note that the participation in the interviews was a voluntary act as we did not apply any financial incentives. To increase the response rate, we performed a few follow-up calls with these GPs, who were not sure about their participation. The schedule of the interviews was adapted completely to respondents' preference. The time of the interviews was shortened to 30 minutes.

The entire process of recruitment took approximately 2.5 months. Even though that we could not reach 20 participants, we agreed that with those 11 interviews that were performed the research could be finalized as the needed information was received with the data gained by the interviews. However, it is hard to say whether we reached the data saturation about all the core questions with those 11 performed interviews. (Fusch *et al.,* 2015).

Analysis:

For analysis purposes, all the interviews were transcribed using the records. The transcriptions of all 10 interviews, as well as the additional phone call with the Respondent 1, and the written answers of the questions provided by Respondent 11, can be seen in Appendix C[5] (in English). The second step was to read all the transcripts and to structure the received information. The structuring had to be done in an appropriate manner. That means a structuring which allows extraction of feedback from the received answers, which gives insights into the stated research questions. Therefore, grouping of the gained information into categories was made. In the literature, this method is described as a "coding process" (DiCicco-Bloom & Crabtree, 2006; Ram& Montibeller, 2013; Turner, 2010). This process is harder for open-ended questions, because while the respondent has the possibility to share very complete view on some subjects, for the researcher is harder to derive identical categories among all the respondents (Turner, 2010). Transformation of the gained data into the categories was achieved through clustering. Using clusters to analyze the data, gained through interviews, is not uncommon for qualitative research (Ball, 2011; Macia, 2015). In fact, clustering of the thematic codes provides a visualization of the results and makes the interpretation by the researcher easier (Guest & McLellan, 2003). However,

[5] Due to confidentiality, it may be possible that the content of Appendix C is not available for viewing

the way how the clusters are formulated depend on the researcher. Therefore, that hides risk of researcher biases (Turner, 2010).

Reliability:

As this research is a qualitative one, reliability is hard to be achieved. The reason for this is the specific circumstances, in which the interview is performed and those circumstances are hardly to be repeated (Lewis & Ritchie, 2003). Furthermore, the participant could be influenced by the interviewer and that could lead to bias in the findings (Gill *et al*., 2008; Noble & Smith, 2015). There are however, some strategies that may increase reliability. One of them is transparency, through clear explanation of the used theory and methodology (Lewis & Ritchie, 2003). An important step is the recording of the interviews and the subsequent transcribing. That allows to reproduce the information accurately and use exact quotes as this reduces bias (Gill *et al*., 2008).

Before the performance of the interview, clear explanation of the procedure and the purposes of the research was given to the participants. They had the possibility to ask additional questions if there was a need of further clarification. All the interviews were recorded which gave the possibility the records to be used further for the analysis and to cite direct quotes. All the interviews were done in a similar manner by using the same list of previously determined topics and core questions included in them. The open-ended questions allowed us to formulate appropriate follow-up questions to deeper understand the respondents' opinion. All these measures aimed to increase quality of the interviews.

Results

This chapter describes the literature findings regarding the hospital choice and the results from the performed interviews.

Literature review

Theoretical framework for the referral process

Statistical discrimination and adverse selection

From the studies included in the literature review, just a few provide information about the theory. One of them is the study of Hackl & Prucknner (2015). Investigating the effects of the general practitioners' participation to a social network on their referral behaviour, the authors found correspondence with the economic theory for statistical discrimination and adverse selection. Within this theory, the group affiliation works as criteria for decision. Therefore, the general practitioners, who are part of a social network, may prefer to refer to a specialist within this network as the reasons can be found in financial incentives. Another reason also can be that being part of their network it makes it easier to assess the skills of these specialists. Even though this theory can be applied when the effect of the network is assessed, it cannot give a complete picture of the factors that may affect the choice of a specialist/ hospital. Lako & Rosenau (2009) concluded that the general practitioners in the Netherlands are not organized in a network by the insurers and therefore, they have no incentives to refer to a specific hospital. If we assume that the GP is in the same network with the specialist due to participation in one university unit or work in the same hospital, that increases the chances for personal knowledge of this specialist by the GP, and chances of the GP to assess the abilities of this specialist and to decide whether to refer or not to him/her. We, however are trying to define the entire criteria that GPs applied when making the decision, therefore, this theory is hardly applicable for the current project.

Discrete choice framework

The Discrete Choice is used as a framework by Burge *et al.* (2006) with the purpose to define how the patients are making the choice among a few hospitals. However, we aim to define what characteristics are important for the choice without providing an actual choice among hospitals that reveals some hospitals attributes. That makes the discrete choice not applicable for this master thesis.

Economic theory, market failure and consumer choice

Dixon *et al*. (2010 b), examined how free choice of providers can function in the practice. They included evaluation of the economic theory, market failure and consumer choice, the choice in the complex markets and "quasi-markets". Through this the authors have shown that the patients differ in their behavior from the other consumers, and doctors differs from other firms. In the health care market a principal-agent relationship is applicable between the patients and their GPs and this relationship is often functioning when the patients make choices for their health care relying on the GPs. The fear of the consequences of the bad choice for their health, makes patients reluctant to the free choice. This theory gives an explanation why the patients differ in their behavior regarding the choice, often preferring not to be active but does not provide information regarding how the patients and doctors actually make the choice.

Exchange theory

Exchange theory was developed by Peter Blau and George Homans (cited by Emerson, 1976 and Shortell, 1972) as the main statement in the theory is that any individual will interact with

another, when expects positive results of the interaction. There are five main concepts in the theory, namely:

1. Interaction- that is activity, performed by someone which leads to activity to another. The activity can have a positive or negative effect for the person who started this interaction.
2. Reward – a positive effect, received by the participants.
3. Cost- a negative effects of interaction or engaging in some activities instead of in other ones.
4. Outcome- the result received when we subtract the cost from the reward. It can be a positive or a negative one.
5. Comparison level – the results of the interaction in the participant's view when comparing them with his own expectation and other available choice.

For the first time this theory is applied to the referral behavior by Shortell (1972). There is an interaction that involves two parties. The physicians decide to refer if they expect positive results from this interaction. For the referring physicians, the reward can be one of those: the patient will receive the best possible treatment, will achieve good communication regarding future treatment, will receive back the patient, will receive new patients, will increase his own status if the patient is satisfied. For the consulting physician, the received patient increases his incomes and gives him a chance to increase his knowledge and reputation. All this gives an insight that the exchange theory is applicable for the referral patterns.

Using this theory Shortell (1972) is trying to investigate the determinants of the physician rates as the main purpose is to identify the role of the professional status on the referral behavior since the received rewards and given costs differ among the physicians with different status. The results show that the professional status is not the most important factor for the explanation of the referral behavior. Variables as: organization of the practice; office visits per week; and caseload severity, have an important role in explaining the referral behavior. Even though the exchange theory provides a theoretical framework of the referral process, it can be better applied in investigating referral rates, determined by a specific factor than to reveal the full picture of criteria that influence the choice of an exact provider.

Model of factors behind the hospital choice, defined by Birk

This study aims to understand more about how the process of hospital choice is working at the current moment. Choosing a provider for bariatric surgery requires from the GP knowledge for the hospitals where this service is available or knowing the specialists and evaluating the possibilities (hospitals and specialists) on some criteria. Therefore, as a framework for the referral process will be used the Model of factors behind the hospital choice, defined by Birk (Birk, 2015).

Birk (Birk, 2015) investigates the Danish freedom of choice of a provider as a tool used by the legislators in the health care sector. The author defines a model of factors behind the patients' and agents' choice of hospital. The model focuses on:

- the role, that the patient gives to the characteristics of the healthcare services;
- the impact of the patient sociodemographic background on their awareness to choose a provider;
- and to information sources that support the choice.

All of the aforementioned, influence the choice of provider in the interaction between the general practitioners and their patients. Therefore, Birk's model is relevant for the current research to define what influences the GPs when they make a choice on the behalf of the patients and what kind of information about the provider they support the patients' choice with.

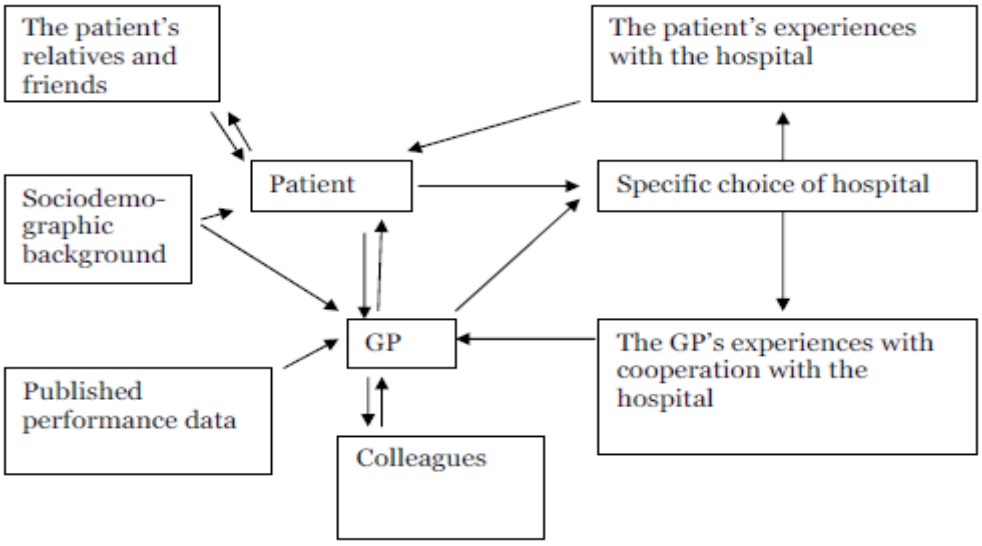

Figure 6 Model of factors behind the hospital choice (Birk, 2015)

However, the model has some limitations. It is developed for the case of the Danish health system, where the choice of hospital is free for the patients. That differs from the circumstances in the Netherlands. Both, Denmark and Netherlands, have healthcare systems with a GP as a gatekeeper, however with the "managed competition" in the Netherlands the hospital choice can be restricted by the insurers. Even though the recent study listed that the insurers hardly use selective contracting, allowing the patient to freely choose among hospitals (Krabbe-Alkemade, 2016), the insurers in the Netherlands may offer plans with lower premium that restrict access to specific providers (Reibling & Wendt, 2012). Therefore, in the Dutch case it is important to understand whether and how in this model the insurers interfere in the interaction between the physicians and their patients when the hospital choice have been made.

Literature findings

Factors influencing the GP choice of hospital

16 of the studies, included for full reading, reveal factors that influence GPs' choice of hospital. Among the most important reasons why the general practitioners refer patients to an exact hospital or a specialist it appeared to be the personal knowledge and previous good cooperation of the GP with the specialist/ hospital (Hackl & Pruckner, 2015; Ketellar *et al*. 2014; Ikkersheim & Koolman, 2013; Barnett *et al*. 2012; Kinchen *et al*., 2004 a; Forrest *et al*., 2002; Javalgi *et al.* 1993). Hackl & Pruckner (2015), explained that the GPs' decision where to refer is determined by the quality of the specialist, but the previous interaction is the best source through which GPs can assess this quality.

Rosen *et al.* (2006), defined as the most important factor for the GP decision (where to refer) the information on clinical aspects of care, followed by the waiting times. The authors however define that obtaining clinical information, GPs combine "soft information" (e.g. patients 'feedback and previous cooperation) with the published data for hospital performance.

Ikkersheim & Koolman, (2013), found that GP referral patterns are affected by published quality information only about outcome indicators regarding the breast cancer. The authors concluded that the personal preference of the GPs and further communication with the specialist after the patients' discharge are valued a lot more for the choice of referral destination.

The usage of the published information for the hospital performance in the referral destination choice is also studied by Ketelaar *et al.* (2014). The study reveals that in choosing a secondary

provider for their patients, GPs did not use comparative performance information. Even though the authors defined that most of the GPs believe their patients want to understand the difference in quality of care that hospitals provide, only 46% of the GPs discuss such a difference with the patients. The study emphasis on that the current referral consideration includes factors such as: patients' preference of a hospital or provider, quality of care, patient's travel distance to a hospital, GP's personal contact with a specialist, waiting list, specific treatment or techniques, experiences of other patients.

Birk *et al.* (2012) listed as the most important factor the close distance from the hospital to the patient home, followed by "the department takes the GP's referrals seriously", and excellent cooperation between the GP and the hospital. Cooperation is defined as a very important factor by Bussche *et al.* (2010) as well.

Kinchen *et al.* (2004 a) defined that the major importance was given to the medical skills of the specialists (88% from the respondents). The other factors that were ranked important from more than 50% of the respondents are: timeliness of the patient's appointment, patient insurance coverage, previous experience of the physician with this specialist, quality of the communication of the specialist with the primary care physician, specialist effort to return the patient to primary care physician, likelihood of good patient-physician rapport.

Barnett *et al*. (2012), grouped the reasons for referral in four main categories: "patient experience with the physician", "patient access", "physician communication" and "other". The results show that for the primary care physician the most important role, when considering where to refer, played the good experience of the patients and the physician communication. On the positive experience of the GPs and their patients accentuated Unwin & Peters (2009) as well. They also noted that the information about a clinic is gathered by feedback from patients and colleagues. Another study that emphasizes on the positive patient experience as the reason for GPs to refer to this service is the one by Burn & Edwards (2014).

Javalgi *et al*. (1993) investigated a lot of factors and defined that of a major importance are the medical skill of the specialist, previous positive experience, availability of consultation and patient preferences.

Interesting are the findings of Ringard (2010) who investigates the reasons why the GPs abandon the local hospital. He defined that the good collaboration, communication and experience are factors that makes GPs less likely to bypass their local hospital. It is also interesting that the GPs who are practicing in the area with elderly population are less likely to abandon the local hospital. On the other hand, practicing in area where the inhabitants are with higher education increases the chance of bypassing the local hospital.

Kinchen *et al.* (2004 b), defined that when choosing a specialist, the GPs prefer to refer to someone who graduated in the same country. The results, however, are valid only when all other characteristics of the specialists are equal.

The study of Pothier *et al.* (2006), investigates the attitudes of the GPs' to the project that is called "Choose and Book", which purpose was to facilitate the patient choice. The results showed that in general, the GPs in England are not satisfied with the implemented system, assessing it as time-consuming. Furthermore, the study does not reveal any factors that influence the GP's hospital choice.

Patients 'choice and their role in the decision-making

16 of the studies, included for full reading give insights regarding the role of the patients and/or factors that influences the patient choice of hospital.

Victoor *et al.* (2013) defined that, regarding their role in the choice, the patients can be divided to patients with and without input to the choice. The authors claim that the biggest part (75%) of the studied population in the Netherlands has no or has very little input to the choice. A study performed in Eastern Denmark also founds that around 76% of the general practitioners perceive that they make the choice on behalf of the patients to exactly which hospital to go (Birk & Henriksen, 2012). Very similar are the results presented by Rademakers *et al.* (2014), that listed the major part of the patients (75%) go for a hospital or a specialist they were advised to go by their GP. Lako &Rosenau (2009), Rosen *et al*. (2006), Merle *et al.* (2009) also defined that the biggest part of the patients go to this hospital, to which they were referred by the general practitioner.

Dixon *et al.* (2010 a), noted that even when the patients make the choice of hospital the strategy of the GP plays a major role. The reason is that some of the GPs reveal to their patients all possible options, while other discuss just the closest ones. They found that, especially in the case with the Netherlands, some of the GPs referred their patients to the local hospital without any discussion regarding the possible alternatives. Authors discuss that very little is known about whether some types of patients are more likely to be offered choice than others and how many GPs offer choice without the patient to ask for it. Interesting finding appears also the fact, that GPs are reluctant to give an information for the waiting times published on the official sites as they are not sure how accurate it is.

Rosen *et al.* (2006) listed that when the patients express a wish to go to a specific hospital the GPs accept it. The only cases when GPs try to override this preference is to guide the patient to the excellent provider or to bring the patient away when they have concerns about a provider. Furthermore, Burge *et al.* (2006) noted that there is an existence of an important asymmetry in the effect of the GPs' opinion on the patient choice. In the cases when the GP advises against some provider that has higher value for the patients than the cases when the GP's advice give preference for a specific provider.

Among the factors that are important for the patients, besides the GPs' referral that appears in the aforementioned studies, there are also "hospital, close to their home" (Dixon *et al.*, 2010 a &b; Rademakers *et al.* 2014; Burge *et al.,* 2006; Merle *et al*. 2009), "hospital reputation" (Dixon *et al*., 2010 a &b; Lako & Rosenau, 2009; Dijs-Elsinga *et al.* 2010; Merle *et al*., 2009), "good experience with this hospital" (Dixon *et al*., 2010 a &b; Rademakers *et al.,* 2014; Burge *et al*., 2006; Dijs-Elsinga *et al.* 2010), "waiting time" (Dixon *et al.,* 2010 a &b; Unwin & Peters, 2009; Burge *et al*., 2006), "hospital facilities, standard and food" (Burge *et al*., 2006; Dixon *et al*., 2010 a &b); "cleanliness and quality of care" (Dixon *et al*., 2010 b); 'hospital friendliness" (Dijs-Elsinga *et al*., 2010); "hospital has good medical equipment" (Merle *et al*., 2009).

Freedman *et al.* (2015) investigated whether the patients differ in the way they choose a surgeon or a hospital for breast cancer surgery depending on their race and ethnic origin. The study finds that the most common reason for surgeon choice was GP's recommendation and for the hospital choice whether the hospital was part of the patient's insurance plan. The authors also noticed a slightly higher involvement in the choice of white women who also more often mentioned the hospital reputation as a reason for choice in comparison with the minority of patients.

