Defining criteria in value-based procurement of Physician Preference Items in Dutch hospitals

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Abstract:

Due to rising costs in the Dutch healthcare system, the pressures on procurement are becoming higher. A big share of the procurement costs come from Physician Preference items. Physician preference items are medical items that physicians have strong personal preference on. The decision-making process should be carried out by the purchasing department, which receives input from physicians. –However, it is still not clear what are criteria considered for purchasing PPIs. . This study will investigate what are the criteria considered when purchasing PPIs. This is a highly complex decision-making process due to the specificities of these medical items. By conducting a case study research that consisted of interviews with purchasing managers in Dutch Hospitals, it was possible to obtain insight into the criteria that should be looked at when assessing medical products and suppliers. The results show that delivery reliability, innovation, quality, cost, relationships between stakeholders and value added services are some primary factors that are considered by purchasing in healthcare.

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Keywords

Healthcare, value based procurement, PPI, physician preference items, purchasing, criteria

1. INTRODUCTION

The Dutch health care system is coming to stand under rising pressures, especially in view of the emerging rising costs that it has to handle. The total cost of healthcare in 2021 was 124.770 million euro. This indicates that there is a raise of 8.8 billion, which is an increase of 7.7% compared to 2020 (Centraal bureau voor statistiek, 2021). In 2021 costs for healthcare rose significantly, the main reason for this was the COVID-19 situation that led to higher costs than anticipated. When the overall trend of healthcare expenditure of the years before COVID-19 is looked at, the Netherlands spend around 10% of their GDP (Gross Domestic Product) on Healthcare (Statista, 2023). Compared to other countries this is a relatively high cost of healthcare.

Although the costs of healthcare have risen, Dutch health care is referred to as performing well in terms of relatively good-quality care (Ministerie van Volksgezondheid, Sport en Welzijn, 2014). In essence, the main focus of health care should lie with the quality of care that is delivered at as low cost as possible. It is important to purchase the products in a way that the value of the product is the main focus. In healthcare value can be defined as the health outcome per euro of cost expended (Porter & Teisberg, 2006).

Procurement has a big impact on the costs that are made in Dutch hospitals. It is often misunderstood that it can be seen as just an organizational supporting function whereas in reality it can be recommended to look at procurement as a strategic function. This is something that healthcare organizations should try to align with by having strategic procurement. (Kraljic, 1983).

Of these costs made by procurement an important fragment of the purchasing are the Physician Preference Items (PPI). Physician preference items are defined as the medical items for which physicians have strong preferences and make the choice in hospital purchasing. (Schneller & Smeltzer, 2006). One third of purchasing costs in hospitals are coming for physician preference items (Robinson, 2008). Typically the physician's choice is not based on cost but rather on personal experience with the device and relationships with the vendor's sales representative. (Schneller & Smeltzer, 2006). Value based procurement on these items can drive costs down or/and improve quality. (Porter & Teisberg, 2006)

The Dutch ministry of healthcare states that there is terrain that can be won when looking at the balance between costs that are made and the actual quality that is delivered. In 2018, the ministry came with a report on outcome based healthcare, where they present a 5 year plan to change their system to a value-based healthcare system where the actual outcome for the patient gets priority (Ministerie van Volksgezondheid, Sport en Welzijn, 2018). This indicates that healthcare organizations recognize that there is a need for a focus on value in healthcare.

1.1 PROBLEM STATEMENT AND JUSTIFICATION

Currently in healthcare, there is a high percentage of the purchased PPI's selected based on judgment of what the physician wants. (Schneller & Smeltzer, 2006) Forming a purchasing strategy can be difficult in this situation. There is a lack of guidance on the factors that determine value on these products. Due to the lack of quantitative evaluation of an item's value versus an item's cost, decision-makers do not see the consequences of the decision on the supply chain performance and the organization's financial situation (Shbool & Rossetti, 2020). In order to standardize the purchasing of PPI's hospitals should first define standardization and strategy. Accordingly the hospital should decide how to implement the chosen strategy and decide on mechanisms to encourage cooperation with that (Montgomery & Schneller, 2007).

The main goal of this study is to investigate what are the main criteria considered by the procurement department of hospitals in The Netherlands when conducting value-based procurement in Physician Preference Items. The aim is to investigate how purchasers can ensure that the purchased PPI will be of significant value. In this analysis it is important to describe how purchasers can assess the value of certain products. The study will describe what criteria are already being used for this and whether there is a gap between what could be used and is being used to assess this. This will also result in certain opportunities by communicating these value criteria, which gives possibilities to make improvements accordingly. The research question that emerges for this study is:

"What criteria can the procurement department consider when conducting value-based procurement in Physician Preference Items?"

In line with this question, an analysis will be made on factors that can be considered when trying to determine value of purchased products. There are several factors that can determine the value of a purchase product in healthcare. These factors indicate which value a product can be. It is important that all types of criteria get taken into account in this analysis, even ones that seem to be hard to measure or quantify. Cooperation between several departments is essential in checking whether a product will successfully align with the several factors that determine a product's value. Making sure that a product is of actual value can be assured by two connections in the stakeholders in the purchasing decision. The first connection is the relationship between the physician and the purchaser itself. Physician Preference Items–. The second connection is the relationship between the supplier and buyer/purchaser. This second connection is important in order to communicate towards the supplier what is demanded and to communicate what physicians prefer.

It is important to investigate what are the criteria considered by healthcare purchasing professionals when acquiring PPIs because this is an area where a lot of gains can be made for the purchasing department. With high costs spent on PPI's and considering that physicians do not include all criteria that could be used, it can be stated that there is room for improvement on value-based procurement on PPI's. (Schneller & Smeltzer, 2006)

2. LITERATURE REVIEW

To study how value can be determined for PPI's, literature review will give more insight into what are possibilities regarding this subject.

2.1 Value assessment in healthcare procurement

When handling a value-based procurement, primarily it is important to analyze what factors will have an actual impact on quality of care. A first step in the determination of quality is to have methods that can measure quality and setting standards accordingly. (Øvretveit, 2003) When value is opted to be assessed, certain methods should be developed to make outcomes measurable. In the report on outcome-based healthcare of Dutch healthcare, there are certain guidelines created to make it possible to assess the quality that is delivered. More insight should be created into the outcomes of care delivered. That is why an agreement has been made that states that at least half of the disease burden should have measured outcomes by 2022 (Ministry of Health, Sport and Welfare, 2018). Certain objectives and criteria will have to be established to measure this value.

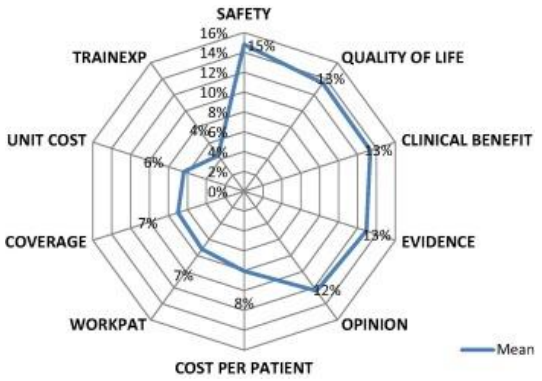
The most important need in the device-intensive clinical sectors is not necessarily information on particular devices but performance data on the entire course of treatment and its components. It is hard to link the success of a treatment to devices when several devices in process are used. Only integrated data systems will permit physicians and managers to improve the entire process and to choose among the alternatives (Robinson, 2006). Not only does this mean that a clear analysis of what features make the specific PPI deliver more value to the outcomes. A consequent method on gathering data on these devices will give clearer insights in the differences that can be made with purchasing these valuable products. Accurate, integrated fine-grained can support decisions to enable cost comparisons and assess patient outcomes. These methods of gathering enable differences between alternatives to become clearer. Maybe even more important than that, they become provable, which does not leave procurement to biased opinions but ensures the best value possible. (Schneller, 2007)

2.2 Criteria for value assessment of physician preference items

In order to find the right specific physician preference item, the product itself can be assessed by using a certain amount of criteria. Dickson (1966), has constructed an broad overview of the vendor selection criteria in procurement in general. As criteria keep developing, an analysis of criteria described by several papers was made by Weber (1991).