Bouche *et al*. (2008) aimed to define if the patients prefer low or high-volume hospital. Their results show that when some patients are involved in the choice they prefer to go to a low-volume hospital when it is closer to their home. Low-volume hospital is also more likely to be chosen from elderly patients and patients with lower education. Another determinant is the number of the surgical beds in the investigated areas.

Bussche *et al*. (2010) gave an insight that the elderly patients are often reluctant to the hospitalization as they are concerned about how long their family would travel. Furthermore, the results indicated that this group of patients is often dependent on others for their own transportation to the hospital and back.

Rosen *et al*. (2005), defined that patients are looking for information regarding the health care services. These patients also prefer to insure the reliability of the information read through the specialist advice, who in most cases is their GP. Usually the required information from the patients is about "waiting times", "quality and outcome measures", "operation success rate", "quality of aftercare", "transport services". More likely, the patients' choice is affected by factors such as convenience, reputation and accessibility.

Victoor *et al.* (2012) made a scoping review on the determinants of the patient choice in the literature. The authors defined that the most of the patients are not able or not willing to make a rational choice. Patients base their choice on previous experience and GP's recommendation instead of using comparative information. Furthermore, they base their choice only on part of the provider's characteristics as most likely these are characteristics related to structure and process than to outcome.

In relation with bariatric surgery and what factors influenced the choice of hospital for this kind of surgery, just one study was found. Paolino *et al*. (2015), researched whether Internet plays a role in the decision-making process for obesity patients who are choosing where to go for bariatric surgery. The findings suggest that the major part of the patients (77.8%) check health information on Internet. The patients are mostly looking for the available surgical procedures and what the other patient experience is. The preferred sites are the ones affiliated to public hospitals and patient websites but furthermore, the information is verified with GP (83%) or with family and friends. Nearly 78 % of the studied population share that for the choice they consider the GP's advice, followed by hospital reputation, family and friends' suggestions and location.

All the factors that influences the GPs' and patients' choice can be seen in Appendix A.

Conclusions and interviews content

Overall it appears that for the GPs the most important factors when they refer patients to a specific provider are the quality and the skills of the specialist. GPs prefer to refer to specialists or hospitals they personally know and have previous experience with. When they make the decision on behalf of the patients they combine their personal knowledge and the feedback they have from their patients and colleagues with the official published information for the quality. It appears, however, that the informal sources are with higher value for the GPs. Furthermore, in the most of the cases when the patients have preferences the GPs agree with them. The only exceptions are about the cases when the GPs are sure there is available an excellent provider for a specific service or when they think the patient's choice is for the provider, for which they have concerns. For the GPs, the waiting time is important for the decision but they prefer to gain information for it directly from the hospital as they share concerns about the accuracy of the published waiting time. The location is of a concern as much as the patients prefer the hospital to be closer to their home or work.

The patients, on the other hand, prefer to go for a hospital they have experience with or their family and friends recommended to them. Even though, many patients look for additional information in Internet and ask friends and family for advice, the most important source of information for them remains the general practitioner. The majority of the patients go for the hospital they were advised by their GP. An important factor for the patients appears to be the location, reputation of the hospital, friendliness. The patients are interested in the quality

indicators but if the local hospital provides good quality service, they would prefer to go for that option. The location appears to be a very important factor for elderly patients.

The literature review provided some factors, that appear important for the GPs. We included them in the list for ranking by the GPs at the end of the interviews. The included factors are as follows:

1. **Positive relationship with providers' physicians-** To the good cooperation with secondary care providers as an important factor that influence GPs' choice, lead the results of four studies (Birk & Henriksen, 2010; Bussche *et al.,* 2010; Ringard, 2010; Leemrijse *et al*., 2015). Barnett *et al*. (2012), Kinchen *et al.* (2004 a) and Ikkersheim *et al.* (2013) added the importance of good communication between the primary and secondary health care provider. Relationship of the GP with the specialists is studied by Kinchen *et al.* (2004 a) and Javalgi *et al.* (1993).

2. **Quality of care**- This factor is one of the most studied and important ones among the studies that focus on the GPs choice (Hackl *et al.,* 2015; Ketelaar *et al*., 2014; Rosen *et al.,*2006). Furthermore, the same factor is also studied by the research that focuses on the reasons for patients' choice (Burge *et al*., 2006; Dixon *et al*., 2010b; Rosen *et al*., 2005; Merle *et al*., 2009; Magee *et al*., 2003).

3. **Specialists' skills and expertise** – The factor is studied by Kinchen *et al.* (2004 a); Javalgi *et al.* (1993). The results of both studies listed exactly this factor as the most important one for the GPs' hospital choice. Furthermore, it appears to be of an importance for the patients as well (Magee *et al.,* 2003; Epstein, 2010).

4. **Provided techniques and treatments-** important regarding Ketelaar *et al.* (2014); Forrest *et al.,* (2002); Javalgi *et al.* (1993). Furthermore, the study of Ringard (2010), also defines that when the local hospital provides the needed treatment, the GPs are less likely to bypass that hospital.

5. **Patients' preferences** – That is one of the most studied reasons in the literature (Ketelaar *et al.,* 2014; Barnett *et al*., 2012; Kinchen *et al.,* 2004 a; Forrest *et al*., 2002; Javalgi *et al*., 1993; Ferrua *et al.,* 2016). Even though, the results about the influence of this factor differs among the studies, one of them, performed exactly in the Netherlands, listed "patients' preference" as the most important reason that influences GPs' choice (Ketelaar *et al*., 2014).

6. **Travel distance** - While some of the studies find this factor of a great importance for the GPs' choice of referral destination (Ketelaar *et al*.,2014; Burn *et al*., 2014; Birk & Henriksen, 2012; Ferrua *et al.,* 2016), others claim the contrary (Forrest *et al*., 2002; Javalgi *et al*., 1993). The studies that researched the patient's choice also widely studied this reason (Dixon *et al*., 2010a; Rademakers *et al*., 2014; Paolino *et al*., 2015; Burge *et al*., 2006; Dixon *et al*., 2010b; Rosen *et al.,* 2005; Dijs- Elsinga *et al*.,2010; Merle *et al*., 2009; Freedman *et al.*, 2015; Berendsen *et al*., 2010).

7. **Convenient location for the patient** – that reason is studied by Barnett *et al*. (2012) but it is defined as a not very important one. Even though it may seem close to the factor "travel distance", we assume that includes not the distance but the convenient place for parking (Dixon *et al*., 2010b; Rosen *et al*., 2005), entrance, good transport connection (Dixon *et al.,* 2010a; Dijs-Elsinga *et al*., 2010) etc., which generally are important factors for the elderly patients and patients with co-morbidities. Therefore, this factor is included separately.

8. **Waiting time-** that is another one of the most researched factors with contrary results. Among the studies that investigate GPs' referral choice, this factors is examined by Ketelaar *et al*. (2014); Burn *et al*. (2014); Birk *et al.* (2012); Bussche *et al*., (2010); Unwin & Peters, (2009); Barnett *et al*., (2012); Kinchen *et al.*, (2004 a); Forrest *et al.* (2002); Rosen *et al*., (2006); Javalgi *et al*., (1993); Ikkersheim *et al*., (2013). Moreover, studies focused on patients' choice of a secondary provider, also very often includes this factor. (Dixon *et al.*, 2010 a &b; Burge *et al*., 2006; Rosen *et al*., 2005; Magee *et al*., 2003).

9. **Insurance coverage –** this factor appears in four of the studies that examine the factors, influencing GP's referral choice (Kinchen *et al.*, 2004 a; Forrest *et al*., 2002; Javalgi *et al*., 1993; Leemrijse *et al*., 2015). From the studies that investigate the patients' choice only Freedman *et al.* (2015) listed this factor as an important one. Even though this problem concerns mostly studies in the USA, the managed competition in the Netherlands gives a reason to define whether the insurance plan of the patient affects the choice of hospital for bariatric surgery.

10. **Reputation** – this factor appears only in the studies, focused on the patients' choice. However, all of them define reputation as an important for determining the referral destination (Dixon *et al.,* 2010a &b; Paolino *et al*., 2015; Lako & Rosenau. 2009; Dijs-Elsinga *et al*., 2010; Merle *et al.*, 2009; Freedman *et al*., 2015). Furthermore, Medtronic also is interested in defining the importance of "reputation" for the hospital choice.

11. **Timely and adequate reporting-** Birk & Henriksen (2010) revealed the detailed and quick clinical report after discharge as a reason for hospital choice. Their results show this factor as an important one only for the minority of the participants. However, this reason is also important to be defined by Medtronic and therefore, it is included for ranking by the physicians.

12. **Influence of GP on the patient treatment** – Bussche *et al.* (2010), give some insights for the importance of this factor. The authors revealed that the GPs require to be up-to-dated about what is going on with their patients at each stage and to be involved in the process. Even though it is not found in the other studies, this factor is a subject of interest for Medtronic so it is also included in the list of factors.

Together with the listed above, some additional factors were included for ranking after the interviews. Although they were not specifically found in the literature that investigate GPs' hospital choice, Medtronic defined them important to understand their influence. These factors are as follows:

13. **Medical equipment/infrastructure;**

14. **Patient- centricity;**

15. **Innovative offering;**

16. **Leading research;**

17. **Innovative education for referrers;**

18. **Post-operative care focus.**

Furthermore, as we assumed the list might miss some of the decisive factors for the GPs, we included the following as a last option:

19. **Other, please specify - that gives to the GPs opportunity to name a factor that is important for them but does not figure in the list.**

All the factors defined as important for GPs' choice from the literature and for Medtronic are included for ranking, except those ones that are considered as a source of information for the GPs about specific provider. Such sources are "GPs' previous experience" (Hackl *et al.,* 2015; Burn *et al*., 2014; Birk & Henriksen, 2010; Unwin & Peters, 2009; Kinchen *et al.* 2004 a; Javalgi *et al*. 1993; Ferrua *et al*., 2016), "colleagues' experience" (Hackl *et al.*, 2015; Unwin *et al*., 2009; Kinchen *et al.* 2004 a; Ferrua *et al*., 2016), "patients' experience" (Ketelaar *et al*., 2014; Burn *et al.,* 2014; Birk & Henriksen, 2012; Unwin & Peters, 2009; Barnett *et* al., 2012; Leemrijse *et al.,* 2015). The questions about sources of information are included in the interviews and will be studied but will not be included for additional ranking in the list of factors.

The literature review gave a theory to understand the GPs' choice and it was used as a basis to create the interviews' topics and core questions. Through the interviews, we will research what factors influence GPs' hospital choice in general and specifically for bariatric surgery. Moreover, we will try to define what factors the GPs perceive as important ones for the different categories of patients. A subject of study will also be: who is playing the main role in the hospital choice and what patients' characteristics, if any, influence the GPs' choice. In difference to the Birk model, we will try to understand if patients' health care insurance plan is important for the choice of hospital regarding the situation in the Netherlands. The topics and the core questions for the interviews are listed in Appendix B.

Results from the interviews

The presented results are obtained from eleven interviews in total. The first two interviews were performed as pilot in order to test the questions. After the first one, some changes in the initial version of the questions and ranking were made. Therefore, the first interview was included in the analysis after Respondent 1 was contacted again and additional questions were asked via phone. The second interview is included as there were not any changes made in the questions and ranking after it. The transcriptions of the interviews can be found in Appendix C[6]. Furthermore, recommendations for Hospital X based on these results can be found in Appendix D.

Results of Topic I. Introduction and demographic

The demographic characteristics of the respondents are presented in the Table 2.

Table 2 Demographic characteristics of the respondents

Respondent N	Gender	Age	Years of experience	Number of referred patients for bariatric surgery
Respondent 1	Male	54	27	4
Respondent 2	Male	51	16	10
Respondent 3	Female	30	3	4
Respondent 4	Male	44	14,5	8
Respondent 5	Male	61	35	10
Respondent 6	Female	35	2,5	3
Respondent 7	Male	48	15	4
Respondent 8	Male	55	25	4
Respondent 9	Male	57	10	3
Respondent 10	Female	57	30	13
Respondent 11	Female	59	31	6

As it can be seen, most the participants were male (n=7). Regarding the age the biggest group was in the age diapason between 40 and 55 years old (n=5). Furthermore, two of the participants were less than 40 years old and four of them, were older than 55 years. The youngest participant was 30 years old and the oldest one was 61 years old.

Most of the participants (n=5) had experience as a GP more than 20 years. In comparison four of them had experience between 10 and 20 years and only two GPs were with experience less than 10 years. The most experienced GP was Respondent 5, who has 35 years of experience, while the least experienced one was Respondent 6 with 2.5 years of experience.

[6] Due to confidentiality, it may be possible that the content of Appendix C is not available for viewing

Most of the GPs have referred for bariatric surgery less than 5 patients for the last two years (n=6). Two of the GPs shared that they referred more than 5 but less than 10 people for this kind of surgery for the last two years. Only three of the GPs said, that for the same period they referred for bariatric surgery 10 and more patients. The lowest number of patients have been referred for bariatric surgery by Respondents 6 and 9. The both referred three obese patients for this treatment over the last two years. The Respondent 10 on the other side, has referred 13 patients for bariatric surgery for the same this time.

Results of Topic II: General factors that influence the GP's choice of secondary provider

Topic II, Question 1: When you refer a patient for hospital care, what hospital's characteristics are the most important to choose it for your patient?

Table 3 Results from Topic II, question 1

Respondent	Topic II, Question 1	
N	**Reason for referring 1**	**Reason for referring 2**
Respondent 1	waiting time	friendliness and communication
Respondent 2	friendliness	responsiveness to patients' needs
Respondent 3	patient's preference	N/A
Respondent 4	availability of a multidisciplinary team of experts	assessment of the proper treatment for an individual patient
Respondent 5	pathology	patient's preference
Respondent 6	distance	N/A
Respondent 7	patient's preference	patient's satisfaction
Respondent 8	availability of the health care service in the hospital	close distance
Respondent 9	closest location (preference for the hospital in the neighborhood)	waiting time
Respondent 10	location	lack of bad experience with the department there
Respondent 11	quality and good results	good communication

Note: The trends in the answers that are frequently repeated among the respondents are colored for better readability. The colors do not represent any specific ranking between the trends.

The summarized answers on this question can be seen in Table 3. The results show that the GPs give diverse answers. Even though they are diverse, there are a few answers that are shared by several respondents. Among the most appearing reasons for hospital choice are: the nearest location of the hospital; patient preference; hospital friendliness and good communication.

The revealed general factors that determine the hospital's choice, are consistent with the literature findings. The location of the hospital is defined as an important factor by the studies of Ketelaar *et al.*,2014; Burn *et al.,* 2014; Birk & Henriksen, 2012; Ferrua *et al.*, 2016. All these studies

investigated the determining factors for the GPs choice. Patient's preference is listed as important by Ketelaar *et al*., 2014; Barnett *et al*., 2012; Kinchen *et al*., 2004 a; Forrest *et al*., 2002; Javalgi *et al*., 1993; Ferrua *et al*., 2016.

Hospital friendliness to the patients is something that appears important in the studies that investigates patients' views only (Dixon *et al.*, 2010 b; Dijs-Elsinga *et al*., 2010). The interviews performed with the GPs however, have shown that friendliness of the hospitals to the patients and their ability to communicate with the patients, are considered important also by the GPs, when they make the hospital choice.

Furthermore, the interviews showed that the GPs are concerned about the patient-centeredness of the hospitals. This is not a particularly investigated in the studied literature. However, the interviews have shown that the GPs expect a good hospital to work together with any individual patient in order to find the best treatment.

It is noticeable that only one GP refers to the provided quality as a factor that influences the choice. It should be noted also, that this GP is exactly the one, who received the questions and the factors for ranking through e-mail. Therefore, it cannot be said with certainty that the GP did not see the list of factors prior to answering the interview questions and whether this list influenced the given answers.

As a conclusion, it appears that, when the GPs choose a hospital for their patients, they are focused on factors that concern close location, and the way how the hospital manages interpersonal relation to assure patient satisfaction.

Topic II, Questions 2: Do these factors (that influence the hospital choice) depend on sociodemographic characteristics of the patient (such as age, income class, insurance company) who you refer?

Table 4 Results from Topic II, question 2

Respondent	Question 2		
Respondent N	**Sociodemographic characteristics**	**Sociodemographic characteristics**	**Sociodemographic characteristics**
Respondent 1	Religion	N/A	N/A
Respondent 2	Income	Education	Origin
Respondent 3	Income	Education	N/A
Respondent 4	Age	The patient's competency	N/A
Respondent 5	Age	N/A	N/A
Respondent 6	Income	Education	Origin
Respondent 7	N/A	N/A	N/A
Respondent 8	N/A	N/A	N/A
Respondent 9	N/A	N/A	N/A
Respondent 10	N/A	N/A	N/A
Respondent 11	N/A	N/A	N/A

Note: The trends in the answers that are frequently repeated among the respondents are colored for better readability. The colors do not represent any specific ranking between the trends.

Among the most common responses received to this question was: the lack of any correlation between the factors that influence hospital choice and patient's socio-demographic characteristics (indicated as N/A). The socio-demographic characteristics that were considered important by some respondents were: income, education and age.

The two general practitioners that mentioned as important: the income status, education level, and origin, have practices in multi-cultural districts in the South-West of the Netherlands with a lot of patients that were not originally from the Netherlands. They assessed the income status and the educational level of their patients as low. Many of their patients were described as not able to communicate in Dutch or English. For these practices the most important factors within the hospital choice were the close distance; insurance coverage; and preferably a hospital that provides or allows translation for these patients.

One GP has assessed the income status and education level as important but not the origin. She explained that the people with higher education and income were more likely to prefer to be treated in a third line hospital.

One of the GPs related the choice only to the patients age. The same GP, explained that elderly patients prefer to go to the closest hospital. The age however was mentioned by other two GPs as a barrier for choice for elderly patients as they (Respondent 4 and 9) prefer not to refer them for surgery at all.

The above-mentioned socio-demographic characteristics were investigated in the literature. The findings about the influences of the age is consistent with the study of Ringard (2010) that listed, the GPs with a practice that consists of a more than average number of elderly patients, are less likely to abandon the local hospital as far as the quality there is considered good. The preferred close distance can be explained with the results of Bussche *et al.* (2010), that found the elderly patients are more reluctant to hospitalization due to transport problems as they often depend on their families and neighbors. The influence on the age, education and income level is involved in the studies of Ringard (2010) and Bouche *et al.,* (2008). Freedman *et al.* (2015) found that for the patients, who are part of the minority population, it appears that the important factors for choice are insurance coverage and close proximity. Furthermore, Barnett *et al.* (2012), mentioned as a factor that may influence choice is the possibility of the provider to speak the patient's language.

The possible positive association between on one side the education and income level and on the other side the patient's preference for a treatment in academic center, was not investigated in the studied literature and requires further investigation. Varkevisser & Geest (2007), found that Dutch patients are more likely to bypass their nearest hospital, when it is a university medical hospital. As reasons, the authors listed: the GPs' advice; bureaucracy; bigger chance of refusal; and the possibility for the patients to receive less individual attention. However, Victoor *et al.* (2012 b), found an inverse correlation between the education and the likelihood to follow GPs' advice. Therefore, the reason that more educated patients prefer a third line hospital could be that they put more weight on the medical expertise of the hospital and not on the other factors.

However, one surprising answer appears among the mentioned socio-demographic characteristics: the religiousness of the patient. One of the respondents, listed this as the only socio-demographic characteristics that influences the choice of the hospital. Another respondent did not list it directly as a characteristic but further during the interview mentioned that her patients are not going to a specific hospital because it is known as "a hospital for people, who have religion" (Respondent 11).

Finally, contrary to the Birk model (Birk, 2015), it can be concluded that, most the respondents did not relate the hospital choice with socio-demographic characteristics of the patients. An

interesting finding is also the possibility of a relation between the patients' educational and income level and their preference to be treated in an academic hospital.

Topic II, Questions 3: Do these factors (that influences the hospital choice) depend on personal characteristics of the patient (such as assertivity or earlier experiences with bariatric surgery)?

Table 5 Results from Topic II, question 3

Respondent	Question 3
Respondent N	**Personal characteristics**
Respondent 1	assertiveness and experience
Respondent 2	N/A
Respondent 3	experience
Respondent 4	psychological status and perseverance
Respondent 5	experience
Respondent 6	experience
Respondent 7	N/A
Respondent 8	N/A
Respondent 9	experience / familiarity with a specific hospital
Respondent 10	assertiveness (specially for younger patients), previous experience
Respondent 11	earlier experience

Note: The trends in the answers that are frequently repeated among the respondents are colored for better readability. The colors do not represent any specific ranking between the trends.

Regarding the personal characteristics that influence the choice, the most important appeared to be the previous experience of the patient with a specific hospital. This characteristic was mentioned by seven GPs. Three of the GPs could not relate the hospital choice to any specific personal characteristics. Two of the GPs added to the experience also the assertiveness of the patient. One GP, indicated as important the psychological status and perseverance of the patients. However, they were mentioned by him not as characteristics that have effect on the referral destination but as necessary conditions his patients to receive referral for a bariatric surgery.

The results of this question are not surprising. The studies of Dixon *et al*. (2010 a & b); Rademakers *et al*. (2014); Burge *et al.* (2006); Dijs-Elsinga *et al*. (2010), found that the previous patient's experience with a particular hospital has a very important role in the future choice. In fact, the previous experience of the patients is part of the Birk model (Birk, 2015) as a factor that influences patient choice, even though, as Birk notes, this experience is more likely to be limited. Together with this, assertiveness of the patients also plays an important role as it is most likely connected to the younger patients that search for different providers using Internet (Paolino *et al.*, 2015). Therefore, it can be concluded that the interviews' results are consistent with the literature findings in regard to the personal characteristics that influence the hospital's choice.

Topic II, Question 4: Would you recommend a hospital to a patient, that is not included in his insurance plan?

Table 6 Results from Topic II, question 4

Respondent	Question 4
N	**Would you recommend a hospital that is not in the patient's insurance plan**
Respondent 1	may recommend something out of the coverage
Respondent 2	No
Respondent 3	No
Respondent 4	assumes that all hospitals are covered
Respondent 5	No
Respondent 6	No
Respondent 7	No
Respondent 8	No
Respondent 9	No
Respondent 10	No
Respondent 11	No

Investigating the influence, that the insurers may have on the hospital choice, it was found that all respondents would leave it to the patients to check whether they are insured for a specific hospital and to make the choice. The results show clearly that the GPs are going only for a hospital, where the treatment is covered by the patients' insurance. Ten out of 11 GPs shared that they do not find any reason to recommend hospital that their patients are not insured for. The reason for that behavior are the significant costs for the patients, that very few are able to pay. Furthermore, the assessment of the general practitioners is that all the hospitals in the South-West of the Netherlands are with same good quality care. This allows the patients to have a good service in a hospital for which they have insurance. This makes the recommendation of a hospital that is out of the insurance plan, meaningless. This leads to the conclusion that the choice always would be for a hospital that is part of the patients' insurance plan as long as it can provide the health care service within good quality.

Only one of the GPs said that he would recommend a hospital that is not covered, in case the quality there is a lot better than others. Furthermore, he said that the final decision belongs to the patient.

Even though the importance of the patients' insurance plan was discussed in the literature (Kinchen *et al.,* 2004 a; Forrest *et al*., 2002; Javalgi *et al*., 1993; Leemrijse *et al*., 2015; Freedman *et al*., 2015) here it was included to define the role that the insurance companies may play in the Dutch hospital choice. The Birk model (Birk, 2015), as discussed previously, was defined for Danish health care system, where the choice of hospital care is defined as free for the patients. Within Dutch health care system, the insurance companies have the possibility to play a main role in the hospital choice as they may contract secondary providers of health care selectively.

The obtained results have shown that the insurance company may determine the hospital choice. Even though at the current moment it seems that is not the case because, as the study of Krabbe-Alkemade *et al.* (2016) listed, the insurers in the Netherlands generally contract all the hospitals. That is supported by one of the GPs, whose answers showed his belief that all the hospitals are covered (Respondent 4). However, in contrary, the role that the insurance company may play in the choice, was revealed by Respondents 5 and 7. Respondent 5 shared that years ago, due to a contract between an insurance company and a hospital, all patients, who were insured by the same company, preferred a specific hospital as they were accepted with priority. Respondent 7 said that the patients do not have all the choices, as "the insurance companies are the bosses this time" and therefore, "the doctor follows the choice of the insurance company".

Following all of the above-mentioned results, it can be concluded that due to the selective contracting, the insurance companies in the Netherlands may play an important role in the hospital choice.

Results of Topic III: Source of information for the GPs

Topic III, Question 1: How do you obtain information about where particular hospital services are available?

Table 7 Results from Topic III, question 1

Respondent	Question 1	
N	**Source of information for available services 1**	**Source of information for available services 2**
Respondent 1	personal experience of the GP	post-doc training
Respondent 2	previous patient experience	electronic referral system
Respondent 3	Internet, google	N/A
Respondent 4	Internet	personal experience
Respondent 5	personal experience of the GP	N/A
Respondent 6	Internet, google	N/A
Respondent 7	insurance company of the patients*	N/A
Respondent 8	electronic referral system (ZorgDomein)	N/A
Respondent 9	electronic referral system (ZorgDomein)	N/A
Respondent 10	electronic referral system (ZorgDomein)	patients experience
Respondent 11	from the hospital	N/A

Note: The trends in the answers that are frequently repeated among the respondents are colored for better readability. The colors do not represent any specific ranking between the trends.

The obtained results show that as a source of information, where a specific hospital service is available, the most mentioned was the electronic referral system, followed by: Internet information, GP personal experience and information shared by the patients. Respondents 1 and 11 indicated the information provided by the hospitals was their source of information. One of the doctors mentioned the patient's insurance company as source of information where some services are available.

That the previous experience and cooperation of the GP with specific hospital, as well as the patients' feedback are used as sources of information is not surprising. These sources of information are described often in the literature (Hackl *et al.,* 2015; Burn *et al*., 2014; Birk & Henriksen, 2010; Unwin & Peters, 2009; Kinchen *et al.* 2004 a; Javalgi *et al*. 1993; Ferrua *et al*., 2016; Hackl *et al.,* 2015).

However, it is surprising that, in the performed interviews, the most listed are digital sources of information (electronic referral system was mentioned by four GPs and Internet by three). Birk & Henriksen (2012), investigated from what sources the GPs obtain information about the waiting time. They revealed the most important sources are clinical reports, paper prognoses and calls to departments. However, the role of electronic sources was not defined as important. The results of this question show the opposite. ZorgDomein, the implementation of which was investigated by Dixon *et al*., (2010 a), is at this moment widely used by the GPs in the South-West of the Netherlands to inform them about where specific hospital services are available. Even more interesting is the usage of Internet search engines by the GPs. Although, there was an evidence that the patients check the information regarding where some health care service is available on Internet (Paolino *et al*., 2015), there was no evidence indicates that the same is valid for the GPs.

These results show that the traditional sources, mentioned in the literature, from which the GPs can gain information where hospital service is available are still used. However, there is a clear shift towards the usage of digital information sources for this purpose.

Topic III, Question 2: How do you obtain information about the characteristics and quality of the different providers?

Table 8 Results from Topic III, question 2

Respondent	Question 2		
N	**Information about the quality**	**Information about the quality 2**	**Information about the quality 3**
Respondent 1	post-doc training	N/A	N/A
Respondent 2	Algemeen dagblad report	N/A	N/A
Respondent 3	patients' feedback	colleagues	personal interaction with the specialists
Respondent 4	hospital information and education programs	personal interaction with the specialists	colleagues
Respondent 5	information from the specialists	results of the treatment	patients' feedback
Respondent 6	patients' feedback	personal interaction with the specialists	N/A
Respondent 7	information from the specialists and colleagues	educational programs in the hospitals	patients' feedback
Respondent 8	does not obtain such information	patients' feedback	N/A
Respondent 9	patients' feedback	N/A	N/A
Respondent 10	does not obtain information	N/A	N/A
Respondent 11	N/A as it is difficult to obtain this information	N/A	N/A

Note: The trends in the answers that are frequently repeated among the respondents are colored for better readability. The colors do not represent any specific ranking between the trends.

The obtained results show that the most mentioned source of information about the quality of the services is the patients' feedback. Together with this, other important sources were found to be: personal interaction with the specialists (mentioned five times) and different educational programs in the hospitals (mentioned three times). Similarity between the last two sources is that the both show GPs' preference for personal communication and knowledge of the provider's specialists. Three of the GPs shared that they do not obtain information about the quality. Respondent 8 said that he makes conclusions about the hospital's quality only using patient feedback. Two of the GPs, listed their colleagues as an information source; and one referred also to the results of his patient's treatments as way to measure hospital quality.

Ikkersheim & Koolman, (2013) and Ketelaar *et al.* (2014) defined that quality performance indicators do not have a high effect on the GPs' hospital choice. This is in agreement with the result of this study, where only one of the respondents mentioned official quality performance information as useful when he makes the choice. Listening to the patients' feedback; their personal knowledge; communication with the specialists from the hospital; colleagues; and results they see from the patients' treatments, are all factors consistent with Birk model (Birk, 2015) and the literature (Hackl *et al.,* 2015; Ketelaar *et al.* 2014; Ikkersheim *et al*.,2013; Forrest *et al*., 2002; Bussche *et al.,* 2010; Ringard, 2010; Leemrijse *et al*., 2015; Barnett *et al*., 2012; Kinchen *et al.*,2004 a). Respondent 6 and 11 shared that it is hard to find information about quality. That could be explained with the results of Ketelaar *et al.* (2014), that found that the majority of GPs do not know where to search for quality indicators.

Interesting however, is the fact that three of the GPs shared they do not obtain information about the quality of the different providers at all. The possible explanation is that they do not accept such information as accurate or reliable and difficult to be found.

In conclusion, the results of this question confirm the literature findings, that the GPs prefer to assess the quality of a hospital using as sources patient feedback and their personal knowledge of the specialist, instead of obtaining official information (Rosen *et al*., 2007). Many GPs shared a preference for lectures, education programs and trainings where they can meet the specialists. Furthermore, there are some indications that a few of the GPs are not interested in obtaining information about the hospital quality.

Results of Topic IV: Factors the influence the GPs' choice of bariatric provider

Topic IV, Question 1: When you refer patients for bariatric surgery what characteristics of the provider you think are important (to choose it for your patients)?

Table 9 Results from Topic IV, question 1

Respondent	Question 1		
N	**Reasons for choice of bariatric provider 1**	**Reasons for choice of bariatric provider 2**	**Reasons for choice of bariatric provider 3**
Respondent 1	friendliness	multi-disciplinary team	follow-up
Respondent 2	location	accepting the patient as eligible	N/A
Respondent 3	multi-disciplinary team	N/A	N/A
Respondent 4	multi-disciplinary team	follow-up	good communication
Respondent 5	results of treatments (patients' need to lose weight)	examination if the patient is eligible	experience of the doctors
Respondent 6	accepting the patient as eligible	N/A	N/A
Respondent 7	surgeon experience	hospital equipment	distance
Respondent 8	examination of the patient if he/she is eligible	guidance of the patients	N/A
Respondent 9	patients' satisfaction (patients are concern about barriers implement by the hospital)	results	follow-up
Respondent 10	good communication	patients' choice	N/A
Respondent 11	quality of care (results, reliability and good care)	good communication	N/A

Note: The trends in the answers that are frequently repeated among the respondents are colored for better readability. The colors do not represent any specific ranking between the trends.

The reasons why a specific hospital is chosen for a bariatric surgery, again show diverse responses from the GPs. Among the most mentioned answers appeared: good communication and guidance of the patient through entire process; availability of a multidisciplinary team; the follow- up process; the achieved results. Other reasons were: examination of the patients; acceptance of the

patients as eligible; experience of the surgeons; location; quality of care; patient satisfaction; patient preference.

The literature provides a wide range of factors that play a role in the GP's decision for the referral destination. However, in the literature there is a lack of studies that investigate what factors play a major role for the GPs who refer patients for bariatric surgery.

Some of the reasons, indicated by the GPs as important, appeared in the general literature, such as: location of the hospital (Ketelaar *et al*.,2014; Burn *et al*., 2014; Birk & Henriksen, 2012; Ferrua *et al*., 2016), results of treatments and experience of the doctors (Kinchen *et al*., 2004 a ; Javalgi *et al*., 1993), quality of care (Hackl *et al*., 2015; Ketelaar *et al*., 2014; Rosen *et al*.,2007) and patient preference (Ketelaar *et al.,* 2014; Kinchen *et al.,* 2004 a; Javalgi *et al.*, 1993; Ferrua *et al.*, 2016).

However, there are factors, among the answers, that are not defined in the literature. Even though the sample size is small, among the often-mentioned reasons by the GPs, when they explain the hospital characteristics that influence their choice are: a multi-disciplinary team and follow-up.

Furthermore, the GPs greatly discussed the patients' examination and their acceptance as being eligible for this kind of surgery. Two of the general practitioners do not agree with the hospital's decision to refuse the treatment of their patients due to psychological status. The doctors had the opinion that the health benefits would be significant after the performance of this kind of operation. Therefore, in these cases both GPs continued referring the refused patients to a hospital that would accept them, even though they had psychological problems in their medical history. One of the doctors said that, for him the hospital's willing to help the patient is of great importance and with respect to this willingness, he found a difference among the hospitals. As he said, some hospitals are "worried about their results in general, that they select patients very strictly" (Respondent 2).

Three other respondents also discussed the examination and assessment of the patients as being eligible but they, on the other hand, have a different reason for doing so. For them the examination should provide assurance that the bariatric surgery is the best treatment option for the patient. Furthermore, they take as an indicator of quality and "real evaluation" the decision of the hospital to refuse the operation to some patients. Here however, some discrepancies can be seen in their answers. In two cases, the GPs said that for them a proper examination and assessment of a whole picture is very important. However, the same GPs shared later in the interview that recently their patients, who were refused in one hospital wanted to go other and the GPs agreed to that (Respondents 5 and 8). Opposite to this, one respondent shared that when a patient is being refused, she does not try other hospitals, but works with the patient to try and convince him that the risks associated with the operation could exceed the benefits (Respondent 3).

Finally, due to the diverse answers and the small sample size, generalization of the obtained results it is not possible. However, it appears that GPs value very much factors, such as: good communication with the hospital and especially good communication with the patients as well as clear guidelines through the entire long-term treatment. Furthermore, the results show that from the characteristics that may play a main role in the hospital choice for bariatric surgery are: the availability of the multidisciplinary team of experts; good examination of the patients; adjustment of the criteria for eligibility; providing good follow-up care.

Topic IV, Question 2: Which one of these characteristics was the most important for the choice of the provider, the last time when you referred a patient for bariatric surgery?