The criteria that are established by Dickson (1966) & Weber (1991) are general and may be applicable over a procurement in general but it does not address the specific criteria used in healthcare procurement. Therefore it is important to look at literature on this specific procurement. An example of key criteria that are often used to assess the value of a medical product are: Clinical quality, cost/affordability, patient outcomes, patient experience (Damberg et al., 2014). As there has been research on this problem, supplier selection criteria in healthcare have proven to be complex. There have been several papers opting to approach this complexity by making use of multi criteria decision analysis matrices (Goncu & Cetin, 2022). Not all criteria will contribute in the same way to the actual delivered value. It will be the case that one of the criteria will be more important than the other one (Martelli et al., 2016). Therefore, when comparing alternatives it can be important to assign weight to the criteria in order to make sure that this importance gets taken into account. In multicriteria analysis many methods use weights to represent the relative importance of criteria (Solymossi & Dombi, 1986). As Martelli et al. (2016) studied the importance of criteria in University Hospitals by pairwise comparison of criteria as can be seen in Figure 2. These pairwise comparisons give measurement of importance between criteria, but still do not include all demand that are done to a supplier.

Figure 2



(Martelli et al. 2016)

There are good options to assess the importance of criteria. However, especially for physician preference items the perspective could be broader than just these criteria. It can be important to look broader and assess what criteria your supplier has to comply with. It is important to realize that there is some nuance in the exact establishment of criteria. Medical devices are divided into different classifications. Criteria are different for different types of medical items. (EU medical devices coordination group, 2021)

Among criteria to assess the value of PPIs, clinical quality or clinical outcome is an essential indicator to determine the value of a product since it focuses on the primary goal, the clinical outcome of the patient (Lehtonen et al., 2019). Monitoring these clinical outcomes would have to be done by ensuring reporting mechanisms from Physicians. The purchaser often gets to see this in certain ratios that give insight into the success of a product. There are a lot of way of assessing the clinical outcomes (e.g. stroke mortality), avoidability of death or morbidity (e.g. diabetes-related

burden of disease), avoidability of hospitalizations and its length (e.g. asthma hospitalizations) (Lehtonen et al., 2019). Poor quality will not only result in discomfort for the patient and the patient's health. Products with poor quality in hospitals will result in high costs due to inefficiency, prolonging the need for care and additional medical treatments, also called revisions. (Porter & Olmsted, 2006) There are mechanisms designed to ensure that there will be good performance delivered.

A pay-for-performance structure can help in ensuring that the hospital will receive good quality (Damberg et al., 2014). In order to make a pay-for-performance structure, accurate presentation of results should be monitored. Early pay-for-performance designs have opted to reward suppliers of the bases of a wider range of measures including resource use and cost metrics. Value based programs like this have a higher focus on obtaining goals as improving clinical quality, cost, patient outcomes and patient experience. (Damberg et al., 2014)

In the overall picture one could say that cost is the most important criterion. As stated, healthcare is coming to stand under rising pressures to save expenses (Porter & Teisberg, 2006). When you make the cost/quality comparison, the purchaser should make sure to include all costs that come into play when using a certain product. The total cost of ownership (TCO) can be defined as "an estimate of the total costs that a medical solution makes over their occupation expectancy." The TCO could include initial purchase price, cost of installation, operation and ongoing maintenance, less the residual value upon disposal. (Healthcare supply chain network, 2015).

In procurement of PPI's surgeons preferences for a certain supplier are often based on factors that are not related to costs (Montgomery & Schneller, 2007). While hospitals/purchasing managers focus on saving costs as possible it remains a battle between costs and preferences. Going for lower quality is often not among the options, therefore purchasers could look for other methods to save costs. Above that the physician does not necessarily include cost as an criterion there also in the problem of standardization that comes along with the selection on PPI's. With PPI's it is difficult to commit to contract compliance because of variation between physicians, which makes it harder to form a strategy accordingly. (Montgomery & Schneller, 2007) It would be beneficial cost-wise to be able to have a certain level of standardization in our organization between involved physicians. This also makes it possible for a supplier to look how it can influence the operating cost that a certain product will have. Suppliers can also contribute to value through cost reductions at the level of the buyers operations (Ulaga & Eggert, 2006).

Two key determinants of this, or two pillars to success, are innovation and adoption by clinical customers (Burns, 2018). A key factor that can determine success of the supplier fit is innovation. An assumption that is made is that innovation must drive up costs, while this is not the case. Innovation is crucial for value improvement in healthcare (Porter & Teisberg). Constant innovation ultimately will increase the value of healthcare as a whole and developments coming from that should be taken in account as a purchaser, to be used to improve care. Factors relating to technology are rated the most important by physicians (Burns, 2018). For healthcare there are three types of innovation that can contribute to value. Customer-focused innovation changes aim at making the process of their healthcare easier for them, this will lower cost and waiting times for the patient. Another type of innovation is the technological innovation that is focussed more on the products itself that provide better treatment and lower costs. The third innovation is focussing on innovation of the business models in the hospitals, This focuses on horizontal integration, aligning the interests of independent players to generate economies of scale. Or you can bring treatment of certain diseases together, also referred to as vertical integration, to make treatment more effective and convenient. (Herzlinger, 2006)

Research Proposition 1: The evaluation and continuous refinement of criteria in value-based procurement of PPIs are necessary to adapt to evolving healthcare needs and technological advancements in Dutch hospitals.

2.3 Criteria for assessment of a supplier of physician preference items

Item specific criteria like this are a good baseline to check whether the products will perform as they should. Although this is the case, with value based procurement in hospitals the supplier is in constant development, the correct fit between the buyer and the supplier are essential to success. Therefore it could be important to look broader than just the product itself. A supplier could be seen more as a service. The supplier is the key in solving the qualitative issues a hospital could be having. In order for this to work it could be more helpful to look at what the supplier has to offer when entering a product than just looking at the specifications a PPI has. (Atilla et al., 2017) Measurement and the organization of setting standards gives purchasers the opportunities to take action when a supplier is not meeting the quality standards that are demanded. (Øvretveit, 2003). Not only will accurate measurement of value improve the possibilities for contract management towards the supplier.

The reliability of the Healthcare supply chain is a key factor in patient health (Skowron-Grabowska et al., 2022). Healthcare struggling with major scarcities in medical items. Due to the Covid-19 pandemic and the war between Russia and Ukraine the suppliers are behind on deliveries. This is also a big problem in the Dutch healthcare system, to tackle the scarcity of medical items the ministry of health, well-being and sport launched a hotline for purchasers to communicate their concerns when they have problems with a product that is unavailable for them. (Ellen van Galen, 2023).

When supply difficulties like this appear suppliers will have to choose who will get the supplies and which hospital they can deliver to. A preferred customer status can be the solution to this. A preferred customer shows the supplier's perception of the attractiveness of a customer in their relationship compared to others. (Ellis et al., 2012) To mitigate the risks of not having sufficient medical items for the hospital's operations another strategy could be to aim for a diverse supplier base. During a worldwide crisis, as is the case with the drawbacks of Covid-19, a diversified supplier strategy can help your inventory, in both the

disruption phase and the recovery phase of the crisis. (Lin et al., 2021)

Especially for physician preference items it is essential that a supplier also is able to deliver value added services to support the physician. A supplier that excels in technological advancement and development of medical devices will need to offer more to deliver value. The development will also have to have the possibility of being used in practice. The most important sales/service considerations for physicians involve the sales representatives thoroughness, knowledge and availability (Burns, 2018). Although these sales/services considerations are important for the physician, the hospital is still under pressure to contain costs which asks for a good balance between cost and quality (Porter & Teisberg, 2006). There are several ways a supplier can assist the physician in implementing its product in the most effective manner. Suppliers control the distribution of PPI's and give support with specialized knowledge about products, training in use of products, on-site technical assistance and above that the supplier offers physicians research opportunities in order to help developing and testing products. Offering guidance in usage of the items will increase trust in the supplier's products for the physician and ultimately result in more reliability in procedures. (Montgomery & Schneller, 2007).

In the purchasing decision it is advisable that non-economic criteria also get assessed. As companies are made accountable for the internal practices but also for their suppliers' behavior. (Maignan et al., 2002). Therefore the impact of a certain purchasing decision on the company's stakeholders should be taken into account. The stakeholders involved in the decision-making process are also essential for the establishment of criteria. In this decision-process the stakeholders consist of practical users as the physicians and other health care providers, such as nurses and OR staff. Additional stakeholders are hospital managers, manufacturers, supplier representatives and ultimately the patients. (Montgommery & Schneller, 2007). The interest for the stakeholders internally can differ in their essence. As mentioned in the section that evaluates the business model innovation, horizontal and vertical integration between the involved individuals can be beneficial for outcomes of the hospital (Herzlinger, 2006). Strong product preferences by physicians results in an uncompetitive purchasing environment. Suppliers can higher prices and take that into action into the negotiation stage with the supplier manager. (Atilla et al., 2017).

Research Proposition 2: The involvement and collaboration of healthcare professionals, including physicians, and suppliers in the development and implementation of criteria are vital for effective value-based procurement of PPIs in Dutch hospitals.