Table 10 Results from Topic IV, Question 2

Respondent	Question 2
N	**The most important reason for last referral**
Respondent 1	professional standards and experience with the last patient
Respondent 2	accepting the patient as eligible
Respondent 3	patient preference
Respondent 4	multi-disciplinary team and the easy access to it
Respondent 5	the results of the treatment (patients' need to lose weight)
Respondent 6	accepting the patient as eligible
Respondent 7	patient preference and doctor advice for the closest hospital they were chosen
Respondent 8	patient preference
Respondent 9	experience of the surgeon
Respondent 10	accepting the patient as eligible (difference in BMI requirements between the hospitals)
Respondent 11	results

Note: The trends in the answers that are frequently repeated among the respondents are colored for better readability. The colors do not represent any specific ranking between the trends.

As the most important reason for a hospital choice, the last time when they referred patients for bariatric surgery, three of the GPs listed the patient's preference, while another three again put the attention to the acceptance of the patient as eligible for this surgery.

The answers of the respondents lead to the conclusion that in many cases the patient preference leads to bariatric surgery and usually the patients have already done some investigation on the possible clinics, where they would like to go. One of the respondents even said, that she is against this type of surgery and for her it is hard to choose a hospital, so she lets the patient to decide what they would want (respondent 10).

As was mentioned in the previous questions: patient preference; results; surgeon experience, are factors, that have been largely investigated in the literature. Therefore, their appearance in the answers is not surprising.

Different however, is the situation with the answer "accepting the patient as eligible". No other study was found that defines this factor as important for hospital choice. As a reason for refusing bariatric surgery to the patients, the respondent revealed "psychological status". However, one of the GPs, listed a difference in the required BMI among hospitals (Respondent 10).

Ultimately, the received answers show that in practice, the choice of a bariatric surgery provider were determined mostly by patients' preference and the criteria applied by the hospitals whether to operate the patient. That made the question about the eligibility criteria and how strictly they are applied by different hospitals, one of the most important factors.

Topic IV, Question 3: Are you interested in specific quality performance indicators of the bariatric surgery provider, when you make a choice?

Table 11 Results from Topic IV, Question 3

Respondent	Question 3		
N	**Important quality performance indicators 1**	**Important quality performance indicators 2**	**Important quality performance indicators 3**
Respondent 1	not interested	N/A	N/A
Respondent 2	the entire range of treatments	N/A	N/A
Respondent 3	morbidity rates	mortality rates	N/A
Respondent 4	results after the surgery and in long-term	N/A	N/A
Respondent 5	experience of the doctors	results of the doctors	ability of the doctor to communicate with the patient
Respondent 6	multidisciplinary approach	examination of the patients	
Respondent 7	mortality rates	long-term results (2-3 years)	N/A
Respondent 8	not interested	N/A	N/A
Respondent 9	the proper time for referral for surgery	complications	results
Respondent 10	not interested	N/A	N/A
Respondent 11	survival rate	chance of success of the operation	results (measured by the patients)

Note: The trends in the answers that are frequently repeated among the respondents are colored for better readability. The colors do not represent any specific ranking between the trends.

Three of the respondents shared, that they are not interested at all in quality performance indicators when they make the choice for a hospital. Furthermore, Respondent 3 is interested but she does not know where she can find such information. Respondent 4 shared, that he is interested but does not know what indicators are available. Respondents 7 and 9 also said, that they are interested in the indicators but they can obtain information only for their own patients and not for the entire population that undergoes surgery.

The GPs who are interested in the indicators, most often said that they would like to see the results of the treatment after the surgery and in a long-term. Other indicators, that were mentioned, are: morbidity rates, mortality rates, complication, availability of the entire range of treatments for obese patients, the experience of the specialists and the specialists' abilities to communicate with the patients, the full examination of the patients and multidisciplinary approach in the treatment.

The obtained results have confirmed the literature findings, that the quality performance information does not play a significant role in the hospital choice at the current moment (Ketelaar *et al.*,2014; Rosen *et al.*, 2007). The interest of the GPs in the results of the departments and the results in long term is understandable. The surgery itself is just part of the obesity treatment and the long-term success depends on the ability of the patients to change their lifestyle. Furthermore, at this moment the long-term results are not well known and since the obese patients are mostly

young people, they are expected to have a long life ahead of them, where they will have to deal with whatever the consequences of such a surgery are (Madura & II, 2012). This puts the accent on the long-term risks as an important factor.

Even though GPs do not use quality performance indicators to make their hospital choice at the current moment, most of them shared that such indicators would be interesting. The indicators, that were mentioned most often, are the results and specifically the long-term results, that would show whether the patients benefit when undergoing bariatric surgery. The doctors shared that they would like to know the results from all the operations performed in each bariatric department. Interesting is that fact that three of the GPs (respondents 5,7 and 9) expect hospitals to provide this information through lectures and educational programs.

Topic IV, Questions 4: What are your main concerns, when you refer a patient for bariatric surgery?

Table 12 Results from Topic IV, Question 4

Respondent	Question 4
N	**Concerns**
Respondent 1	good quality and friendliness
Respondent 2	do not have concerns
Respondent 3	whether the hospital does a real evaluation
Respondent 4	indications whether the patient would benefit from the surgery
Respondent 5	do not have concerns
Respondent 6	do not have concerns
Respondent 7	the results of the surgery and the complications or infections
Respondent 8	good communication with the patient and assessment where they are eligible, especially psychologically
Respondent 9	complication (during the operation) and possibility the patients not to be accepted for a surgery due to co-morbidity
Respondent 10	long term results (in 10-20 years)
Respondent 11	complication of the operation

Note: The trends in the answers that are frequently repeated among the respondents are colored for better readability. The colors do not represent any specific ranking between the trends.

This question was asked to gain additional insights in what factors may play a determining role in the hospital choice for the GPs. Three of the GPs shared that they do not have any concerns they could think of. Furthermore, the others also denied to have serious worries with respect to hospital care but they shared some possible concerns. Among the most common were: complications and the way how the evaluation of the obese patients as eligible was made. Not so often but also mentioned are: the results after surgery, the results in the long-term, good quality, friendliness and communication.

One of the reasons for most of the GPs to not have serious concerns, is probably their perception that the hospitals in the Netherlands, especially in the South-West of the Netherlands, provide good quality care in compliance with the guidelines. Furthermore, the interviews revealed that the concerns are more likely to appear, when the patients are desperate and try to receive bariatric surgery abroad. Some of the doctors shared that they have had bad experiences with patients that underwent bariatric surgery in Belgium (Respondents 3, 4 and 5). These GPs are not sure about the proper examination and the quality of care in the hospitals there, therefore, they try to convince the patients to change their intentions.

When talking about the hospital choice within the Netherlands, the GPs are more likely to not have any concerns with respect to the quality. Although in this question it also appears the GP's concern regarding the patients' evaluation and the way how the hospitals follow the criteria, deciding when a patient is eligible for a bariatric surgery.

Schigt *et al.* (2013) listed that, in the Netherlands there is a debate regarding the bariatric surgery. Often the stronger position is on the participants that accept the risks as being bigger than the benefits. These public opinions are also reflected in the answers of the respondents. The different GPs have opposite viewpoints on whether the bariatric surgery should be performed. Some of the respondents put the accent on the evaluation in regard with the guidelines. They require the hospitals to act in strict compliance with these guidelines, without letting the patient to persuade them to be operated after all (Respondents 3, 4 and 8). Other GPs shared that they will refer the patients for this surgery when they themselves think the patient will benefit from this operation regardless of the criteria (Respondents 2 and 6). Therefore, when the patient is refused, they follow the patient's request and send him to another hospital. So, the patient being refused for some reason, is also a concern among some of the doctors.

In conclusion, it can be said that in general the GPs are satisfied with the quality provided in the Dutch hospitals. However, the answers once again indicated that the hospitals must be clear about the eligibility criteria.

Topic IV, Question 5: Could you think of an example of service or information that the hospital can provide in regard with your concerns?

Table 13 Results from Topic IV, Question 5

Respondent	Question 5
N	**Possible service or information from the hospital**
Respondent 1	letter back from the hospital
Respondent 2	information about the criteria for eligible patients
Respondent 3	publication of quality performance indicators
Respondent 4	strict assessment of the patients whether they are eligible for this operation
Respondent 5	courses from the hospital that provide information about the treatment and results
Respondent 6	more information about the whole trajectory so the GP can be more involved
Respondent 7	information about all the operations performed in the hospital but not only the patients referred by the GP
Respondent 8	hospitals to follow the guidelines and communicate well with the patients where they are eligible or not (but the GP is not interested to communicate this with him)
Respondent 9	lectures from specialists that to provide more information about the surgery
Respondent 10	N/A
Respondent 11	information about results

Note: The trends in the answers that are frequently repeated among the respondents are colored for better readability. The colors do not represent any specific ranking between the trends.

Asked about the services or information that the hospital can provide for them, the GPs focused on the information. As one of the respondents said "any information is welcome" (Respondent 7). Once again, the question arises about the criteria for eligible patients and the way how it is applied by the hospitals. Among the often-mentioned answers appeared also the need for information regarding the treatment and the entire patient trajectory. Together with this, the GPs would like to have information about the overall results of the bariatric surgery department and often they indicated they wanted information about the long-term results. Some of the GPs put the accent on the need for education from the specialists that can explain to them what the risks and benefits are and whether they should refer a patient to this kind of surgery.

It is noticeable from the interviews that the GPs prefer good communication between the hospital and their patients, also they want to be informed about what is happening with their patients. Furthermore, the GPs mostly see the follow-up as something that should be done by the hospital itself. The GPs are interested in the knowledge about the bariatric surgery treatment for the purpose of giving advice to their patients.

The fact that the use of bariatric surgery as an obesity treatment is still limited in the Netherlands is revealed by Schigt *et al*. (2013). Not being a wide spread treatment is one of the possible explanations, why the GPs need to have more information about the surgery and specifically for the results that can be achieved for the patients in the long-term. The preference for lectures and educational programs directly from the hospital can be explained with the results of Hackl *et al.* (2015). According to this study, GPs have a preference to use exactly the personal knowledge as a source of information.

To conclude the last two questions, it should be noted that in general the GPs are satisfied with the quality, provided by the Dutch hospitals. There appears a need of the GPs to understand more about the bariatric surgery as a treatment and how they can best advice their obese patients. Furthermore, the obtained answers once again point out the need for clarity of hospitals in terms of patients' eligibility requirements and whether they are strict about applying these requirements.

Topic IV, Question 6: Are there patients, who have characteristics specifically related to the obesity, for which the choice is limited

Table 14 Results from Topic IV, Question 5

Respondent	Question 6
N	**Are there the patients for who the choice is limited?**
Respondent 1	not aware
Respondent 2	mostly with the patients who do not speak Dutch
Respondent 3	not aware
Respondent 4	not aware
Respondent 5	not aware
Respondent 6	not aware
Respondent 7	not aware
Respondent 8	not aware (the only reason for refusing was psychological grounds and he sent these patients to other hospital)
Respondent 9	patients with co-morbidities (the doctor sends patients only to one hospital)
Respondent 10	not aware
Respondent 11	yes (older and younger patients as these with co-morbidities)

Note: The trends in the answers that are frequently repeated among the respondents are colored for better readability. The colors do not represent any specific ranking between the trends.

Trying to understand whether elderly patients and patients with co-morbidities are limited in their choice of bariatric provider, the doctors were directly asked if they had faced such a limitation. Most the GPs shared that they did not meet any limitation for the patients. One of the

doctors experiences limitations only in cases where the patients do not speak Dutch. Two of them mentioned a limitation due to co-morbidities and one due to age. In the cases where the patients were refused by a hospital, the most mentioned reason was the psychological status.

During the interviews, however it became clear that in general, the GPs do not have any experience referring patients that are over 50 years old, for a bariatric surgery. In fact, many of them defined the obese patients as younger patients as the major group included 30-40 years old patients. Besides, the GPs believe that this treatment is too risky for the elderly patients and patients with co-morbidities and they would not recommend it for them.

One of the respondents in the interviews shared that his patient was refused because of his age (56). The GP, however did not see this as a limitation for the patient but as a normal criterion, valid for each hospital (Respondent 4). At the same time, one interesting fact is that another GP declared that his patient was approved for bariatric surgery in the same this hospital even though this patient was 65 years old (Respondent 9). The same GP accepts that the criteria about age is up to 65 years and the patients do not face any limitation.

Worldwide the number of bariatric surgery among elderly patients (age > 60 years) increases. The study by Gebhart *et al.*, (2014) listed that, the number of bariatric surgeries among the elderly patients in academic centers in the USA, had increased from 2.7% for the period 1999-2005 to 10.1% for the period 2009-2013. In the same time, in-hospital mortality of these patients had decreased. In the Netherlands, to be eligible as a center for bariatric surgery, a hospital should meet certain criteria. Among them is the requirement that the departments, that perform bariatric surgery, should start with low risk patients. That includes the performance of simple procedures, treatment of patients younger than 60 years old and with a BMI up to 50 kg/m^2 (Schigt *et al.*, 2013). The requirements are for the first 2 years until the department has the needed experience. However, there are hospitals as Hospital X that prefer patients to be up to 55 years old, no matter the amount of experience.

Overall, the results show that the GPs cannot recall any obese patients that were limited in their choice. However, they shared a lack of experience with elderly patients undergoing bariatric surgery. Furthermore, elderly patients and patients with co-morbidities are perceived by the GPs as a group that they would not recommend for bariatric surgery, due to the associated risks.

The most often mentioned reason, for patients to be refused by a hospital were psychological problems. It was this group that most often searched for another hospital that would accept them. Considering that obesity often is accompanied with psychological problems (Schigt *et al.*, 2013; Madura & II, 2012), this group of patients appears to be relatively large. Furthermore, due to the mentioned differences in the criteria (Topic IV questions 1,2 and 5), they may be refused in some hospitals and obtain the surgery in other. In this sense, they are a patient group that is limited in the choice and the main factor for them, when make a choice is whether the hospital will accept them as eligible.

Results of Topic V: Factors influencing patients' choice of a bariatric provider

The general practitioners were asked, as far as they can assess, what factors influenced the patient choice of bariatric provider and are they interested in specific characteristics or quality performance indicators of the hospitals.

Topic V, Question 1: What factors do you think are important for the more active/assertive patients when they choose a provider for bariatric surgery?

Table 15 Results from Topic V, Question 1

Respondent	Question 1		
N	**Factors important for active patients 1**	**Factors important for active patients 2**	**Factors important for active patients 3**
Respondent 1	professional standards	easy to be discharged	friendliness
Respondent 2	waiting list	experience of friends and family	N/A
Respondent 3	personal experience	experience of friends and family	experience of other patients
Respondent 4	information and publications on Zorgkaart Nederland	other patients review on the Internet	information from the patient insurance company
Respondent 5	experience of friends and family	experience of other patients	N/A
Respondent 6	experience of other patients	N/A	N/A
Respondent 7	insurance coverage	experience of other patients and family and friends	quality of surgery (but the patients cannot assess it so in this case GP advice)
Respondent 8	experience of other patients they read or heard about	N/A	N/A
Respondent 9	experience of the others	GP advice	N/A
Respondent 10	waiting time	good communication within the neighborhood	probably other patients' experience
Respondent 11	experience of the other patients	hospital website	N/A

Note: The trends in the answers that are frequently repeated among the respondents are colored for better readability. The colors do not represent any specific ranking between the trends.

For the patients that actively participate in the choice of a hospital, ten out of eleven GPs listed as a crucial factor for the patients' choice, the experience of other patients, friends and family, as well as the patients' own experience with a specific hospital. Among the factors that the patients take into consideration, the GPs also mentioned: waiting time, professional standards and quality, friendliness, GP advice and influence of the insurance company.

These factors are completely consistent with the findings of the literature that investigates the patients' choice. The experience is one of the main factors that decides the patients' choice, according to the studies by Dixon *et al*., (2010 a & b); Rademakers *et al*., (2014); Burge *et al*., (2006); Dijs-Elsinga *et al*. (2010).

Furthermore, the waiting time was defined as important for the patients by Dixon *et al.* (2010 a); Unwin & Peters (2009); Burge *et al*., (2006). Quality is discussed by Burge *et al*., (2006); Dixon *et al*., (2010 b); Rosen *et al*., (2005); Merle *et al*., (2009); Magee *et al*., (2003). Friendliness is defined important by Dixon *et al*., (2010 b) and Dijs-Elsinga *et al*., (2010). The inclusion of the hospital in the patient's insurance plan was found as an important factor for the choice by Freedman *et al*. (2015). Even though in the Dutch situation, where the insurance companies have the leverage to

play a role in the hospital choice, only two of the GPs mentioned it. One of them even defined it as the most important reason for choice (Respondent 7).

The GP's advice is defined as very important by a number of studies (Dixon *et al*., 2010 a; Rademakers *et al*., 2014; Paolino *et al*., 2015; Burge *et al*., 2006; Lako & Rosenau, 2009; Rosen *et al.,* 2005; Merle *et al*., 2009; Bouche *et al*., 2008; Freedman *et al*., 2015; Berendsen *et al*., 2010). The results obtained in this study, showed that when asked directly, just one GP named their own advice as a factor that influences the patients' choice. However, further in all interviews it became obvious that the patients are more likely to ask the GP's opinion and to take it into consideration.

Interesting is the fact that many of the GPs shared that, the patients are searching for information and other patients' opinions on the Internet. Most likely they search for "bariatric surgery". Patients go to the websites for health care, patients' forums or even the hospitals website, to obtain information and become more familiar with the different options. That is especially valid for the younger patients.

Finally, the results on this question are consistent with the literature. They have confirmed especially the findings of Paolino *et al*., (2015), that most patients willing to go for bariatric surgery, have checked the ways of treatments and other patients' experience using exactly the Internet.

Topic V, Question 2: Are the patients interested in some quality performance indicators of the hospitals where bariatric surgery is available?