PPI's purchases steered by physicians are often primarily based on relationships. Although this relationship sure can have positive effects such as innovation and better quality of care by delivering good guidance, there are pitfalls to this relationship. Quality may not be the decisive factor for physicians in PPI's, physicians express their preferences for a certain vendor based on the primacy of use and long-term loyalty of the vendor. This indicates that preferences of physicians for certain suppliers are not solely based on actual difference but arguably more on habits, familiarity and practice efficiencies (Burns, 2018). This demonstrates the importance of the relationship with the supplier for Physicians, but also that this can be excessive. The decisions made by surgeons are based on factors such as,personal experiences and relationship with the supplier, which are factors that are unrelated to cost. Therefore this can result in dealignment between what the physician wants and what is preferable for the hospital business wise. (Atilla et al., 2017)

Having close contacts between the purchaser and supplier should be seen as an ideal front to tackle challenges. A good buyer supplier-relationship can be the bridge to this success. Buyer and supplier should create a win-win situation for the supplier and the hospital as a customer. (Cordon & Vollman, 2008). Close contracts and clear insights into what the purchaser is looking for in the items it wants to purchase can steer both parties in the right direction. By communicating clearly what is needed by the hospital can result in a more effective approach of tackling challenges that hospitals and purchasing departments might have. A sound understanding of the dimensions that drive value creation in manufacturer-supplier relationships is needed. (Ulaga & Eggert, 2006). Relationship benefits can display a stronger potential for differentiation in key supplier relationships than cost considerations. (Ulaga & Eggert, 2006)

3. METHODOLOGY

The aim of this research is to get a deeper understanding of the criteria that are involved in supplier selection. Qualitative research aims to address questions concerned with developing an understanding of the meaning and experience dimensions of humans' lives and social worlds. (Fossey et al., 2002). In this case the aim is more oriented at getting a better perspective of how value can be determined. Therefore a Qualitative method is suitable, via this method a deeper understanding and broader insights of the vision of experts will be created. The method is used to answer questions about experience, meaning and perspective, most often the standpoint of the participant. Qualitative studies involve the systematic collection, organization, description and interpretation of textual, verbal or visual data. (Hammerberg et al., 2016). In this care this participant is the purchaser. This research is based on case study research. Case study research aims to explore and depict a setting with a view to advancing understanding (Cousin, 2006).

Case study research can be defined as research where the goal is to understand "the case" in what it is, how it works, and how it interacts with its real-world contextual environment. (Yin R., 2018) It is an appropriate method to address the research problem because it gives insight into a real-life situation in which you can test certain theories.

A healthcare system is a broad perspective that is why the analysis will be scoped down to only certain organizations

of a certain type of organizations. In the case of this research that will be conducted, there will be several Hospitals in the region of center/east of the Netherlands. In these hospitals, an understanding will be tried to be created of the criteria the purchaser would use to identify value. With that reason, purchasers of these hospitals will be interviewed. This will be done in 8 different hospitals, so with 8 different purchasers. Qualitative Research is the best fit for analyzing the key factors that determine value when purchasing products in healthcare.

In these interviews the aim is to get a better view on what are the criteria that are being looked at in purchasing PPI's. Interviews with purchasers give more insight in how this can be done, and what criteria could be used. This will be done by interviewing 8 purchasers from 8 hospitals. The interviewees has been contacted according to the function in the purchasing department that they have. This includes and varies between mostly strategic purchasers, senior purchasers in the field of medical devices. A questionnaire will be structured with a semi-structured in-depth interview. The questions will be set up around a predetermined set of open-questions, with other questions emerging from the conversation between interviewer and interviewee (DiCicco-Bloom & Crabtree, 2006). A questionnaire has been developed with a series of 14 question. Firstly, some general question will be asked to exactly know the role of the purchaser and the items purchased by these purchasers. After that it is opted to find out more about the people that are involved in the process and the opinion on the criteria that these people have. There will be investigated what criteria could be used. In this it is important that criteria that are often left out of this consideration in a cost-based approach, now do get taken into account in order to sketch a complete vision of objectives that contribute to the value of a product. After data is gathered by interview, the recorded interviews will be transcribed and analyzed. The interviews were analyzed firstly by inductive coding to analyze which subjects come forward out of the interviews. After that when the codes are semi-developed, deductive coding can drive the data into organized codes accordingly. (Yin R., 2018)

4. RESULTS

This chapter will describe the results of the interviews that were conducted regarding the criteria a procurement department can consider in the procurement of physician preference items in Dutch hospitals. A series of eight different purchasers at eight different hospitals interviews. These purchasers are all active in Dutch hospitals. There are some differences to be found in the scale of the operations of the different hospitals. To display the results systematically a table is created to display the criteria that are considered. The opinion on the specific criteria by every purchaser in shown in table 1 in the appendix.

4.1 Evaluation and continuous refinement in establishing criteria

Table 1: Importance criteria according to purchaser

Criteria / Purchaser	Qua	Sus	Inno	VAS	Del	TCO	Phys/Sup rel.	Purch/Sup rel.	Collab.
Purchaser 1	A	-	+	+	+	+	+	+	+
Purchaser 2	A	-	+		+	+	-	+	+
Purchaser 3	A			-	+		-	+	+
Purchaser 4	0	0	+	+	+	+	+	+	+
Purchaser 5	A	0	-		+	+	0	+	+
Purchaser 6				+	+	+	-	+	+
Purchaser 7	+	+	-	0	+	+	0	+	+
Purchaser 8	A	+	-	+	+	+	-	+	+

Table 2: Importance criteria to physician according to purchaser

Criteria for Phys. / Purchaser	Qua	Inno	VAS	Phys/Sup rel.
Purchaser 1	+	+		+
Purchaser 2	+			+
Purchaser 3	0			+
Purchaser 4	0			+
Purchaser 5	0			+
Purchaser 6			+	+
Purchaser 7	+			+
Purchaser 8	+			+

(Ratings: + : More important, 0 = Moderate, - = Less important, A = Autonomy of physician)

In table one, one of the criteria that is being tested is the consideration of quality of care and clinical outcomes as a criteria for physician preference items, mostly considerations about the quality metrics of hip/knee transplants, heart valves and pacemakers. It clearly stands out that the purchasers trust the physician most with judgment about quality. The physicians are the ones responsible and will use the product so it is their choice preference wise. The physician is mainly responsible for doing the research on certain products, and the purchaser trusts them with that. The physician asks around for fellow physician experiences with the product and looks at the data on the outcomes that the product delivers. There is a very clear monitoring on the outcomes on hip and knee implants for example, which helps for good quality assessment. A certain history is needed to be taken seriously. It takes time for products to gather data to give more insights about what products can actually improve patient outcomes.

Most purchasers do say that the difference in quality in most cases is in small margins. The products are approved by tight regulations and that is seen as a gatekeeper of good quality. This gives the possibilities to look more at the physician preference in terms of functionality and cost.

Patient outcomes can be seen as an important aspect to assessing products. Looking to other metrics, like ease of use or functionality, can improve the patient outcome. This is mainly something the physician takes in mind when assessing a product. *"If there are products that make it possible to work faster, and the quality difference is not too big, the physician will also choose the supplier that*

helps working faster." (Purchasing manager 1, Hospital 2). Time is crucial in healthcare, certainly in operation rooms. Purchasers of different supplies, such as heart valves, knee/hip implants, are very aware that easier to use products, with shorter operation times, will to only be preferable for the physician to but it will also result in a cost advantage. There is being looked at the possibility of patient based outcome agreements, that are really based on the improvement of the products on the workflow of the company.

It is also clear that there still are some barriers to looking at the patient outcomes more as an purchaser. Purchaser 1 form hospital A states that: *"Ideally you would get a product that is best for the patient, for the outcome of the patient's surgery, but there is not a good incentive from the insurance companies. It also has to be involved to form the solution in healthcare."*

In terms of quality, a fear for purchasers, especially in transplants, is the possibility of having to do revisions. This is the biggest obstacle that will cost a lot of man hours and costs. *"Quality should always be more important than the relationship for a physician. If the quality is not right and you have to start from scratch again, that is a big problem." (Purchaser 4, Hospital D).*

Another one of the criteria that are being tested is sustainability. A complete picture of factors that should be taken into the purchasing decision is being made, sustainability has to be a part of that. Currently there are a lot of regulations on sustainability for healthcare and there are coming more regulations in addition to that. For purchasers it might feel more like an obligation than something they take along in their decision by themselves. "*Sustainability is going to be a mandatory part in your list of requirements, but everybody is searching: How?" (Purchaser 2, Hospital B).* At some point it almost feels undoable for a purchasing manager to take everything into account. For the more expensive and technological medical devices like heart valves and stents, this criteria loses importance in the decision making process. Respondent 1 states: *"For expensive items innovation should weigh more than sustainability."* For expensive items, sustainability might only be a factor of 3 or 4% that you let it weigh in your decision. This is a well-considered choice made because other factors are simply more important and have more impact. Pressures to reduce cost from hospital management seem to also play a role in this. The lower impact of sustainability is also being influenced by the cost pressures.

Sustainability does not necessarily have to have a bad influence. There are situations where it can go hand in hand together with cost. Purchaser 5 from hospital E states: *"We all know that sustainability costs money, that is not a problem but it is important that it adds value."* This can be the case for devices that make use of disposables. Purchasers should look at the amount of disposables that a product brings with its operations, if there are alot of disposables in play this is going to have a high total cost of ownership and it is obviously less sustainable. Replacing disposables is not necessarily always the easy option. In the past reusables were standards, almost all hospitals switched back to the usage of disposables because of hygienic purposes. In order to use reusables you have to make sure that you have the capacity to sterilize them. *"Sterilizing products can result in being a bottleneck in capacity and operation times." (Purchaser 5, Hospital E).* The possibilities for sustainability are less necessary for products that involve less side aspects, for hip transplants it can be just about removing the packing, apart from that there is not a lot of waste that comes into play, which makes it fairly simplistic. For some purchasing functions, more on the facility side of the hospital's procurement it is something they take into account with seriousness. Looking at possibilities for reusable operation supporting products, like surgical gowns, is something that lies more in opportunities and lies more in the focus area according to several purchasers.

In table one the importance of taking in innovation/technology in the purchasing decision is being displayed for both the physician and the purchaser. Physicians can tend to be drawn towards more innovative products when they come in touch with them via their supplier. Physicians are the ones that come into contact with new innovation first most of the time. They can be impressed by small improvements of how a product can be 0.5% better and will be talking about how much easier it is to use to the purchaser. This does not necessarily mean that this product is the best option, purchaser 1 from hospital A states, *"We have to be aware that most doctors find innovation and technology more important than a good budget and bookkeeping."*

For the purchasing manager 4 from Hospital D this also seems to be something that is being taken into account as essential for success. *"A hospital needs innovation, A hospital battles on innovation. It is not odd at all to want a new product that helps you operate faster."* This does not immediately mean that it is a requirement for the hospital. Often relatively new innovations, like artificial intelligence, are being brought as a wish but not as a demand.

Although purchasers acknowledge the importance of innovation can be very product specific. As purchasing manager 1 (Hospital A) & 2 (Hospital B) both state, hospitals focus on certain areas of healthcare. *"On a subject you do not specialize on, you look less at innovation and future prospects, you look at the basic needs."* The specialized areas they want to develop themselves on get more focus on technological/innovative suppliers, this is how they can stay ahead. The key features of a hospital depend a lot on the needs of the hospital. *"For example when the heart center is the main focus. It has a big need for innovative products with a lot of new stuff coming out, which helps them stay ahead in their specialty.'' (Purchaser 1, Hospital B).*

Innovation does not seem to be a very important subject for all hospitals, there is some difference lying in that, depending on the type of hospital it is and the objectives/goals that the hospital has. Even Though some hospitals can both be ranked as top clinical hospitals, there are some differences displayed. Purchaser 5 states: *"We are not an academic hospital but also not an innovative hospital. We focus on productivity, we want to help as many people as possible. We have a minimal budget for innovation."* Another less innovative approach also emphasizes that there are risks to innovation in terms of testing going wrong. *"We leave that to other hospitals.'' (Purchaser 5 from Hospital E).*

In table one the consensus on value added services that a supplier delivers next to the product is being looked at. Among criteria it can be useful to assess product specific criteria but added services, facilitated by the supplier, can contribute to the actual value of a product. There are lots of different ways of how suppliers can deliver value added services.

Purchasers state that they look at how much service is being delivered by the supplier. There are some differences in what they expect from the suppliers when it comes to different products. Respondent 1 states: *"For really new stuff, the supplier comes into the operation room and helps out with implanting or helps by assisting the doctor."* Several purchasers indicate that the training and help with revisions is very helpful. This works both ways, a purchaser also judges a supplier on that when the guidance is not good. Respondent 4 also states that contracts can include these things, in the form of guidance with new staff members that are new to the product.

Another aspect that respondent 4 mentions is the importance of updates on the systems of medical devices. That is a bit different than providing training, it is more about being up to date and having the latest updates.

In table one also the importance of a supplier's reliability is being described. In purchasing, the actual delivery of a product is an essential part too. This is not different for healthcare. Purchaser 8 from hospital H states *"Supply reliability is quite an issue nowadays."* Suppliers are not able to deliver a certain quantity of products on time. Not having these products can lead to waiting lines, which in some cases, can have serious effects for patients' treatments. There can be several reasons for the problems with delivery. Some purchasers state that this is still an after-shock from the COVID-19 pandemic, but also a lack of materials have brought supplier delivery time and reliability.

It is clear that this is a tough situation for purchasers and the focus of some lies on making sure that suppliers actually get the product to the hospital on time. *"A product that is not in the Netherlands on time, results in us not being able to operate on time. That is not acceptable for us, that is why we chose a supplier that is reliable." (Purchaser 4, Hospital D).*

Purchaser 5 from hospital E also states that the lack of on time supply can also have an impact on cost. *"Every stock leads to expenses, that is why we demand fast delivery times."* Purchasers can have different ways to deal with these backlogs. This particular purchaser gives out yellow and red cards. A red card results in a fine, but they are asking themselves if that is fair in these hard times. A good relationship can help you with supply issues, purchaser 3 from hospital C states: *"When you have a good relationship, the supplier will give you some extra implants earlier, that keeps you going."* In order to keep the hospitals operating, the supplier also monitors the stock together with the purchaser to keep close information about the supply that is needed.

In table 1 the involvement of the total cost of ownership is being discussed. The primary criterion that is being looked at by almost all purchasers is cost . When comparing two alternatives it might be easy to go for the cheaper one, but purchasers state that it can be very important to look at what the product is actually going to cost you. *"You have to take all costs involved into account." (Purchaser 6, Hospital F)*

In this total cost it is important to involve the maintenance of the product that you use. Purchaser 4 from hospital D states *"It is not only about setting up the system of devices, it's also the 10 years of maintenance that you pay for in the end."* Quite similarly purchaser 4 from Hospital D states that: *'If you do not check that accurately, the maintenance could turn out to be more expensive than the actual purchase itself. I think that is something that is very easy to overlook*." Apart from that the total costs that are being made can lay in a variety of things. Purchaser 4 and 6 describe that there can be more secondary influences that drive up cost. It can also be important to see how you can use standardization in your hospital by having the same supplier for several things, which can save cost. For example this could help by lowering the maintenance costs by having them checked all at once. Next to that it can also be important to evaluate all the materials that come into play in a certain operation, these costs also should be monitored.

In table 1 the purpose is to display the relevance of the relationship between the physician and the supplier. It immediately becomes clear that relationship with the supplier is a clear instigator for the purchase of a certain supplier.

4.2 Supplier relationship

All respondents argue that the relationship between the physician and the supplier is very strong. Suppliers approach the physicians very easily and help them along with trying new things. Suppliers come by doctors a lot, they can come along to the OR. Representatives of suppliers show doctors their products and discuss the positive extra's the product has to offer. The supplier helps the physician with the implementation of these new products and gives them good guidance with the usage of their product, something the physician values.

Respondent 4 and 5 describe that the close physician-supplier relationship can have a positive impact on the development of new products. Test-placement of a product to test new products can be a good example of this. *"A test-placement for a new product is a win-win situation. The physician can test if the product works and the supplier can bring the product to the market." (Purchaser 4, Hospital D).* Respondent 5 is in the same line with this: *'Working on non-disclosure agreement is good for development and is certainly a positive feature of a strong relationship."*

Although the relationship between the physician and supplier is strong, respondent 1 argues that this relationship can also result in a certain bias when it comes to the procurement of these products. The purchaser then needs to come with a good alternative to win them over.

Respondent 3 describes that the physician-supplier relationship is not necessarily a win-win situation. In the eyes of this purchaser the advantages are only the sales-

wise for the supplier. *"I think the main part is that this relationship is more an ideal chance for the supplier to offer its product. They know the physician has a big influence. It's more a sales-opportunity for the supplier." (Purchaser 3 from Hospital C).* Some respondents also mentioned that there should be utmost care to prevent physicians from making decisions in personal interest.