Table 16 Results from Topic V, Question 2

Respondent	Question 2		
N	**Indicators that are important for the patients 1**	**Indicators that are important for the patients 2**	**Indicators that are important for the patients 3**
Respondent 1	not interested	N/A	N/A
Respondent 2	experience of other patients	experience of the GP	N/A
Respondent 3	experience of the GP	N/A	N/A
Respondent 4	general opinion on the GP	N/A	N/A
Respondent 5	complications	results of treatments	ways of treatment
Respondent 6	not interested	N/A	N/A
Respondent 7	not interested	N/A	N/A
Respondent 8	they do not ask the doctor and he is not interested in it	N/A	N/A
Respondent 9	type of the treatment/ surgery	N/A	N/A
Respondent 10	not interested	N/A	N/A
Respondent 11	chance of success	complications	N/A

Note: The trends in the answers that are frequently repeated among the respondents are colored for better readability. The colors do not represent any specific ranking between the trends.

As it can be seen in the results presented in Table 16, in the GPs' view, most of the patients are not interested in quality performance indicators. Five of the GPs, directly said that the patients are not interested or at least they are not asking for such indicators. Respondents 3 and 4 also shared that the patients are not asking for indicators, but only ask about the GP's opinion and experience. Similar cases are described by Respondents 2 and 9. Both revealed that, not quality indicators, but experience of the other patients and treatment-methods are interesting for the patients.

Only Respondents 5 and 11 revealed an interest by patients in quality indicators, such as: complication rates, success rates and treatment results. However, it should be noted that Respondent 5 clarified in the interview that only a minority of the patients are interested in these indicators. Most of the time, they ask only for his opinion and that surprises him because the operation is complex and he would expect higher interest from the patient with regard to the quality indicators (Respondent 5).

Victoor *et al*., (2013) suggested that the GPs are more likely to discuss quality with patients, who are active regarding the choice. However, the results of the interviews show that in the GPs' view the patients are not interested in quality performance indicators. The results of this study also did not confirm the findings of Rosen *et al*. (2005), that most likely the patients require information about the "waiting time" and "quality and outcome measures".

On the other side the results are consistent with the scoping review of Victoor *et al.* (2012 b), that defined the patients' choice rarely is rational, but is mostly influenced by previous experience and the GP's advice. As one of the respondents concluded "A patient does not really go for a quality. If you ask the patients questions why to go somewhere, they would finally say "for quality". But if they come to me, they never mentioned this" (Respondent 4).

The obtained results lead to the conclusion that the GPs perceive the patients' choice as choice based on other patients experience rather than on quality.

Topic V, Question 3: When the patients are not active and leave the choice to you, is there information regarding the provider that they are interested in?

Table 17 Results from Topic V, Question 3

Respondent	Question 3
N	**Are the passive patients interested in additional information about the hospital?**
Respondent 1	no
Respondent 2	sometimes
Respondent 3	no
Respondent 4	only in the GP's opinion
Respondent 5	no
Respondent 6	no
Respondent 7	ask about the doctor experience and why he prefers this hospital, the other patients experience as well as if they need to pay
Respondent 8	no
Respondent 9	no (if so they ask directly the specialists)
Respondent 10	they checked the reputation/ ranking of the hospitals
Respondent 11	GP's opinion about the hospital, results and experience with the other patients

Note: The trends in the answers that are frequently repeated among the respondents are colored for better readability. The colors do not represent any specific ranking between the trends.

The interviews showed that most GPs are not asked for any information about the hospital by their passive patients. Six out of eleven GPs said that the patients, who are not active regarding the choice, do not ask them for any additional information. Three of the GPs noted that, this patient group is satisfied just with the explanation of the GP's opinion. One of the GPs noted that, the patients are checking the reputation and ranking of the hospitals in the newspapers or on the Internet (Respondent 10).

These results confirm the findings of Victoor *et al*., (2013), that suggested the patients, who are not active in the choice, do not ask the GPs for additional information but they are satisfied only with practical information such as working time, phone numbers, etc. That the GP's opinion plays a role in the choice of this group is also consistent with the literature. GP's advice is the defining factor for patients, who do not actively choose a provider in the study of Rademakers *et al.* (2014). Mentioning the reputation as a factor is also not a surprise since many studies that focus on the patients' choice, listed this factor as important (Dixon *et al*., 2010 a & b; Paolino *et al*., 2015; Lako & Rosenau, 2009; Dijs- Elsinga *et al*., 2010; Merle *et al*., 2009; Freedman *et al.,* 2015).

These results lead to the conclusion that, most patients, who are not active regarding the choice, are not interested in any information about the characteristics of the bariatric surgery provider. Any additional questions asked by non-active patients, are similar to those, asked by active patients and concern mainly the GP's opinion. Therefore, the choice for these patients is made mainly by their GPs and it is based on the factors and characteristics of the provider, that influence GP's preference for the referral destination.

Topic V, Question 4: What factors are most important for the elderly patients or patients with co-morbidities?

Table 18 Results from Topic V, Question 4

Respondent	Question 4
N	**Factors important for elderly patients or patients with co-morbidities**
Respondent 1	availability of geriatric department, previous experience with the hospital
Respondent 2	there are not specific
Respondent 3	not an example
Respondent 4	distance
Respondent 5	complications
Respondent 6	not an example
Respondent 7	big hospital with all possible disciplines and experience with elderly patients
Respondent 8	not specific characteristics. The patients prefer the hospitals in the region but they are not too different in the quality
Respondent 9	he did not refer these patients as consider it risk
Respondent 10	not sure, probably the comfort of the parking and the entrance and the communication
Respondent 11	all factors, that are important for the other but also the distance

Note: The trends in the answers that are frequently repeated among the respondents are colored for better readability. The colors do not represent any specific ranking between the trends.

First, it should be noted that the respondents hardly have any experience with referring elderly patients or patients with co-morbidities for a bariatric surgery. Therefore, all the answers that they gave are hypothetical and not based on real situations. As can be seen in Table 18, three of the GPs could not recall any specific characteristic for this group of patients. The answers of Respondents 4, 8 and 11 give insights that the close proximity could be important for this group. Respondent 5, on the other side, explained that distance influences the hospital choice for elderly patients but not in the case of bariatric surgery. For such a complex operation, the complications are leading factors according the same GP. Respondents 1 and 7 put the focus on the availability of all disciplines, including a geriatric department in the hospital and previous experience of the patient with a particular hospital.

The obtained answers on this question are consistent with the literature. The preference for the close distance among elderly patients is revealed by Bussche *et al*., (2010). Previous experience with the hospital was defined important for all patients by Dixon *et al*., (2010 a & b) and Dijs-Elsinga *et al*., (2010). The suggestions that this patient group was more likely to be influenced by hospital facilities and parking place are in consistence with the findings of Dijs-Elsinga *et al*., (2010).

One interesting fact is that, according to the GPs, they hardly refer patients older than 50 years for bariatric surgery. Indeed, the GPs defined that the patients who they refer are mostly younger patients. Respondents 1, 5, 6 and 10 said that obese patients are mostly in the group 30-40 years old. Respondent 7 also shared that he only referred for bariatric surgery patients younger than 50

years. Respondent 9, shared that he would not refer elderly patients and those with co-morbidities because of the higher risk. Furthermore, Respondent 8 shared that the elderly patients probably do not ask for this kind of surgery. On the other side, Respondent 10 had the opinion that the elderly patients do not have this disease. She related obesity and diabetic only with a younger age. In fact, that it also in accordance with the study of Paolino *et al.*, (2015), that stated the obese patients are in their majority younger patients.

Considering all above, it can be concluded that it is most likely, the choice of bariatric surgery provider for elderly patients and patients with co-morbidities to be influenced by the same factors that influence these groups of patients in general: close distance, hospital facilities and parking place.

The answers lead to the conclusion that the elderly patients are probably limited in their choice due to the eligibility criteria and the GP's concern to refer them.

Topic V, Question 5: If the provider implement telemonitoring for post-operative care would that highly influence the choice for the elderly patients and patients with co-morbidities?

Table 19 Results from Topic V, Question 5

Respondent	Question 5
N	**Would implementing of telemonitoring influence the choice**
Respondent 1	yes
Respondent 2	only if it is proven to work successfully
Respondent 3	not in their settings
Respondent 4	yes
Respondent 5	not in their settings
Respondent 6	yes
Respondent 7	yes
Respondent 8	no
Respondent 9	yes
Respondent 10	not sure
Respondent 11	yes

Note: The trends in the answers that are frequently repeated among the respondents are colored for better readability. The colors do not represent any specific ranking between the trends.

This question was added to the interview to gain insight whether the bariatric department may attract more patients if they implement telemonitoring in the follow-up care. There is literature evidence that telemonitoring can successfully be used for follow-up in long-term conditions and to reduce hospitalization in cases of diabetes and chronic health failure (McLean *et al.*, 2013). These co-morbidities are related to obesity and the long-term follow-up can benefit from implementation of this technology, especially for the high-risk patients.

The interview results have shown that GPs have different opinions whether the implementation of telemonitoring by the bariatric surgery provider would influence the choice of the patient. Three of them said that in their settings, where the providers are close by, that is not a big advantage. One of the GPs mentioned that, at this moment telemonitoring is not yet proven to work so well. When it is proven, he expects all hospitals to implement it, so it will again hardly influence the choice. On the other side, six of the physicians shared that the implementation of telemonitoring would influence the patients' choice as well as her own choice.

Finally, it can be concluded that the GPs in general are positive regarding implementation of telemonitoring by bariatric surgery providers. However, there are indications that it may mostly attract patients from areas that do not have options for bariatric surgery close by.

Results of Topic VI: Who does play the main role in the choice

Topic VI, Question 1: How often (as percentage) do you think you make the hospital choice on behalf of the patients (for bariatric surgery)?

Topic VI, Question 2: What percentage of the patients has a preference for a hospital when you refer them (for bariatric surgery)?

Topic VI, Question 3: When you give them (the patients) advice for another hospital to which they may go, what percentage of them follows your advice?

Table 20 Results from Topic VI, questions 1, 2 and 3

Respondent	Question 1	Question 2	Question 3
N	**GPs' choice**	**Patients' preference**	**If the GP advise them for other hospital how many will follow the advice?**
Respondent 1	25%	75%	60% of these 75%
Respondent 2	50%	70%	90%
Respondent 3	5-10%	90%	give an advice only to this who do not have their idea
Respondent 4	90%	10%	half of these 10%
Respondent 5	10%	90%	do not try to change their choice for bariatric surgery
Respondent 6	40%	50%	70-80%
Respondent 7	10%	90%	50% but he did not try for bariatric surgery
Respondent 8	80%	20%	not aware, he never tries to change their opinion
Respondent 9	75%	25%	he does not try to change their opinion
Respondent 10	0%	100%	80-90%
Respondent 11	20%	80%	half of these 80%

Note: The trends in the answers that are frequently repeated among the respondents are colored for better readability. The colors do not represent any specific ranking between the trends.

Most of the respondents shared that the patients already have a preference for a hospital before the consultation with the GP. Furthermore, six out of eleven GPs listed that they make the hospital choice on the behalf of less than 40 % of their patients. Two GPs shared that they make the choice for about 40-50% of the patients. Only three of the GPs have the opinion that they are making hospital choice on behalf of more than 70% of the patients.

Furthermore, most of the GPs shared that, if they try to change the hospital choice of their patients, at least half of the patients will follow their advice (three GPs noted that 50% will follow them, four GPs mentioned they will change the opinion of 60% or more). However, in the interviews it became clear that GPs give an advice only to these patients, who do not have their own idea. In general, and specially for bariatric surgery, GPs do not try to change the patients' hospital choice (Respondents 1, 2, 5, 7, 8 and 9). The only exception when the GPs are trying to influence the patients' choice is for patients who: 1) want to go to Belgium as the GPs have reservations about the quality there and 2) for patients, who prefer third line hospitals, where it is harder for them to be accepted (Respondent 2).

The performed interviews also confirmed the conclusions of Rosen *et al*. (2007), that in the cases, where the patients have a preference for the hospital, the GP accepts it. The same research found that the only exception of this tendency could be the cases where the GP tries to lead the patients to an excellent provider or to avoid a provider for which they have concerns about the quality. In the current study, that was confirmed only for the cases where the GP wants to avoid providers for which they have concerns. However, all the GPs assessed the providers of bariatric surgery in the Netherlands and specifically in the South-West of the Netherlands, as equally good so as soon as the patient has a preference to go for bariatric surgery within the country they will accept it. In cases where the patients declared some wish to go to another area, the GPs shared with them the possible closer options. Respondent 3 shared that it is important for the patients' preference to be for a second line hospital. A third line hospital is not preferred due to the harder acceptance criteria. That gives an insight that GPs may try to override the patients' preference when want to facilitate the patient's acceptance in a hospital.

Even though the literature defined that most of the patients are passive regarding the hospital choice in general (Victoor *et al*., 2013; Birk & Henriksen, 2012; Rademakers *et al*., 2014; Lako &Rosenau, 2009; Rosen *et al*. 2007; Merle *et al*., 2009), the performed interviews revealed a different picture regarding the bariatric surgery. More than half of the GPs that were interviewed, shared that the choice of a hospital is made by them only for up to 25 % of the patients.

The study of Rademakers *et al*. (2014), concluded that lower education is related with less patients' activation for the hospital choice. However, no correlation could be found between the level of education and the patient activation regarding the choice. In the both areas, where the population was defined with lower education and income by the GPs, these GPs shared that at least half of the patients made the choice by themselves. Patient activation is valid even taking into consideration that, many of these patients due to their origin do not speak Dutch or English (Respondents 2 and 6).

These responses lead to the conclusion that at the current moment the patients, seeking bariatric surgery, have a main role in the hospital choice. In general, the GPs are not trying to override their preference. Only when they are concerned about the provider or believe their acceptance is too hard, they will try to convince the patient to change their choice. The GPs' concerns about the quality, however is not in terms of bariatric surgery providers in Netherlands. Therefore, in very rare cases the GPs try to change the patients' choice, but when that does happen it seems that patients are more likely to follow their GPs.

Topic VI, Question 4: Do you think, if the patients are aware of the choice and have information about providers' performance, they would make choice without asking you for advice?

Table 21 Results from Topic VI, question 4

Respondent	Question 4
N	**If the patients are aware of the choice and hospital performance would they make a choice without advising with the GP?**
Respondent 1	no, they would like a discussion with the GP
Respondent 2	no
Respondent 3	no
Respondent 4	no, they still would check it with the GP
Respondent 5	no
Respondent 6	no
Respondent 7	yes, even now many mostly younger patients do not ask advice but come only for a referral letter
Respondent 8	Yes, and even when they asked the advice now it is difficult to advise them
Respondent 9	no, they would like his advice because he has the better experience. Otherwise even now the younger people search for themselves but still ask for an advice
Respondent 10	yes, especially the younger patients
Respondent 11	no

Note: The trends in the answers that are frequently repeated among the respondents are colored for better readability. The colors do not represent any specific ranking between the trends.

This question had the purpose to find out whether the increase of patients' awareness in future would decrease the role of the GPs in the hospital choice. The studies of Van Rooijen *et al*., (2013) and Schäfer *et al*., (2010) discuss such a trend. Therefore, the GPs were asked whether they think that their role in such a scenario is going to be different than their current one.

As it can be seen from the results, presented in Table 21, eight out of eleven respondents think that even if the patients are aware about the choice and they have information about the quality of the provider, that would not diminish the role of the GP in the choice. Most of the GPs shared that the patients will always look for their advice.

On the other side, three of the GPs shared that patients would choose by themselves and without consulting the GP in a such scenario. Even now that is happening as the younger patients are searching on Internet and come to the GP informed about the possibilities, asking only for a referral letter (Respondent 7). In fact, two other GPs also shared that the younger patients are more likely to make the choice on their own. Older patients on the other side, usually seek GPs' advice.

The findings that, patients are more likely to want a confirmation of their choice by the GP are consistent with the results, achieved by Paolino *et al.* (2015). This study explains that most of the patients, who seek bariatric surgery, are young people who search information on the Internet to make a choice of provider. They are however, likely to verify their choice with the GP.

In conclusion, it can be said that the possibility of the diminution of the GP's role in future scenarios, where the patients are aware about the choice and they have information about the quality of the provider, is not assessed as realistic by the interviewed GPs. In their opinion the patients always will look for their advice and rely on their medical competency to confirm the hospital choice. However, the tendency among the young patients to search hospital information by themselves and to seek less the GP advice deserves some attention. It is important mostly because the obese patients were revealed by the participants as young patients. Therefore, that may reduce the GPs' role exactly for a bariatric surgery provider.

Evaluation of the factors

To define the importance of the factors, revealed from the literature for the GPs' hospital choice, the GPs were provided with a list with 19 factors. They were asked to rank the three most important, the first one being the most important. Furthermore, the GPs were asked to do the same ranking for the three least important factors, the first one being the least important. The GPs also had a possibility to write a factor they think of as important, that does not appear in the list.

Table 22 Results of ranking the factors

factors/ importance	most important	second most important	third most important	third least important	second least important	least important
Convenient location for the patients	1	1	1	2		
Waiting time	1	1		1	2	4
Quality of care	2	1	3			
Specialists' skills and expertise	4	4	2			
Patients' preference		1				
Insurance coverage	1		2	1		
Reputation	1		2	1		
Medical equipment/infrastructure						1
Patient-centricity	1	2				
Innovative offering					1	1
Provided techniques and treatments						
Leading research				1	2	
Positive relationship with provider physicians					1	
Timely and adequate reporting						1
Innovative education for referrers				3		1
Influence of patient treatment						1
Post-operative care focus		1	1			
Travel distance				2	4	3
Other						

Note: The factors that are most often ranked as important by the GPs are colored green in Table 22*. The factors that most often are ranked as least important are colored red.*

As can be seen from Table 22, very often as important factors for the GPs' choice of a hospital were mentioned:

- Specialists' skills and expertise (mentioned by 10 GPs);
- Quality of care (mentioned by 6 GPs).