Table 1 describes the relationship between the supplier and the hospital/purchasing manager. The relationship between these two parties differ, depending on the type of product it is. As mentioned in the innovation/technology section, the hospital has certain spearpoints it wants to focus on. This is again dependent on the area of hospital specialization. When the supplier is operating as a supplier in the field of the specialization, the relationship between the hospital and the supplier becomes more important. *"In my hospital neurology, cardiology were the spear points of the hospital, then you know that are the suppliers I have to give attention to and that results in a different relationship." (Purchaser 1, Hospital A).* Otherwise it's just a simple agreement set on a certain price without specialties involved in the buyer-supplier relationship.

Having a strong relationship between the purchaser and the supplier can also make access to being up to date on knowledge of the newest innovation easier. This is something that both respondents 3 and 6 address. Respondent 6 states "It is important to have a good relationship with your supplier for new stuff/innovation." Together with the supplier, the purchaser can look for options to do pilots in the hospital. This is a bit similar to a physician testing products for the supplier, but the scale can be larger. Respondent 4 emphasizes that a strategic relationship like this is desirable: *"I would prefer to have a strategic relationship with a supplier, in which you develop together, you already look at the future on what is coming and if you can already test or run pilots on."* This can also be a good way to check out the performance of a new supplier. *"Not always to know what the performance of the new supplier will be, therefore, you could agree on doing a pilot to see if it works." (Purchaser 4, Hospital D)*

As mentioned in the results of the delivery speed and reliability, a good relationship between the hospital and the purchaser will result in certain advantages when it comes to being able to get the items in time.

Furthermore, table one describes the importance of collaboration between the purchaser and physician. By combining powers there are more possibilities in helping each other to contribute to the best value of healthcare. Purchasers state that this collaboration can help in different ways.

First of all, close physician-purchaser collaboration can contribute in setting the objectives and criteria in purchasing certain products. *"It cannot be the case that the physician decides or purchasing decides, that is why we form collaboration in teams." (Purchaser 5, Hospital E).* Several respondents state that setting up a team helps to look at the total picture of a product. Respondent 2 states: "*When you work together in a diversified team, a discussion can help. Combining the input for technical specialists, physicians and purchasers can strengthen each other in including all aspects of the product. Collaboration is key.''* Respondent 4 also emphasizes the importance of a team like this to make sure nothing gets missed. Collaborations like this also steer the physician in thinking of *"working as efficiently and cost effectively as possible."*

Respondent 1 states that sometimes there can be obstacles to getting every physician aboard, since they are in close contact with the supplier. Lobbying with physicians the purchaser 1 explains that they can form a better position against suppliers with all interests aligned when everybody is on the same page. "We form one block. Instead of diffusing strategies where physicians saying totally different things than the purchaser, we have the same story because that gives us power." Respondent 3 mentions that making sure everybody is one the same story will make it possible to make the negotiations a game. Otherwise the position going into the negotiation will be weaker which can lead to more expensive contracts for example.

4.3 Chances and obstacles to establishing criteria for value-based procurement of PPI's

Respondents give their opinion using one standardized set of criteria or demands for procurement of PPIs. Due to the high diversity in products it is hard to make one standardized list of what is precisely asked from the supplier. Apart from a list of requirements there can be some forms of checklists being used but these are more or less basic. Making it specific can be hard and would be too general. Respondent one even argues that instead of coming up with demands for what a supplier should offer, the hospital. The respondent argues that, the more demands you make, the more downfalls you create for things you have not thought about.

Another thing that respondent 2 explains is that the relationship should be utilized more as a service instead of a product. The relationship should be formed in a way that the hospital can come to them with struggles for help and guidance. The purchasers described this phenomenon as the following: *"We actually tell the supplier what to do by giving very specific requirements/demands. It is a bit like telling a mountain guide how he should climb the mountain." (Purchaser 2, Hospital B).* Additionally this purchaser thinks that a lot of purchasers are afraid to do this because they are afraid to lose control out of hand. *"In the Netherlands we want to put everything in demands, then we feel safe. But the more demands you make, the more pitfalls you create." (Purchaser 2, Hospital B).*

Other respondents seem to have a different sentiment towards this. Respondent 3 states that it is only in the very exceptional case that the hospital has to use the supplier consultation for a bigger solution. *"For knee/hip implants the physician does not necessarily have the question: How can we help the patient, therefore we decide what is needed and make demands accordingly."* On the other hand, the purchaser does say that this approach might help to look for products other than what is on the market already. Respondent 5 says that setting a list of requirements/demands can help in ruling out emotions and personal preferences. This respondent thinks that parking your demands and relying on the best intentions of the

supplier is dangerous. *"Suppliers are here to make money and will do that as much as they can. Of Course the supplier knows more, but they never show the back of their tongue. They stay commercial and want to earn money.'' (Purchaser 5, Hospital E).*

4.4 Cross-case analysis

In this case study there are some differences to be found between the different hospitals. First of all of course there are differences in scale between some hospitals which can also influence the attitudes/strategies of procurement and operations.

There are criteria that turn out to have similar importance across different organizations. The area's that have similar interest by purchasers of different hospitals lie at the more or less standard criteria that are important for every hospital. Most hospitals have the same issues regarding deliverability. This is a problem that expands to all hospitals.

Although there are area's to be found that have similar importance there are also some differences to be found between hospitals. Hospitals larger in scale take criteria in which more investment is needed higher in importance. Innovation is a criteria that displays this considerably accurate. Hospitals that operate on a smaller scale have most focus on cost compared to the importance of innovation. Hospitals of higher scale that have more focus on innovation. These hospitals are used in a more academic way and support with more try-outs for suppliers.

This does not mean that smaller scale hospitals cannot contribute to development with supplier. In the contrary actually, smaller scale hospitals can contribute to development of innovative solutions by testing if they also would work in the more simple day-to-day operations of a smaller hospital.

5. DISCUSSION

This chapter will dive into the interviews a bit deeper. A link will be made between the literature and findings that came out of the respondents of the interview. By comparing the findings out of the interviews and the literature a clearer picture of what actually is the case can be made.

In Literature there was discovered that there were certain product specific criteria that were developed. A very apparent criteria that came forward was the quality and patient outcomes. As Schneller (2007), argues that to determine quality there is a clear data gathering need for products to prove the quality. Respondents do agree on this. The representative measurement and research of quality has been monitored very well by authorities, to be able to confirm that the products that are being used are of the best quality. In general this means that the differences are so in the margins that quality often does not make the difference for the value of care. The physician is being granted full authorization to make decisions on this because the value will not increase due to quality wise factors but more on the functionality for the physician.

The case of patient outcomes as a criteria lies a bit different. Assessing patient outcomes asks for more attention. The methods of measuring patient outcomes are more complex and are very product specific. There are a lot of different metrics that come into play. Different factors like ease of use, functionality. In order to make the patient outcomes successful there has to be a high focus on the actual performance of care that is delivered due to certain products (Damberg, 2017). Based on the results of interviews, the difference that this ease of use can make, often lies in operation time, which can save costs and increase capacity of a hospital.

The cost-oriented purchasing structure that often is asked from purchasers does not necessarily stimulate focus on these patient incomes. Literature underlines the focus of healthcare organizations aiming to save cost (Porter & Teisberg, 2006). According to purchasing managers, a solution to stimulating the involvement of this criteria in the purchasing decision would be reaching out incentives to products that deliver higher performance and better patient outcomes. Advantage that could be done is better analysis of total cost of ownership is something that

The research proposition: "The evaluation and continuous refinement of criteria in value-based procurement of PPIs are necessary to adapt to evolving healthcare needs and technological advancements in Dutch hospitals." can be tested by the possibility of defining these more product specific criteria. As is stated, the quality is not necessarily very impactful in refinement of criteria, but sure is important. Patient outcomes could be useful. These are hard to practically measure and have accurate data on but once it gets the time it needs, it could be useful.

Among the criteria that can be involved, the criteria do not all necessarily have to be very product specific but can carry a bigger load, looking more at what the supplier is delivering in the package. Literature states that in purchasing decisions the impact on the stakeholders should also be taken into account. The consideration of non-economic is also important (Maignan et al., 2002). Sustainability could therefore be seen as a factor that could be taken into account as a criteria to comply with for suppliers. In reality purchasers take this into account differently than literature states. In healthcare, sustainability is already a basic principle with a lot of rules attached. This transfers it from something to evaluate in a decision to a prerequisite for purchasers. Especially for expensive items sustainability is certainly not one of the primary focuses of the purchasers. Sustainability can be taken more seriously when it comes hand in hand with other benefits. Now the value added to the patient is not very present. When sustainability can be combined with cost benefits, like looking at possibilities of reusable products that can save costs by having less additional disposable, it would be a more feasible criterion to take into account. Exploring for opportunities to do this could

be a helpful way to make sustainability a value adding feature to a product.