These two factors were also never mentioned as least important.

Other factors mentioned as important, without being mentioned as least important are:

- Patient- centricity (mentioned important by 3 GPs);
- Post-operative care focus (mentioned important by 2 GPs);
- Patient preference (mentioned by 1 GP).

On the other side, the GPs do not have the same opinion about many of the other factors. While some GPs assessed as important the following factors:

- Convenient location for the patients;
- Waiting time;
- Insurance coverage;
- Reputation,

for others, they were least important with respect to the other factors. It can be noted, that among the above mentioned: "the waiting time" was put among least-important factors by 7 GPs, while only 2 of them ranked it as an important factor for the choice.

Among the least important factors were ranked:

- Travel distance (mentioned by 9 GPs);
- Innovative education for referrers (mentioned by 4 GPs);
- Leading research (mentioned by 3 GPs);
- Innovative offering (mentioned by 2 GPs)
- Medical equipment/ infrastructure (mentioned by 1 GP)
- Positive relationship with the provider physicians (mentioned by 1 GP)
- Timely and adequate reporting (mentioned by 1 GP)
- Influence on patient treatment (mentioned by 1 GP)

Furthermore, these factors were ranked only in the group that is least important for the choice.

None of the GPs added any other factor that can possibly influence their choice. Furthermore, just one factor: "provided techniques and treatments", was not ranked by any physician as important or not important for the choice.

The limitation is the low number of the participants in the interviews and the fact that the answers are spread among all the factors. However, the pattern can be seen that the GPs have ranked "specialist skills and expertise" and "quality of care" on the highest positions. Furthermore, as least important more likely are considered "travel distance" and "waiting time".

That is contractionary to the answers that they gave in the interviews. In the interviews among the important factors for GPs that influence their choice of a bariatric surgery provider they put the accent on the: availability of multidisciplinary team; follow-up process; good communication and guidelines of the patients; examination of the patients in accordance with the criteria.

Only one GP put the "quality of care" as an important factor within the interview answers. However, that was the respondent, who answered through e-mail and had the possibility to see the list of factors before answering the interview questions. Nevertheless, "quality of care" appears among the most important factors in six of the ranking lists.

Furthermore, only two of the GPs during the interviews put the focus on the experience of the surgeons, while in 10 of the ranking lists "specialists' skills and expertise" was put as a very important factor.

One of the most interesting cases is the discrepancy between the interview answers and ranking list for Respondent 8. In the interview, the respondent shared that important factors are proper examination and guidance of the patient through the process. Furthermore, he shared that he did not obtain information on the hospitals quality and does not know which hospital is "good" and

which is “bad”. In his ranking list, however the most important factor was “quality of care”, followed by “specialists’ skills and expertise”.

On the question about the most important factor for choice the last time when they referred a patient for bariatric surgery, 3 of the GPs defined that to be a “patient preference” and another 3 “acceptance of the patient as eligible”. In the ranking list “patient preference” was ranked important only once and no one added eligibility as a factor of their own choosing.

All the above shows a discrepancy between the actual experience that the GPs shared through the interviews and the ranking of the factors.

Discussion

The literature review revealed a number of factors that influence the GP's hospital choice. Among the most discussed are: quality of care, specialists' skills and expertise, patient preference, travel distance, waiting time, positive relationship with the provider, the techniques and treatments that are available, insurance coverage.

Although diverse answers were obtained, the results confirmed that the GPs consider all factors mentioned above, when they choose hospital care for their patients. However, it was also found that the GPs very often consider other factors such as: friendliness of the hospital and the quality of communication between the hospital and the patients as important. Based on the findings in the literature, these factors would be more likely to influence patients' hospital choice, but not that of the GPs.

The achieved results show, that when choosing a hospital specifically for bariatric surgery, the GPs are more likely to consider factors such as: availability of multi-disciplinary team of experts, follow-up of the patients, examination of the patients, and their acceptance as eligible. Moreover, "acceptance of the patient as eligible" appears as one of the most important factors for hospital choice within the GPs' recent experiences.

The literature revealed that the comparative performance information does not play an important role in the hospital choice for both stakeholders: GPs and patients. The GPs prefer to gain information about quality using patients' feedback, personal experience and knowledge about the hospitals and information received from colleagues. For the patients on the other side, the preferred information sources are: usage of Internet to understand the experience of the other patients, GPs' advice and recommendation of relatives and friends. All this was supported by the results obtained in this study.

The interviewed GPs prefer to obtain information about quality of the hospitals mostly through the patients' feedback. They have also shown a preference for personal communication with the specialists and participation in educational programs and lectures provided by the hospitals. The GPs are interested in obtaining more information about bariatric surgery and about the entire trajectory of obesity treatment. However, some of the GPs shared that they do not try at all to obtain information about the hospital quality. Furthermore, when obtaining information about the availability of specific services, the GPs prefer the usage of a digital sources of information: ZorgDomein or even Internet. Such a tendency was not mentioned in the reviewed literature.

Opposite to what is defined in the literature, the interview results showed that the choice of bariatric surgery provider is usually made by the patients. Even though, the GPs shared that the patients confirm the choice with them, the GP's advice is mentioned as a factor for patients' choice only by one of the respondents. Furthermore, the obtained results in this study confirmed the literature findings that, when the patients already have a preference, the GP usually agrees with it.

The importance of the entire treatment trajectory

The studied literature did not provide information about what exact factors influence the GP's choice when they refer patients specifically for bariatric surgery. The obtained answers from the interviews have shown that, together with the factors that influence the GP's choice in general, some specific factors appeared for bariatric surgery. These are: availability of multi-disciplinary team of experts, follow-up, examination of the patients, good communication and guidelines of the patients.

Although these factors were not revealed in the literature, it is not surprising that they are assessed as important factors, considering the type of disease. Obesity requires life-style changes and cooperation of the patient for a long-term follow-up (Madura & II, 2012; Schigt *et al*., 2013). These specifics of obesity make the bariatric surgery just a part of a long-term treatment and not a solution for the disease in itself (Madura & II, 2012). In this light, it is understandable and expected that the GPs focus on the entire trajectory and not just the surgery itself. In order to have a successful outcome of the entire trajectory of the treatment, a multidisciplinary team is required (Schigt *et al*., 2013). As one of the GPs said: "...and what I also expect of this team, is that they work on improving and changing lifestyle. That is not only a standalone surgery but it is seen as a whole product." (Respondent 4).

The success of the treatment depends on the ability of the patients to cope with the life-style changes. Furthermore, the risk of adverse effects on metabolism and nutrition indicate a necessity for long-term monitoring and life-long cooperation of patients, taking vitamins and supplements (Madura & II, 2012; Schigt *et al*., 2013). That explains the focus of the GPs on the provided follow-up care by the hospitals and the necessity of good communication and guidelines for the patients during their entire trajectory. The motivation of the patients is of crucial importance for the long-term results (Madura & II, 2012). That explains the focus of the GPs on the examination of the patients and the way the hospital manages the communication with them. The necessity for the patient to feel comfortable probably explains why in many cases the patient's preference decides the hospital choice. In the GPs' view, for the patients themselves, other patients' experience with a specific hospital is the most important factor.

Eligibility criteria

Among the most discussed questions by the GPs in the interviews were the issues about patients' examination and the way in which different hospitals apply the eligibility criteria. All GPs demanded proper examination of their obese patients. However, the respondents had different views on what a proper examination is. While some of the GPs defined it as a strict application of the criteria in accordance with the guidelines, others wanted the hospital to work with every individual patient in order to define the best treatment. The GPs would prefer more hospitals to look at each patient individually and decide for each specific case whether the treatment will most likely benefit or harm the patient.

Obesity is described as a disease that decreases quality of life and increases the occurrence of psychological problems among the patients who suffer from it. Therefore, it is likely for the obese patients to have psychological problems. The interviews have shown that exactly the psychological problems are most often the reason for the hospital to refuse a patient for bariatric surgery. Furthermore, because of the way how the eligibility criteria are formulated, it suggests subjectivism when it is being applied to this group of patients. Therefore, the patients who are with psychological problems are in the situation where they really need to search for a hospital that will accept them. This creates the risk that this group even looks for such an option abroad, where the GPs have concerns about the quality.

Schigt *et al*. (2013) cited the criteria, that a patient should meet to be accepted as eligible for bariatric surgery, defined by Centraal BegeleidingsOrgaan:

BMI > 40 kg/m² or >35 kg/m² with comorbidity such as T2DM and/or hypertension
Prior intensive treatment in a specialised obesity clinic/program
The patient is physically suitable for anaesthesia and surgery
The patient is willing to take vitamin preparations life long
The patient is willing to cooperate in long-term follow-up and understands the necessity for this

Figure 7 Criteria for bariatric surgery in the Netherlands

As can be seen in Figure 7, a specific psychological criterion is missing. Regarding the National Institutes of Health in the USA, the criteria require the patients to be "psychologically stable" (cited by Madura & II, 2012). For the Netherlands, the hospitals that provide bariatric surgery should have a multi-disciplinary team that necessarily includes psychologists (Schigt *et al*., 2013). However, the decision whether a single patient is eligible, depends on the psychologist. Because this is a subjective decision, it is found to be different between the hospitals. Most of the participants in the interviews, who listed the eligibility criteria for bariatric surgery as a factor for hospital choice, did so exactly because of the refusal due to the psychological status of the patients. That puts the patients with such problem in a position with limited choice for a bariatric surgery provider. Furthermore, one of the GPs even mentioned there are differences between the BMI values required by the different hospitals.

An interesting thing to note, with respect to the fact that the respondents have limited experience referring patients over 50 years old, is that a recent statistical analysis by the 'Centraal Bureau voor Statistiek' (CBS, The Dutch national statistics agency) showed that obesity mostly affect people of ages > 40 (CBS, 2016). While it is only 9.2% of the people ages 30-39, it goes up to 16.9% of the people ages 40 – 49; 16.4% of the people ages 50 – 54 and 16.1 for people ages 55 - 64. It raises the question, why the people older than 50 years do not apply for treatment. Also, it is interesting to understand why, even though the national criteria allow for ages up to 65 to be treated, hospitals decide to lower their maximum age criterion to 55, thereby excluding a large number of potential patients.

Certainly, all the above requires further examination of the eligibility criteria and how strictly they are applied by the hospitals. That is necessary because on one side, the current situation creates conditions for limited choice among some patients and results in an added risk that these patients go for lower quality providers. On the other side, the criteria themselves may require careful revision in order to ensure that they provide a more accurate estimation of the risks and benefits for the patients.

Patients' role in the choice

The interviewed GPs, in their majority, said that it is the patient who makes the choice of the referral destination for bariatric surgery. That is contractionary to the literature findings, that define most of the patients as not active and relying on their GP when making the choice (Victoor *et al*., 2013; Birk & Henriksen, 2012; Rademakers *et al*., 2014; Lako &Rosenau, 2009; Rosen *et al*. 2007; Merle *et al*., 2009).

One of the possible explanations for the patients' active participation in the choice of a bariatric surgery provider is given by Paolino *et al*. (2015). The authors concluded that most patients, who seek bariatric surgery, search for information about the hospital on the Internet. Rosen *et al*. (2005) defined that there is a trend among patients with long-term conditions to have a higher level of choosing ability, as they learn more about their condition over the time. Even though this

was found valid for a relatively small percentage of the studied population, it may explain the activation of the obese patients in the examined cases.

The GPs mentioned that the patients in general shared their choice and asked for an opinion, or looked for the GPs' advice when considering the choice between two hospitals. When related to a bariatric surgery provider, GPs usual accept the patient choice, regardless of the hospital. A few of the GPs mentioned that they would suggest a closer option if it was available, but they are not likely to disagree with the patient's original choice. Therefore, it is hard to assess what role the GPs' advice will play in these cases. First, the study of Rosen *et al.* (2007), suggests that the GPs' advice for a better provider has less influence on the patient than the GPs' negative opinion about a certain provider. Secondly, the study of Victoor *et al*. (2012 b), concluded that the older patients are more likely to use the GP's advice. The same view was shared in the interviews. The obese patients, however, appeared be younger patients. Furthermore, the study of Lako & Rosenau (2009) also suggests that some diseases and treatments allow a more active participation by the patients and for them the GPs advice is considered less important.

All of the above, gives the insight that in the case of bariatric surgery, the patients are those who make the choice. Although, the GPs' advice is often asked, it may not play such a significant role in the final choice of the referral destination.

Sources of information, used by the GPs to support the choice

Implementation of the patient's choice within Dutch healthcare system gives the GPs a very important role within this decision-making process. The patient's trajectory necessarily goes through the GP. Also, due to the characteristics of the healthcare market and the inability of the patients to easily assess the quality of the available services, it is most likely for them to fully rely on their GP (Dixon *et al.,* 2010 a & b). The GP is the agent, who can offer and advise the choice, since in the best-case scenario, he has all the information available. However, the results of this study showed that the bariatric surgery patients, usually have their own preference for a provider and their choice is simply confirmed by the GPs. That could raise some questions about the role that the GPs play in reality, when directing the patients.

That the quality performance indicators do not affect GPs' hospital choice is defined by the literature (Ikkersheim & Koolman, 2013; Ketelaar *et al.*, 2014). A possible explanation is that the GPs do not always accept such information to be accurate and reliable. The results from the interviews confirmed that the GPs prefer informal sources of information, such as patients' feedback and personal interaction with specialists. This is in agreement with the literature (Rosen *et al*., 2007).

However, GPs are the agents who can assess clinical performance and outcomes in order to direct and advise the patients' hospital choice. Therefore, not obtaining quality performance information, raises the question what information they do use to assess the provided quality. A few of the respondents shared that they are not interested at all in obtaining quality performance information. Others, that are interested in this information said, they do not obtain it because such information is hard to be found. The interview results show that GPs base their assessment of a specific hospital service, mostly on their patients' feedback and information from the hospitals' educational programs.

This study also showed that the GPs obtain information about the availability of a specific service using mostly digital sources of information and in particular: ZorgDomein and Internet. ZorgDomein gives mostly information about the distance and waiting times. However, this information can also be obtained easily by the patients themselves. Moreover, the performed interviews showed that the patients search for a provider and explore the other patients

experience, before going to the GP. This means that usually, they already have a preference before the consult.

In fact, Dixon *et al*., (2010 b), mentioned that the GPs, as well as other health care providers, understand the free choice the patients have, as an initiative to improve quality. However, not the quality with respect to the technical performance and outcome, but mostly waiting time, amenities and responsiveness to patient preference. At this moment, free hospital choice is more likely to improve the responsiveness of the provider to the patients' preference and reducing the waiting time. However, without discussing quality performance information, the role of the GP with respect to the choice seems not to be used to its full potential. These results question whether the free choice can lead to quality improvement in terms of outcomes and clinical effectiveness.

Interesting is the trend among the GPs to use Internet as a source of information. The studied literature did not reveal this trend. It may be an important topic for future research, because the Internet is the innovation that has the potential to change the role of the GPs and the patients in the decision-making process. The reason for this is, that Internet as a source of information is equally accessible for both the GPs and the patients. It is only the GP however, who can interpret clinical outcome data to assess the quality of the hospital.

This shift among the GPs to use Internet provides possibilities for the hospitals to influence GPs' hospital choice by making the desired information easily accessible. Most of the participants in the interviews shared that they are interested in quality performance information. The obstacle they revealed is the difficulty to find such information. Internet is an option for the hospitals to regularly provide updated information about their overall results to the general practitioners. Furthermore, the GPs indicated they used lectures at the hospital to gain quality performance information. However, their main concern was that these lectures were not frequent which means most of the time they give advice based on outdated information. The Internet gives a possibility for web based lectures or online conferencing, that can be used to inform the GPs' and help them with their choice. Because organizing these online activities requires less time from the hospital, they can be held more frequently. Using the Internet in such a way can be a big advantage for the hospitals and at the same time would strengthen the role of the GPs in the decision-making process.

For the GPs to remain with an important role in the decision-making process of active patients, they should focus on the information that the patients themselves cannot find or understand. This information consists mostly on the clinical performance indicators. When these indicators are an active part of the decision-making process, they may motivate the health care providers to either improve them or make them readily available to the GPs.

Role of quality in theory and practice

As was mentioned before, the literature defines "quality of care" and "medical skills and expertise", among the most important factors that decide the GPs' choice for referral destination. The ranking performed by the respondents, after the interviews is completely consistent with these findings. However, these findings differ from the answers obtained during the interviews. Even though the GPs gave diverse answers, there appeared some patterns that are not consistent with the ranking of the factors.

These discrepancies show a tendency for "social desirable distortion" when the ranking was made (Richman, *et al.,*1999). Qualitative research in general, results in a higher risk for social desirable answers (Harris & Brown, 2010). The questions in this interview were formulated in such a way

that they would avoid biasing the respondents towards socially desirable answers. Since showing the list of preliminary factors may influence the respondent to answer in socially desirable way, this question was asked at the end of each interview.

Another possible explanation is that the predetermined list of factors may include factors that do not represent real concerns during the current decision-making process and therefore do not represent reality (Bryman, 2008, cited by Harris &Brown, 2010). During the interviews the GPs assessed all hospitals as "proper hospitals" without big differences in the quality. Therefore, the factors as "quality of care" and "specialists' skills and expertise" could generally be very important in the GPs' views. However, in a reality, where they accept all the hospitals in the Netherlands as equal in their quality, the choice mostly depends on the other factors.

Limitations of the study

The biggest limitation of the study is its small sample size due to the low response rate that was achieved. Such a limitation is typical for qualitative study and does not allow for any generalization of the results (Harris & Brown, 2010).

Also, the results of this study may not be representative for all regions in the Netherlands. This is because the approached GPs were only from the specific region in the South-West of the Netherlands and only from the contact list of one specific hospital, as they had already referred patients there for bariatric surgery. It does however, provide insights into the process for the areas, where there are many options to choose from.

Lastly, it should be mentioned that the interviews were performed in person, face-to face, as the questions were semi-structured and with the possibility for additional questions. The procedure however, was different for the last respondent (Respondent 11). In that single case, the questions were sent through email together with the list of factors for ranking. For that respondent, there was no possibility to ask additional questions for clarification. Moreover, while the other respondents saw the list of factors after the end of the interview, in this case, there is a chance that the list of factors influenced the respondent ("social desirable distortion"). Due to the low response rate, the decision was made to include the results from Respondent 11, even though there may be a bias in her answers. It was also found that removing Respondent 11 from the results would not impact the conclusions of this study.

Regardless of the limitations mentioned above, the performed study sheds a light on the factors that influence the choice of bariatric provider from GP's point of view. It also highlights specific problems and limitation that the obese patients, who seek bariatric surgery, are facing. It provides information about the characteristics of the demanded bariatric care, that can be used by hospitals and insurers. However, due to the above-mentioned limitations of the study, the results should be interpreted with caution.

Future research

To better understand the decision-making process of the GPs and to make generalizations about this process, it is recommended to perform a study that includes a more significant sample size. This study should measure the influences of the different factors not only through GPs' perspective but also through different patients' group perspective as well. It is recommended that this study gathers data by observing actual consultations between GPs and patients, in order to avoid investigation of factors that are not related to the choice at the moment.

Another recommendation would be to further investigate the active role that the obese patients are playing and what the role of the GPs' advice on their choice is. The current study shows that the majority of the obese patients are active regarding the choice, however due to the small sample size the generalization of the results are not possible.

It is also recommended to further investigate the difference in the eligibility criteria and how strictly they are applied by the hospitals. Such a study can give insight into whether the criteria provide an accurate estimation of the risks and benefits for the patients.

Lastly, a trend is observed among the GPs to use the Internet as a source of information. Future studies should investigate why this trend is occurring and how it can be utilized by the health care providers and the government.

Conclusions

The obtained results have shown that the GPs gave diverse answers about the factors that influence their choice of bariatric provider. The interviewed GPs' accept that the quality of the hospitals in the Netherlands is more or less equal and therefore the factors related to the way how the hospitals manage their interpersonal relationship with the patients were deemed more likely to influence their choice. Good communication with the patients, guidance, friendliness and patient preference were indicated to be among the most important factors. The GPs also said that for them, the entire trajectory of the treatment and the hospital's engagement in it, is important and not only the surgery itself. This is reflected in the fact that, the availability of multi-disciplinary team of experts, follow-up, proper examination of the eligibility and results of treatment were also important factors for the choice of bariatric surgery provider. The GPs obtain information about the availability of the provider through digital sources, in particular ZorgDomein or Internet but for assessment of the quality, they prefer patients' feedback and personal interaction with the specialists. Many of the GPs shared that they would be interested in quality performance indicators if they were easily accessible and credible. This can provide an opportunity for the hospitals to provide the needed information through Internet.

The non-active patients do not ask for any additional information besides the GP's advice. Therefore, the GPs decide on the referral destination for their non-active patients, following their own criteria.

Active patients make the choice by themselves as they base it on the experience of other patients. Their most important sources of information are Internet, their friends and family. Patients confirm the choice with their GPs, who generally do not try to change patient's opinion. This is because they assess the quality of care in the Netherlands as being good in all hospitals.

Elderly patients and patients with co-morbidities are not recognized as typical obese patients by the GPs. The only characteristics related to the disease that limit the choice of provider appears for the patients who have psychological problems. For them the crucial factor for the choice is whether the hospital will accept them as eligible. The obtained results have shown that there is a difference in how strict the hospitals apply the criteria for eligibility.

The possibility that the awareness of the patients about the choice and obtaining information about the quality themselves would decrease the role of the GPs in the choice, was rejected by the GPs. The interviews also show that the obese patients are mostly active regarding the choice, therefore further assessment is needed. The patients obtain information through Internet, friends and family. Even though patients look for a confirmation of their choice by the GPs, the role of the GP should be further investigated and assessed. The obtained results show that the GPs simply confirm the patients' choice and at the current moment do not obtain quality performance information to elaborate on the different possibilities.

Due to the small sample size of the respondents (n=11), the presented results should be interpreted with caution. This work should serve as a starting point for future research on this subject.

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Appendixes

Appendix A - literature review

Author/s & Year	Title	Source	Type of the study/ Method	providing a theory	What are the aspects under research	Does it reveal factors that influence GP choice of a hospital/specialist?	Does it reveal factors that influence patient choice of a hospital and/ or the role of the patient in the choice?
Hackl, F., Hummer, M., & Pruckner, G. J. 2015	Old boys' network in general practitioners' referral behavior?	Journal of health economics	Empirical analysis using data about 2,684,273 referrals from 575 GPs to 382 medical specialists for the period from 1998 to 2007	the economic theory for statistical discrimination and adverse selection	The study investigates the effects of GPs' affiliation in social network to their referral behavior	Yes: - quality of the specialists- gained through personal knowledge of the specialist or using the personal network to gain information on the quality provided by the specialists	No
Ketelaar, N. A., Faber, M. J., Elwyn, G., Westert, G. P., & Braspenning, J. C. 2014	Comparative performance information plays no role in the referral behaviour of GPs.	BMC family practice	Mixed-method, that includes explorative interviews with 15 GPs and subsequent questionnaire study with 70 GPs as participants	no	The study investigates the GPs' perception about their role in using CPI to choose a healthcare provider and to support their patients	yes: -patients' preference for a hospital or provider; -quality of care; -patient's travel distance to a hospital; -GP's personal contact with a specialist; -waiting list; -specific treatment or techniques; -experiences of other patients	partly: the findings show that the biggest percentage of the GPs (62%) believes that the patients wants to receive information about the quality of care differences and 46% of them discussed those differences with the patients.
Burn, D., May, S., & Edwards, L. 2014	General Practitioners' Views About an Orthopedic Clinical Assessment Service.	Physiotherapy Research International	interview study, using semi-structured interviews. 15 GPs participates	no	The study aims to examine the GPs' views on OCAS and respectively how this service can be improved. One of the themes in their interviews was the "referral choice"	yes: -patients' positive experience. Locality and wait time also play roles. The choice is dependent of GPs knowledge where this service is available.	no

Author/s & Year	Title	Source	Type of the study/ Method	providing a theory	What are the aspects under research	Does it reveal factors that influence GP choice of a hospital/specialist?	Does it reveal factors that influence patient choice of a hospital and/ or the role of the patient in the choice?
Victoor, A., Noordman, J., Sonderkamp, J. A., Delnoij, D. M., Friele, R. D., van Dulmen, S., & Rademakers, J. J. 2013	Are patients' preferences regarding the place of treatment heard and addressed at the point of referral: an exploratory study based on observations of GP-patient consultations.	BMC family practice	explorative observational study that includes 72 videotaped GP-patient consultations. The number of the patients is 72 and to the GPs is 39	no	The study investigates whether the policy of patients' choice is applied in the practice	no	yes: -define the groups of patients with input to the choice and without input as the findings shows that the majority of patients has no or has very little input. Furthermore, the patients referred for diagnosis have even less input that those referred for treatment
Ikkersheim, D., & Koolman, X. 2013	The use of quality information by general practitioners: does it alter choices? A randomized clustered study.	BMC family practice	randomized clustered study. The referral patterns are analyzed in 3 groups of GPs: GPs in the intervention group (n=17); GPs in the control group (n=9); GPs out of the study (n=200). After that the interviews with 17 GPs in the intervention group was performed	no	The study investigates to what extend the GPs' preferences for a hospital are affected by public quality information	yes: The study defined that referral patterns are not affected by the available quality information. The only exception was the indicator for medical effectiveness for patients with breast cancer. Additionally, the interviews revealed that the referral choice is affected by: - personal preferences of the GP; - communication of specialists with the GP after discharge; - consultation options of the specialists; - whether the GPs know the specialist in person	no

Author/s & Year	Title	Source	Type of the study/ Method	providing a theory	What are the aspects under research	Does it reveal factors that influence GP choice of a hospital/specialist?	Does it reveal factors that influence patient choice of a hospital and/ or the role of the patient in the choice?
Birk, H. O., & Henriksen, L. O. 2012	Which factors decided general practitioners' choice of hospital on behalf of their patients in an area with free choice of public hospital? A questionnaire study.	BMC health services research	retrospective questionnaire study with 240 GPs as participants	no	The study investigates which factors decides the GP choice of hospital on behalf of the patients and which data sources were utilized by GPs in choice on behalf of patients	yes: - The department was the closest to the patient's home; - The department takes the GP's referrals seriously; - Excellent cooperation between GP and department; - Comments from patients referred to the department by the GP; - The patient had been treated at the hospital before; -The patient had been treated at the department before; - The hospital takes the GP's referrals seriously; - Comments from patients referred to the hospital by the GP; - The department provides detailed clinical reports; - The hospital provides detailed clinical reports ; - The department sends clinical reports soon after discharge; - The hospital sends clinical reports soon after discharge; - The GP´s experience as a trainee at the hospital; - The GP´s experience as a trainee at the department; - Waiting time was shorter than at other departments;	partly: -investigates whether GPs consider themselves or the patients responsible of the choice

Author/s & Year	Title	Source	Type of the study/ Method	providing a theory	What are the aspects under research	Does it reveal factors that influence GP choice of a hospital/specialist?	Does it reveal factors that influence patient choice of a hospital and/ or the role of the patient in the choice?
Bussche, P. V., Desmyter, F., Duchesnes, C., Massart, V., Giet, D., Petermans, J., ... & Willems, S. 2010	Geriatric day hospital: opportunity or threat? A qualitative exploratory study of the referral behaviour of Belgian general practitioners.	BMC health services research	qualitative exploratory study that held 15 focus group discussions with total participation of 106 GPs	no	The study investigates the barriers and facilitators for the GPs' referral to GDHs	yes: - cooperation between the primary and secondary health care; - permanent communications; - knowledge about the concept and the organization of the secondary provider - more involvement of the GPs; - waiting time	Partly: -it reveals that elderly patients often are reluctant to hospitalization, due to travel concerns
Dixon, A., Robertson, R., & Bal, R. 2010a	The experience of implementing choice at point of referral: a comparison of the Netherlands and England	Health Economics, Policy and Law	analyses on secondary literature and data in the public domain as well as interviews, observations, document analysis and questionnaires. 60 interviews were performed and in the survey participated 47 GPs, 79 medical specialists and 176 patients	no	The study compares the implementation of "Choose and book" at the point of referral for England and the Netherlands	no	yes- The questionnaire among 176 Ditch patients reveals as factors: -"hospital is in the neighborhood"; - "been there before"; -"good reputation"; -"GP advice"; -"previous experience in the hospital"; -"shorter access time"; -"good patient facilities"; -"good bus connection"; -"positive stories by others"

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Unwin, J., & Peters, D. 2009	Gatekeepers and the Gateway–a mixed-methods inquiry into practitioners' referral behaviour to the Gateway Clinic.	Acupuncture in Medicine	mixed methods approach that includes questionnaire among 53 GPs to define how often they refer to Gateway, for what condition and what is their experience. Furthermore, semi-structured interviews were performed with 7 GPs to define their experience.	no	The study investigates the referral behavior of GPs and other primary care users to clinic proving acupuncture and Chinese medicine	yes, the interviews define that: - positive experience with the clinic for the GPs and their patients- The main source of information is the feedback from patients and colleagues	partly: - waiting time
Pothier, D., Awad, Z., & Tierney, P. 2006	Choose and Book' in ENT: the GP perspective	Journal of Laryngology & Otology	questionnaire study with 360 GPs as participants	no	The study investigates the attitudes of the GPs to the Choose and Book project	no	no

Author/s & Year	Title	Source	Type of the study/ Method	providing a theory	What are the aspects under research	Does it reveal factors that influence GP choice of a hospital/specialist?	Does it reveal factors that influence patient choice of a hospital and/ or the role of the patient in the choice?
Barnett, M. L., Keating, N. L., Christakis, N. A., O'Malley, A. J., & Landon, B. E. 2012	Reasons for choice of referral physician among primary care and specialist physicians.	Journal of general internal medicine	Cross-sectional Web-based survey. The total number of the study cohort is 243 as 36% of them are PCP, 36% medical specialists, 25% surgical specialists and 3% others.	no	The study investigates the reasons why primary care physicians and specialist choose a specific colleague to refer to and how the reasons differ by specialty	yes: 1. Patient experience with physician -My patients have good experiences with this physician -Physician has good patient rapport 2. Physician communication -Works in my hospital or practice -Quality of communication with me -Shares my medical record system -Physician refers to me 3. Patient access -Location convenient for patient -Timely availability of appointments -Patient request -Speaks patient's language 4. Other	no

Author/s & Year	Title	Source	Type of the study/ Method	providing a theory	What are the aspects under research	Does it reveal factors that influence GP choice of a hospital/specialist?	Does it reveal factors that influence patient choice of a hospital and/ or the role of the patient in the choice?
Kinchen, K. S., Cooper, L. A., Levine, D., Wang, N. Y., & Powe, N. R. 2004	Referral of patients to specialists: factors affecting choice of specialist by primary care physicians	The Annals of Family Medicine	cross-sectional survey of 553 primary care physicians	no	The study investigates the importance of the factors that affect primary care physicians' choice of the specialist and to compare the ratings by physicians' gender and race	yes: 1.Specialist characteristics -Medical skill -Board certification 2.Practice characteristics -Appointment timeliness -Insurance coverage -Hospital affiliation 3.Primary care physician-specialist Interaction -Primary care physician previous experience with specialist -Specialist returns patient to primary care physician -Quality of communication -Primary care physician relationship with specialist -Attitudes of colleagues toward the specialist 4.Patient-specialist interaction -Likelihood of good patient-physician rapport -Patient preference for particular specialist -Patient convenience -Office location	no

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Rademakers, J., Nijman, J., Brabers, A. E., de Jong, J. D., & Hendriks, M. 2014	The relative effect of health literacy and patient activation on provider choice in the Netherlands	Health Policy	questionnaire study among 1500 patients	no	The study investigates whether or not patients exercise the choice	no	yes: -good experience with the hospital/specialist; - location of the hospital or specialist. Furthermore, the major part of the patients (75%) that do not actively choose a provider by themselves, choose this hospital or specialist that their GP advise them to go to.
Paolino, L., Genser, L., Fritsch, S., de'Angelis, N., Azoulay, D., & Lazzati, A. 2015	The web-surfing bariatric patient: the role of the internet in the decision-making process.	Obesity surgery	questionnaire study among 212 patients that are candidates for bariatric surgery	no	The study investigates what role plays Internet is the decision-making process of obese patients that seek bariatric surgery	no	yes: - GP advice; -hospital reputation; - family and friends' suggestions; - geographical proximity; -information from Internet
Burge, P., Devlin, N., Appleby, J., Gallo, F., Nason, E., & Ling, T. 2006	Understanding patients' choices at the point of referral.	www.rand.org	DCE using a phone-post-phone survey approach. Participants in the survey were 999 as they had an experience with being referred to a hospital for the last 5 years	the study uses the discrete choice as framework, based on which the patient makes the choice between few hospitals	Yes- the study investigates how the patients' choice is affected by some domains	no	yes- the study investigates how the patient choice depend on the following domains: -Travel (travel time and cost to the hospital); -Convenience and efficacy; -Hospital facilities, standards and food; -Personal experience of care; -Impact on health; -Waiting time from referral to treatment; GP opinion of hospital

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Dixon, A., Robertson, R., Appleby, J., Burge, P., & Devlin, N. J. 2010b	Patient choice: how patients choose and how providers respond.	www.rand.org	mixed method that combines interviews with patients (n=18), GPs (n=25) and executives from hospitals (n=49) and patients' questionnaire (n=2181)	economic theory, market failure and consumer choice; consumer choice in complex markets; "Quasi-markets" and the role of patient choice	The study investigates how the patients experience choice; what factors are important for them when they are choosing between providers; how the GP support the choice and how providers respond to the choice	no	yes: - cleanliness and quality of care; - standard of facilities; -organization of clinic; -hospital reputation; -friendliness of staff; -length of waiting list; -personal experience; -close to home or work; -duration of wait in waiting room; -convenience of appointment time; consultant of your choice; -car parking; - experience of friends/family; -accessibility by public transport; -quality of food; - travel costs.
Forrest, C. B., Nutting, P. A., Starfield, B., & Von Schrader, S. 2002	Family physicians' referral decisions: results from the ASPN referral study. (Original Research)	Journal of Family Practice	prospective cohort study that includes the practice of 141 family physicians (the number of the visits were 34,519, and the number of the new referrals were 2534	no	The study investigates the referral decisions of the family physicians as they divided the process into 2 phases: whether to refer and to whom to refer	yes: -the personal knowledge; -quality of prior feedback; -technical capacity; - appointment availability; patient's request; -requirements of patient's health plan; -proximity of the specialist to the patient's home	partly: it listed that the most of the GPs (86.2%)recommend specialists to the patients

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Lako, C. J., & Rosenau, P. 2009	Demand-driven care and hospital choice. Dutch health policy toward demand-driven care: results from a survey into hospital choice.	Health Care Analysis	questionnaire study that includes 409 patients as respondents	no	The study investigates the adequacy of the Dutch demand-driven health policy through the survey among the patients how they choose hospital	no	yes: -referred by the GP to this hospital; - hospital reputation
Ringard, Å. 2010	Why do general practitioners abandon the local hospital? An analysis of referral decisions related to elective treatment.	Scandinavian journal of public health	questionnaire study among the GPs conducted in 2004 with 1635 participants and in 2006 with 1858 participants. Furthermore, the information is combined with data regarding hospitals characteristics and data from Statistics Norway and Norwegian Patient Register	no	The study examine what is the possibility to refer patients away from the local hospital (the patients are elective and the treatments are: hip replacement, knee surgery and back pain treatment)	yes: - GP demographics (gender, age, specialist, work in practice); -collaboration with the local hospital; -evaluation of the collaboration; -Local community characteristics (proportion of patients aged more than 80; highly educated; disabled); -local hospital characteristics (offer the needed treatment or nor; waiting time for the surgery; distance to the local hospital); -GPs' geographical location	no

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Rosen, R., Curry, N., & Florin, D 2005	Public views on choices in health and health care.	King's Fund, London.	qualitative study with 10 focus group, which size varying from 4 to 10 people	no	The paper aims to describe the attitudes to choice among people with long-term conditions. The paper investigates the choice when there are direct payments available (used in social care) as well as the possibility to choose to go directly to provider without need of GP referral	no	yes: The majority of people rely on their GP as a source of information when they need to make a choice. Regarding the information, they need, the most important appears to be: -waiting times; -quality and outcome measures; -operation 'success rates' (by hospital and consultant); - quality of aftercare; - transport services; - parking; - distance from home; - facilities for visitors; - MRSA rates.
Rosen, R., Florin, D., & Hutt, R 2007	An Anatomy of GP Referral Decisions: A qualitative study of GPs' views on their role in supporting patient choice.	King's Fund, London.	qualitative study that includes 6 telephone interviews with GPs and 6 focus groups with overall 30 GPs as participants		The study investigates the GPs views about introduction of choice at the point of referral and how they see their role in supporting the patient choice	yes: - information on clinical aspects of care; - waiting time	partly: the research shows that the most of the GPs make the choice on behalf of their patients unless the patient expresses a preference. The GP will typically try to override patient preferences in order to steer them towards excellent providers or away from providers about which they have concerns.