Porter & Teisberg stated that innovation/technology is a crucial element for value improvement in healthcare. Constant innovation and improvement will increase the value of healthcare. Certainly a factor that should be taken seriously in the development of criteria for value based procurement of PPI's. In the results of the interview we can see that there are two camps in this criterion. In interviews we see that innovation, for some hospitals, certainly is an important aspect. Respondent 4 agrees that innovation will increase the value in healthcare, in that specific example, in the improvement of operation time, which brings several benefits. Hospitals that specialize in certain medical departments in the hospital want to be leaders in their specialization and focus on innovation to do so. The purchasing managers have a higher focus on supplier engagement and relation that contribute to innovation. Although this is the case, not every hospital has the same mindset in this. This does not mean they do not see the benefit of innovation, it is more the case that the hospital is not focused on it. These hospitals do not necessarily want to be leaders in innovation, they focus on productivity of helping patients. Experimenting and testing with innovations can be seen as a risk for these hospitals. This is less in line with Porter & Teisbergs Theory.

Burns (2018) states that factors relating to technology are rated the most important by physicians. These findings were certainly in line with what purchasers think. Physicians are being drawn to technological items, especially by being brought in contact with new developments by suppliers. According to the purchasers, especially with expensive medical items, the innovative solutions a supplier has to offer is an important factor for the hospital to consider.

As is described in literature a supplier that excels on technological advancement and development of medical devices will need to offer more than value (Burns, 2018). Purchasers stated that the amount of value added services that they desire is relying on the type of product they purchase. When the suppliers deliver relatively standard and cheaper materials they ask the supplier to just "move the boxes" for them. When it comes to more innovative products, purchasers ask for more guidance and training for their physicians. There is a slight difference in how respondents look at this service. Burns says the most important sales/service considerations for physicians involve the sales representatives thoroughness, knowledge and availability (Burns, 2018) in his paper. This is something that says something both about the relationship between the physician and supplier but also about the importance of guidance as an added service. Where one purchaser looks at it as the bare minimum and says it is not always necessary that might lead to unnecessary costs. The other is willing to pay the supplier extra to train new staff members properly. That is certainly a difference of approach towards these services that is recognized in this case study.

Literature also states that offering guidance in usage of the items will increase trust in the supplier's products for the physician and ultimately result in more reliability in procedures (Schneller, 2007). This emphasizes the need for guidance especially with new products, like the respondents of the interview said is important. That is pretty much in line with what is the case in Dutch hospitals.

A hot topic at the moment is the delivery time and reliability of suppliers. Due to Covid-19 and a scarcity of materials suppliers have a hard job on delivering on time and the delivery times are long. (Van Galen, 2023) Purchasers have different approaches to that. Some purchasers try to eliminate that risk by making it possible to give fines, by putting that in the contract. Others tend to rely more on their relationship with the supplier and hope to have a preferred status so they get the products at their hospital first. A backlog of orders is obviously not beneficial for the hospital, certainly not with patients with diseases that require quick action. It could be useful to look at the products you want to have a preferred status on, and focus your attention on those suppliers. As mentioned in the above a good relationship can help for development of products but delivery can be very crucial. It can be hard to pick the right battles and the right focus. Having a diversified sourcing structure can work in some purchasing products (Lin et al., 2018) but it is not the case for procurement in healthcare. Purchasers state that good relationship and standardization is more important that diversifying.

As cost is an important aspect in the current healthcare system and its procurement, the total cost of ownership certainly is an important subject in the observation. A basic principle in value based procurement is trying to include all costs that are involved in your comparison. Purchasers state that this might be something that is easily overlooked but is very important in purchasing new devices. Most purchasers are aware of making this analysis for their decision. There are not necessarily differences to point out in the approach towards that. One thing that comes back sometimes is that certain products can have shorter operation time which reduces costs. It could be beneficial to quantify that into costs. Including this to the total cost of ownership difference between alternatives that something like that can contribute to better assessment of a product.

The research proposition that "an accurate assessment of the features a supplier should comply with, is essential to make value based procurement of physician preference items successful." can certainly be seen as true when we are talking about the technological improvements and supplier has to offer. The same is the case for value added services and suppliers have to offer. Sustainability is neglected a bit in the decision but is being taken into account by requirements that are set already.

One aspect that can forward with strong presence is the position that the supplier takes in. To assess the value a PPI delivers it does not mean you only look at the specification of the product. The opposite would be more true for purchasers.

The importance of the role of supplier all starts with, as purchaser 2 calls it, "Vitamin R(elationship)', relationship is the most important factor" as one respondent said. The research proposition that was done in context to the collaborations between supplier, physician and purchasers

was: “The involvement and collaboration of healthcare professionals, including physicians and suppliers in the development and implementation of criteria are vital for effective value-based procurement of PPIs in Dutch hospitals.” To answer this proposition we will firstly look at the relationship between the physician and supplier.

Physicians do not use quality as a decisive factor, literature tells us. Primacy of use and long-term loyalty to a vendor is more important. This could result in a certain bias when we talk about the actual differences the physician makes its decision on. Practice efficiencies, habits and familiarity is something the physicians value more (Burns, 2018).

This also is something that certainly came forward very strongly in the interviews that were conducted. Purchasing managers expressed clearly that physicians have a very strong relationship with the supplier. The supplier checks up on the physician very often and has the possibility to simply approach them very easily in physician’s practices. This results in good observation with the possibilities that are being offered. This can be seen as a positive feature of the relationship. Although this is the case, purchasers also express that they see a certain downfall in this, in the form of a bias that a physician can have on the supplier.

Some purchasers believe that there are serious advantages to this relationship. Familiarity will contribute to the patient outcomes but the relationship itself can also help in the development of products. The physician gets to test new things that could make his work easier, and the supplier can test his new products on the market. Not all respondents agree that the relationship between the physician and the supplier is only there for benefits of testing and increased familiarity for the physician. Those purchasers merely see the relationship as a sales function for the supplier.

The relationship between the purchaser and the supplier does not seem to be as strong as strong as the physician’s relationship with the supplier. The type of relationship a purchaser has with the supplier can be very dependent on medical area’s that the hospital specializes on. Hospitals will look for more supplier engagement in areas where they want to specialize. All purchasing managers certainly emphasize that there are surely benefits to having a good relationship. The actual benefits that they mention can lie apart from each other a bit. A common named benefit in this case study is the possibility for development together with the supplier. This gives the possibility to run pilots and trials on products which can indicate the performance of the supplier. Others focus more on the reliability and delivery side that the supplier can give. That is a slight difference in the approach in this case.

There are possibilities in strengthening the buyer-supplier relationship by more supplier engagement in tackling problems the hospitals face. Instead of coming with a set of terms and demands, the hospital should use the supplier more as a service to help with problems.

According to some purchasers it is very hard to standardize the criteria, the criteria would have to be refined for each product. Others use a set of demands that are bottomline to ensuring value. Not all purchasers seem to completely agree on what is the best approach. It might also be caused by a difference in hospital strategy and mindset that brings one hospital more in the position to be more adventurous and innovative, while others stay fairly conservative. One of the criticisms expressed by a respondent is that the refinement of criteria can set borders to the possibilities that there are. In their eyes it would be more to use the supplier as a consultant than to help them find solutions to their problems rather than setting demands/criteria that could potentially solve the problem. In value based procurement it is beneficial to build trust in the relationship with your supplier and develop together. Some hospitals are not very in this strategy yet and focus more on setting standards and demands.

Purchasers have stated that communication internally is essential in the success of purchasing. Being on the same side and having the same story results in bargaining power and can lead to cost benefits. Collaboration internally between purchasers and physicians therefore is very important according to purchasers. This is also very important to establish the correct wishes and requirements for a product and therefore is essential for the establishment of criteria and assessment of products. Together the total picture can be made.

5.1 Limitations and Future research Opportunities

5.1.1 Limitations

When looking at the results, one should bear in mind that there are some limitations to the research that is done. In research on criteria for PPI’s it comes forward that the perfect fit for criteria that should be looked at is hard to find. In a constantly changing environment, some sort of guideline of things to bear in mind can be helpful. But it will never turn into clear guideline of criteria that can be used by the purchaser. Therefore it is hard to turn all aspects that comes into plays into aspects. It could help to narrow down the case study not only into hospitals but also into a specific medical device. Now a broader picture in formed which makes it less specific and harder to apply in practical situations.

In order to really get an all-round overview of the aspects that are important in procurement of certain medical devices purchasers alone will maybe not withstand for the total view of the problem. All stakeholders that have any influence on the product could also be interviewed to investigate which factors all matter to all stakeholders. Next to purchasers, that are in the end responsible for the purchase there are several other people involved. An obvious player in this is the physician but above that it could also be helpful to have nurses, suppliers, technical specialists, hospital managers involved in the research. In this way the effective use of a product will be displayed more clearly from different angles.

Furthermore, the sample size that is used to conduct this research in fairly small. Eight interviewees does not

provide a very strong basis for big conclusions on the basis of how every hospital works. Above that it is a case study about Dutch hospitals which means that outcomes of this research would not necessarily be applicable to other healthcare systems.

5.1.2 Future Research

As stated in the results the criteria that are being use for different medical products are different for the different products. This case study provides an overview of the criteria the purchasers look at. It would also be possible to go by all the different medical products and develop a more specified overview of criteria that could be looked at. This would be time consuming at least but is a step that future research could take.

Furthermore, this studies also contains insights in modern day problems in purchasing in hospitals. In some cases it

could also be an idea to investigate these problems more. For example, purchasers state that deliverability is a problem in healthcare procurement. But not an complete overview of the solution to this problem is portrayed.

In this studies the physician itself it not interview due to time constraints and more complexity in contacting the physician. It could be beneficial to also hear the opinion of the physician on this topic. It would also be an option to include the opinion of the sales representatives of medical suppliers to investigate their experiences regarding this subject, as these play an significant role in the total pictur

6. Appendix

6.1 Interview:

1. Could you explain what your role is in the purchasing process/purchasing structure?
2. What items do you generally purchase for your organizational?
3. How is the decision making process of deciding which alternative you purchase with PPI's?
4. What people are involved in this purchasing process? Could you describe their role?
5. What are the most important objectives you look at when you start the purchasing process of a PPI?
6. Do you involve non-economic/harder to qualify criteria? If yes, how?
7. Do other people than yourself, as a purchasing manager, have any influence in the criteria that are considered? If yes, what influence?
8. What the most important criteria you thinks a physician considers in purchasing a PPI?
9. Do you think the physician considers all criteria that should be used? (Or do you have influence on the criteria a physician considers?)
10. What are the most important criteria for selecting a supplier of PPI?
11. What do you think is most important for the physician when selecting a supplier?
12. How do you think that good cooperation between involved parties could create positive impact on value of purchased products?
13. Do you think there are things that are generally overlooked in the purchasing process?
14. Do you think it would be possible to develop a clear pre-defined set of criteria that should be used to asses PPI's?

6.2 Participants

Purchasing manager 1: Hospital A

Purchasing manager 2: Hospital B

Purchasing manager 3: Hospital C

Purchasing manager 4: Hospital D

Purchasing manager 5: Hospital E

Purchasing manager 6: Hospital F

Purchasing manager 7: Hospital G

Purchasing manager 8: Hospital H

6.4 Result interviews

6.4.1 Clinical outcomes/Quality as a criterium

Interviewee	Response	Codes
1	“I try to match the budget of the hospital. Whereas we focus on lowering costs, most of the time it can also be that outcomes are better, but the decision on quality of products is always at the doctor. So it's always made by the specialists, so I only advise what would be commercially the best terms in the market at that point.”	Quality
1	“They can decide on that and they have free choice because they are the responsible person for doing the operation or the surgery. And so the quality aspect is fully in the specialists or the physicians hands. I don't have any say on that. I'm not schooled for deciding on quality.”	Quality
2	“Als we kijken naar leveranciers, kijken we waar zit de beste prijs. Ik bedoel, de kwaliteit: Je zit in een ratingssysteem, als je daar in vermeld staat, leer je goeie kwaliteit. Dat kan je allemaal opzoeken. Dus je kijkt mee naar de prijs.”	Quality
1	“Let me just put in that all the stuff we buy is CE marked and MDR approved. So there's no product we use that is approved to be bought. So it's all quality difference in the margins. Heart valve a from supplier A is on paper just as good as heart valve B but in usage that is where the doctor's perspective come into play. For example the ease of use or the functionality for physiologies of patients.”	Quality
1	“I've been trying on some parts to get patient based outcome agreements. So really based on the improvement of the products on our workflow and on the patients outcome. The problem with that is most of the time it's more expensive and the DBC is not higher if the patient outcome is higher. So that is also where there is little friction. Ideally you would get product that is best for the patient, for the outcome of the the patients surgery. But there's not a good incentive from the from the insurance companies.”	Patient outcomes
1	“Patient outcomes could make having criteria work, patient outcomes need time to evaluate metrics, such as quicker recovery. But also other data comes into that, so these should be looked at more.”	Patient outcomes
3	“Elke switch van leverancier heeft gevolgen voor de patient zijn mobiliteit, want er gaat namelijk altijd wat fout. Dat kost wat patienten.”	Patient Outcomes
3	“Als een arts kijkt naar quality kijken ze Europese eisen maar vooral naar de data en pateint uitkomsten van het product.”	Quality /Patient outcomes

4	“Functionaliteit en teopasbaarheid zijn belangrijk voor artsen. Als er producten zijn die sneller werken en een beetje hetzelfde zijn qua kwaliteit, wil de arts liever die leverancier hebben.”	Quality/ Functionality
4	“Qualiteit is belangrijker dan relatie voor de arts. Als de qualiteit niet goed is en de operatie opnieuw moet heb je natuurlijk al helemaal een probleem.”	Quality
5	“Ik wil natuurlijk niet aan de individuele autonomie komen van de dokter, het is zijn taak om literatuur er op na te slaan en andere collega’s te vragen. Daarbij is jaren aan data belangrijk en vaak verplicht voor zon product”	Quality
6	“Je hebt richtlijnen, dan moet er een prothese een aantal jaar een bepaalde rating hebben. De prothese moet dus wel een bepaalde historie hebben en bewezen goed zijn maar er zijn wel een aantal merken die daar aan voldoen.”	Quality
6	“Wat je niet moet vergeten is natuurlijk dat er verschillende dingen bij komen kijken, het is een stukje qualiteit van de prothese maar ook een stukje hoe goed de arts zelf is. Dat kan met name bepalend zijn.”	Qualiteit

6.4.2 Opinion on taking sustainability into objectives

Interviewee	**Response**	**Codes**
1	“We committed to the Green deal 2.0 and the milieu thermometer, that sort of obliges us to use sutainability in our request for proposals and request for quotations, so we take that into account”	Sustainability
1	‘’Well, I think I think that that sustainability is not overlooked. It's now very much a hot item. But it's also you have to understand that it's like 6500 people are working here. Everyone has their own idea of sustainability and it's all very fragmented. So people really are trying and we have a sort of a coordinator now on sustainability, which is helping to structurize it a little more. But in some cases, some very medical stuff. It's just not focused on that.”	Sustainability
1	‘’In facilities we have the possibility to consider sustainability allot, in the super technical items like hart valves and stents, you see less sustainability”	Sustainability
2	“Dus ieder medisch iets dat op de markt moet daaraan voldoen. De certificaten hoe het gereinigd wordt, hoe het gesteriliseerd is of mag het reusable, is het disposable al dat soort dingen moeten we meeleveren. Slaan we in door, denk ik. Dat is nu eenmaal hoe Brussel het heeft bedacht dat we het moeten gaan doen.”	Sustainability

2	“Duurzaamheid gaat een verplichting worden om in je pakket van eisen op te gaan nemen. Alleen Iedereen is zoekende hoe?”	Sustainability
2	“Ja en en tuurlijk wil je het meenemen maar dan zit je ook nog in in je duurzaamheid. Hoe gaan we dat nou? Doen en Als het meer kost. Optie A is. Iets? Nou ja. Slechter optie B is fantastisch voor sustainability, maar kost veel meer. 3 keer raden waar de Raad van bestuur of het ziekenhuis voor het kiezen.	Sustainability
2	“Duurzaamheid probeerde daar aan mee te gaan. Dialyse machines met dialyse spul werd erin meegenomen, één van de beoordelingscriteria was duurzaamheid. Nou dat is in totaal Misschien 3/ 4% dat het meeweegt. Ja, dat kan je net zo goed niet vragen, want dat dat heeft nul doorslaggevend impact.”	Sustainability
4	“Bij het ene apparaat is het super simpel en zit er weinig duurzaamheid, daar weegt het dan minder, dan is er eerder focus op functionaliteit. Bij apparaten met veel afstromen wordt daar wel beter naar gekeken.”	Sustainability
5	“We willen nu met zn alleen weer terug naar reuseable, dat is makkelijker gezegd dan gedaan. Je moet alle spullen weer sterriliseren, dat kan wel voor een bottleneck zorgen in de capaciteit en operatietijd.”	Sustainability
5	“We weten met zijn allen dat duurzaamheid geld kost, dat is niet erg, maar het moet wel waarde toevoegen.”	Sustainability
5	“Het kan ook dat je vergeet te kijken naar de afname van disposables bij een apparaat. Dat gaat vooral veel geld kosten maar is ook niet duurzaam.”	Sustainability
6	‘’We zien een shift van disposable naar resuseable, terwijl we net zijn afgestapt van reuseable. Dat schiet natuurlijk niet op. ‘’	Sustainability