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Dijs-Elsinga, J., Otten, W., Versluijs, M. M., Smeets, H. J., Kievit, J., Vree, R., ... & Marang-van de Mheen, P. J. 2010	Choosing a hospital for surgery: the importance of information on quality of care.	Medical Decision Making	cross-sectional study in 3 Dutch hospitals, using a questionnaire among 1329 patients	no	yes- it investigates what information patient used to select hospital for surgery at the current moment and for the future	no	yes: 1. At the current moment: -hospital good reputation; - friendly hospital atmosphere; 2. In the future: - their previous experience with this hospital; - hospital good reputation
Javalgi, R., Joseph, W. B., Gombeski Jr, W. R., & Lester, J. A 1993	How physicians make referrals	Marketing Health Services	questionnaire study with total sample of 1,066 physicians as respondents as 610 of the are primary and 456 are nonprimary	exchange theory	yes- the study aims to identify the decision criteria that GPs deem important in referring patients	yes: - Type of illness; - Medical skills of physician; - Previous positive experience; - Availability of consultation; - Patient preferences; - Patient can be seen quickly; - Type of injury; - Likelihood of patient being returned to you for care; - Location of physician/ specialist; - Physician's relationship to you; - Specific medical technology available; - Location of patient; - Patient's insurance coverage.	no

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Shortell, Stephen M. 1972	A Model of Physician Referral Behavior: A Test of Exchange Theory in Medical Practice	Research Series, 31. Chicago: center for Health Administration Studies, University of Chicago	questionnaire study with 146 internists as respondents	exchange theory	Using the exchange theory, Shortell is trying to investigate the determinants of the physician rates as the main purposes is to identify the role of the professional status on the referral behavior since the received rewards and given costs differ between the physicians with different status	no- results show that the professional status is not the most important explaining the referral behavior. Variables as organization of the practice, office visits per week, caseload severity, has important role in explaining referral behavior. However, that is applicable for the referral rates and not for the exact choice of provider	no
Birk, H. O. 2015	Freedom of Choice of Provider as a Governance Tool in the Public Sector: Case: Freedom of Choice of Hospital in Denmark: PhD Thesis.	Faculty of Health and Medical Sciences, University of Copenhagen	PhD Thesis that includes 3 main papers, one of which is the listed above by Birk & Henrisksen, 2012	develop model of factors behind patients' and agents' choice of hospital	The study aims to investigate the choice as a governance tool and in particular is patients' and GPs' choice behavior is consistent with the assumptions behind the quasi market in health care	same as Birk, H. O., & Henriksen, L. O. (2012)- the study is part of the PHD thesis	same as Birk, H. O., & Henriksen, L. O. (2012)- the study is part of the PHD thesis

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Merle, V., Germain, J. M., Tavolacci, M. P., Brocard, C., Chefson, C., Cyvoct, C., ... & Czernichow, P 2009	Influence of infection control report cards on patients' choice of hospital: pilot survey.	Journal of hospital infection	questionnaire study with 381 participants (133 inpatients; 157 discharged patients; 91 visitors)	no	The study aims to assess what is the impact of ICALIN on the patients hospital choice	no	Yes: -general practitioner's advice; -hospital's doctors have a good reputation; -hospital has good medical equipment; -proximity of the hospital; - a friend was satisfied with this hospital; -ICALIN (reported card on the infection control activity); - hospital ranking published in a magazine.
Bouche, G., Migeot, V., Mathoulin-Pélissier, S., Salamon, R., & Ingrand, P. 2008	Breast cancer surgery: Do all patients want to go to high-volume hospitals?	Surgery	multivariate analysis of data from 932 women that underwent breast cancer surgery in hospitals in France. The study used that of REPERES cohort study and sent consent form and questionnaire to the patients.	no	The study investigates whether or not patient choice is related to the volume of the hospital as they defined passive and active patients regarding the choice	no	some patients that were involved in the surgeon choice, preferred to go to low-volume hospital closer to their home. The low-volume hospitals were more likely to be chosen where the patients are older than 70 years, and have lower education. No matter whether or not patients participate in the choice, areas where the number of surgical beds were lower or too high, the patients are more likely to go to low-volume hospital

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Freedman, R. A., Kouri, E. M., West, D. W., & Keating, N. L. 2015	Racial/ethnic differences in patients' selection of surgeons and hospitals for breast cancer surgery.	JAMA oncology	questionnaire study among 500 women, diagnosed with stage 0 to III breast cancer	no	The purpose of the study is to examine racial/ethnical differences in how women select their surgeon or hospital for breast cancer surgery	no	yes: - the most frequent reason for surgeon choice was physician referral; - the most important reason for the hospital choice was the hospital was part of the patient insurance plan. The research also showed that white patients were a slightly more often involved in the selection and they are more interested in the hospital reputation than the minority patients

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Victoor, A., Delnoij, D. M., Friele, R. D., & Rademakers, J. J 2012	Determinants of patient choice of healthcare providers: a scoping review.	BMC health services research	scoping review that includes 118 studies regarding the choice of healthcare providers (primary care physician, hospital, dentists, etc.)	no	The study aims to describe the findings regarding the patients' choice of the entire range of healthcare providers	no	Yes: - Previous experience; - Recommendation from the GP; - Availability; - Accessibility; - Type and size of the institution; - Range and quality of the facilities; - Provider size; - Qualification and expertise of the provider' staff; - Organization of the healthcare; - Costs; - Interpersonal factors-type of communication; - Information provision; - Continuity; - Waiting time; - Quality of treatment

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Leemrijse, C. J., de Bakker, D. H., Ooms, L., & Veenhof, C. 2015	Collaboration of general practitioners and exercise providers in promotion of physical activity a written survey among general practitioners.	BMC family practice	questionnaire study in which participated 340 Dutch general practitioners	no	The study investigates the perceptions and the actual practices of the GPs regarding referral of patients to local exercise facilities. Furthermore, it examines the collaboration between the GPs and the providers as facilitator or barrier to refer patients.	yes: -Positive experience of the patients; - Affordable offer; -website with information of local facilities; - good collaboration with trainers of sport and exercise facilities.	no
Berendsen, A. J., de Jong, G. M., Schuling, J., Bosveld, H. E., de Waal, M. W., Mitchell, G. K., ... & Meyboom-de Jong, B. 2010	Patient's need for choice and information across the interface between primary and secondary care: a survey.	Patient education and counseling	Questionnaire study that includes two types of questionnaires: regarding patient preferences (n=513 patients) and regarding patient experience (n=1404 patients)	no	The study investigates what are the patients' preferences and experience when obtain secondary health care and what is patients need' regarding the choice and information.	no	yes: -proximity of the hospital; - previous experience with this hospital (their or to their friends, relatives); -GP advice. The patients were less likely to check published information about the hospital as they preferred to have the information from their GP.

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Ferrua, M., Sicotte, C., Lalloué, B., & Minvielle, E. 2016	Comparative Quality Indicators for Hospital Choice: Do General Practitioners Care?	PloS one	Telephone survey. Respondents n=503 GPs	no	The study assesses GPs use of comparative hospital quality indicators.	yes: -personal experience; - informal networks; - geographical proximity; - word of mouth; -patient preferences. The most of the GPs answered that they do not use the comparative quality indicators	no
Magee, H., Davis, L. J., & Coulter, A. 2003	Public views on healthcare performance indicators and patient choice.	Journal of the Royal Society of Medicine	Focus groups (n=50 participants-patients and public)	no	The study investigates the views of the public about the published information regarding the provider performance.	no	yes: -waiting times; - consultants' special interests; -specialists' clinical experiences; - specialists 'success rates. Furthermore, patients do not use published performance information as they prefer more user-friendly information that provides more detailed information about waiting times, hospital facilities, public transport, etc. However, patients in their majority rely on their GP regarding the choice and they expect GP to understand and use the published performance information

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Epstein, A. J. 2010	Effects of report cards on referral patterns to cardiac surgeons.	Journal of health economics	counterfactual scenario, as the analytic datasets contained 23,655 (17,241 pre and 6414 post) CABG discharges in Pennsylvania and 38,164 in Florida (27,844 pre and 10,320 post).	no	The study tries to define the effect on the report card on the referral patterns in two states	no	yes: -low-mortality surgeons are more likely to be chosen; - surgeons that are practicing in the nearby hospitals are preferred. Furthermore, the trends are valid no matter of the report cards so the author concluded the patients are aware of the performance information through other sources.
Kinchen, K. S., Cooper, L. A., Wang, N. Y., Levine, D., & Powe, N. R. 2004	The impact of international medical graduate status on primary care physicians' choice of specialist.	Medical care	questionnaire study with 594 GPs as participants	no	The study investigates whether internal or international medical graduate status of the specialist affect the likelihood of the GP to refer to this specialist.	The results show that with equal other characteristics the GPs are more likely to refer to a specialist who graduated in US than abroad.	no

Appendix B – interviews

Introduction: This interview is to help us to understand the factors that may influence you in making decisions about where to refer obese patients. The knowledge will be used to assist hospital administrators to respond better to patient needs, including improvement of health care quality and accessibility.

Procedure: The interview will be digitally recorded for the purposes of transcribing. All interviewee's names will remain anonymous. Each interview will be coded to prevent identification of respondents. Once we have completed the transcription and analysis the recording will be deleted.

Thank you very much for the agreeing to participate. Today we are going to discuss the factors that relate to your decision to choose a bariatric department to which to refer a patient. First, I would like to start with some background questions- to gain an insight about your professional situation and experience.

Topics	Content
I. Introduction and demographic	1. Male/Female 2.Age? 3. What is the type of your practice (solo or group)? 4. How many years of experience do you have as a general practitioner? 5. How many obesity patients have you referred for bariatric surgery over the last 2 years?
II. General factors that influences the GP's choice of secondary provider	1. When you refer patient for hospital care what hospital's characteristics are the most important to choose it for your patient? 2. Do these factors depend on sociodemographic characteristics of the patient (such as age, income class, insurance company) who you refer? 3. Do these factors depend on the personal characteristics of the patient (such as assertivity or earlier experiences with bariatric surgery)? 4. Would you recommend a hospital to a patient that is not included in his insurance plan?
III. Source of information for the GPs	1. How do you obtain information about where particular hospital services are available? 2. How do you obtain information about the characteristics and quality of the different providers?
IV. Factors that influence the GP's choice for bariatric provider	1. When you refer patients for bariatric surgery what characteristics of the provider you think are important? 2. Which one of these characteristics was the most important for the choice of the provider, the last time when you referred a patient for bariatric surgery? 3. Are you interested in specific quality performance indicators of the bariatric surgery provider, when you make a choice? 4. What are your main concerns when you refer a patient for bariatric surgery? 5. Could you think for an example of service or information that the hospital can provide in regard with your concerns? 6. Are there patients, who have characteristics specifically related to the obesity, for which the choice is limited?
V. Factors influencing patients' choice of bariatric provider	1. What factors do you think are important for the more active/assertive patients when they choose a provider for bariatric surgery? 2. Are the patients interested in some quality performance indicators of the hospitals where bariatric surgery is available? 3. When the patients are not active and leave the choice to you, is there information regarding the provider they are interested in? 4. What factors are most important for the elderly patients or patients with co-morbidities?

	5. If the provider implement telemonitoring for the post-operative care would that highly influence the choice for the elderly patients and patients with co-morbidities?
VI. Who plays the main role in the choice	1. How often (percentage) do you think you make the referral choice on behalf of the patients? 2.What percentage of the patients has a preference for a hospital when you refer them? 3. When you give them advice for another hospital to which they may go to, what percentage of them follows your advice? 4. Do you think, if the patients are aware of the choice and have information about providers' performance, they would make choice without asking you for advice?

Please read the following list of factors:

- Convenient location for the patients
- Waiting time
- Quality of care
- Specialists' skills and expertise
- Patients' preference
- Insurance coverage
- Reputation
- Medical equipment/infrastructure
- Patient- centricity
- Innovative offering
- Provided techniques and treatments
- Leading research
- Positive relationship with provider physicians
- Timely and adequate reporting
- Innovative education for referrers
- influence on patient treatment
- Post-operative care focus
- Travel distance
- Other – please specify

Please, write down the three of them, that influence your choice of a provider for bariatric surgery the most, as starting from the most important one:

1. ……
2. ……
3. ……

Please, write down the three of them, that influence your choice of a provider for bariatric surgery the least, as starting from the least important one:

1. ……
2. ……
3. ……

Appendix C - transcription of the interviews

Due to confidentiality, the transcriptions of the interviews are not included in the current version.

Appendix D- recommendations for Hospital X

The obtained results cannot be generalized due to the small sample size. Although the achieved responses gave an insight into the factors that are more likely to affect the GPs hospital choice for bariatric surgery.

The most appealing factors for the GPs that the hospital should focus on are:

- The availability of multi-disciplinary team of experts through the entire trajectory: examination, surgery, follow-up.
- Special focus on the good follow-up. The GPs need to be assured that patients will receive help when they have difficulties coping with the life-style changes. Also, the hospital should remain responsible for the follow-up. The GPs simply want to be informed.
- GPs are interested in the way how the hospitals communicate and guide the patients through this long treatment. Friendliness of the hospitals is mostly assessed through patients' feedback.
- Clearly inform the GPs about the eligibility criteria, how strict they are applied by the hospital and the way the patients are examined.
- Attention should be paid to the explanation and rationale for the refusal of patients for the GPs as well as their patients to be assured that it is the best decision for the patient.
- Regularly provide information (possibly even through Internet) about the overall results of the department to the GPs.
- Provide lectures (possibly through Internet) that can give them more information about the overall treatment and the hospital results.
- Provide a possibility for the GPs to easily contact the specialists in cases where questions arise. Personal contact seemed to be highly valued by the GPs.

The GPs are making the choice for the patients that are not active and do not have their own idea which hospital to choose. The obtained results however, show that with respect to bariatric surgery the patients are mostly active and make the hospital choice by themselves. This indicates that the stakeholder with the main role in making the choice for a bariatric surgery provider is the patient. In this study, the factors that influence the patients' choice were investigated through the GPs' perspective. It therefore recommended to further investigate these factors through the patents perspective. The results of this study did reveal several factors that may be valued by the patients:

- The experience of the other patients is most likely to decide the patient's choice. To obtain this information, the patients approached hospital websites and Internet forums about patients' experience. The patients also listen to their friends, family and the advice of their GPs. That requires from the hospital to focus on:
    - The way how the hospital staff manages the communication with the patients. The hospital should provide a good experience to the patients, to be friendly and to provide clear guidelines throughout the entire treatment trajectory.
    - The hospital should present accurate, easily accessible and comprehensive information about its performance.
- Adjustment of the eligibility criteria and, in particular, the acceptance of the patients with psychological problems. The patients and their GPs should be better informed about the reasons, in case of refusal, that support the decision why the risks for the patients are greater than the benefits.

- Adjustment of age criteria. The Centraal Bureau voor de Statistiek (CBS) shows that 16.1 % of the people aged 55-64 years are with obesity (CBS: >175.000 people). Putting the age criterion at 55 excludes a large group of potential clients.

Both GPs and patients gather information through the Internet. Improving the Internet presence of the hospital will increase website traffic and therefore increase their exposure. This can be achieved through, for instance, (targeted) advertisements or web search optimizations.

The GPs would not recommend to their patients a hospital that is not included in their insurance plan. Moreover, the GPs assessed that the patients themselves would not be interested in such an option due to the high costs. Therefore, inclusion of this treatment in the patient‘s insurance plan is of crucial importance.