6.4.3 Technology/Innovation as an objective in procurement

Interviewee	Response	Codes
1	"I do have an idea about criteria that are more important for doctors. When the suppliers talk to physicians, they only talk about the new stuff and they only talk about that their products in 0.5% better than the old one and how much easier it is to use. We have to be aware that most doctors find innovation and technology more important than a good budget and bookkeeping."	Innovation
1	"The key features that a hospitals should have depend allot on the needs of the hospital. So for example, lets say the heart center has a very big need for innovative supplier with a lot of studies, with allot of new stuff coming out where they can keep the leads sort of in their speacialty."	Innovation
1	"Theres lots more technical focus on the more expensive products because we do take that into account buying it. The technological medical side will weigh heavier than the sustainability or other aspects."	Innovation
2	"Een onderdeel waar jij je niet op specialiseerd, kijk je dan minder naar innovatie en toekomstpperspectief, dan ga je gewoon naar de basis."	Innovation
4	"Redelijk nieuw innovatie, zoals gebruik van virtual intelligence wordt vaak als wens, niet als eis meegegeven. '	Innovation
4	"Als wij elke keer achteraf horen dat er een nieuw product/upgrade aankomt, zijn we vaak al te laat. We zouden eigenlijk al van te voren moeten weten wat er aankomt, omdat je anders misschien beter even kunt wachten."	Innovation
4	"Nee kijk een ziekenhuis kan niet zonder innovatie. Een ziekenhuis strijdt op innovatie. Het is helemaal niet gek om een nieuw product te willen die je sneller patienten laten opereren bijvoorbeeld."	Innovation
5	"Wij zijn geen academisch ziekenhuis, wij zijn ook geen innovatief ziekenhuis. Wij zijn een prodcutiegericht ziekenhuis dus we willen zoveel mogelijk mensen helpen. Er is maar weinig geld beschrikbaar voor innovatie."	Innovation
5	'Er zitten toch risico's aan innovatie, wij laten dat liever door anderen doen."	Innovation
6	We hebben in contracten staan dat dat we bij echt nieuwe dingen, echt verbeteringen, de leverancier ook de kans geven voor deze nieuwe sitautie."	Innovation/ Relationship
8	"We proberen mee te doen aan ontwikkelings projecten en we kijken ook naar robocita als technische oplossing, dus we kijken er wel naar."	Innovation

6.4.4 Value added services by suppliers

Interviewee	Response	Codes
1	If we try something new we look at, how much service is being done from the supplier? So for really new stuff, the supplier actually comes into the operating room and helps out with the implanting. Or doing the new procedure assisting the doctor.	Value added services
1	There are several value added services that we can look at for a supplier. So that's training and that's having the exclusive rights to be the first one to do new trials with new products that they have in the pipeline. So that's really on the partnership side. It's developing the partnership with medical suppliers.	Value added services
3	‘’Value added services is eigenlijk iets waar je standaard voor betaald. Dat mensen getraind worden is een standaard iets, vaak in het bij heupimplantaten niet eens nodig. Ik zou eigenlijk graag die kosten wel eens los van elkaar willen zien.’’	Value added services
4	“Samenwerking met de leverancier is niet alleen het leveren van het product maar ook service bieden bij een operatie bijvoorbeeld. Dat kan andersom ook tegen de leverancier werken wanneer dat niet goed is.’	Value added services
4	“Bij een nieuw systeem, kopen we trainingen erbij voor mensen die nog nooit met het apparaat gewerkt hebben. 3 jaar laten doen we dat dan weer voor nieuw mensen in dienst. Een leverancier moet goed in staat zijn om dit uit te leggen.”	Value added services
4	‘’ Je doet ook upgrades aan systemen om up to date the blijven. Je wilt continue verbetering zodat je telkens de meest recente update hebt.	Value added services
6	“Trainingen en begeleiding zijn erg van belang, niet alleen voor de arts het hele OK personeel.”	Value added services
6	“Er is continue ondersteuning, begeleiding maar ook hulp bij moeilijke revisies. Dan denken ze mee met artsen en dat vind de arts prettig.”	Value added services
6	Wij willen dat de leveranciers niet alleen doosjes schuiven en dan voor alle hulp een factuur sturen. Nee we verwachten dan ook geholpen te worden en dat de puntjes bijgezet worden.”	Value added services

6.4.5 Delivery time / Reliability

Interviewee	Response	Codes
3	“Er moet naar meer gekeken worden dan alleen quality, we kijken ook naar de kredietwaardigheid en of ze bijvoorbeeld binnen 2/3 dagen kunnen leveren.”	Delivery time
3	‘We hebben corona gehad en dat heeft nog steeds gevolgen voor levertijden. Je kan iets nieuws gezien hebben maar dan moet je ook weten of levering goed zit.”	Delivery Reliability
3	‘’Als je een goede relatie hebt, krijg je toch een paar extra heupimplantaten op voorraad dus dan kan je blijven behandelen.”	Relationship /
4	‘’Product niet op tijd in Nederland hebben waardoor we niet op tijd kunnen opereren, willen we natuurlijk niet. Dan kiezen we voor de zekerheid een leverancier.”	Reliability
5	“We geven suppliers boetes als ze levertijden niet nakomen, Elke voorraad is een kostenpost. Daarom eisen we snelle levertijden, we moeten ons alleen nog wel afvragen of dat redelijk is naar de supplier toe.”	Reliability
6	“Logistiek moet goed zijn. Leveringsbetrouwbaarheid is tegenwoordig best een ding. Dat laat best veel te wensen over. Suppliers moeten betaalbaar presteren”	Reliability
6	“De firma monitort samen met ons de voorraad zodat wij goed productie kunnen draaien.”	Realiability
8	Vroeger legde het ziekenhuis op wat er gedaan werd. Nu moet je juist zo aantrekkelijk mogelijk zijn en een zo goed mogelijke relatie hebben om je producten geleverd te krijgen,	Reliability / Relationship

6.4.6 Cost / Total cost of ownership

Interviewee	**Response**	**Codes**
4	“Het is niet alleen het systeem neerzetten, het is ook 10 jaar aan onderhoud. Daarvoor berekenen we dus de total cost of ownership van een product”	Cost
4	“De mogelijkheid om te standardiseren wordt misschien kleiner als je allemaal verschillende leveranciers neemt, dat zorgt dat je total cost of owenship weer hoger wordt.”	Cost
5	“Bij sommige producten heb je soms last van 10 jaar langdurig onderhoud. Het kan zijn dat je het vergeten bent of niet goed over na hebt gedacht maar dan kan de onderhoud zo duurder zijn dan het apparaat zelf. Je moet alle kosten in rekening nemen.”	Cost
6	De appatuur die nodig si voor het gebruik, wat miljoenen kunnen zijn. Komen er ook nog bij kijken natuurlijk. Dat moet je allemaal meewegen in de business case	
6	“Het is zeker niet de platte prijs van het product. Met een individuele operatie tijd van een uur naar een half uur scheelt al heel veel geld. Dat houden we zo goed mogelijk bij, ook op de markt.”	Cost
8	Het gaat eigenlijk allemaal over prijzen, we proberen wel een stukje standardizatie tussen onze ziekenhuizen te regelen zodat de prijs lager wordt maar we merken dat dat toch erg lastig is	Cost/ Collaboration

6.4.7 Relationships between physician and supplier

Interviewee	Response	Codes
1	"Relatie, Dat is nummer één. Dat vind ik ook voor een inkoper. Ik denk dat de vitamine R: relatie heel erg belangrijk is intern om überhaupt serieus genomen te worden bij de specialist. Ja, Als je die eenmaal hebt omgebouwd, kun je vanuit je vertrouwen met elkaar zaken gaan doen en dat weten leveranciers ook. Die vertegenwoordigers zijn daar super in getraind. Die weten echt wel hoe zij daar binnenkomen. Het is gewoon een open wereld, hè? Vertegenwoordigers lopen zo binnen op de OK."	Relationship
2	"It's a little exaggerated, but the physicians are sometimes in the lap of the supplier, they are very close, the more contact than I have with some physicians. Most suppliers are really happu to try new stuff and trying to get footholds into the hospitals to in the end increase their revenue."	Relationship
2	"Most of the time, because the physicians are in so good contact with the suppliers, they're already a little biased for their product. And so you need to bring in a very good business case from the other competitors to try to win them over. But that is mostly it."	Relationship
3	"Ik denk vooral dat deze relatie de uitgelezen kans is voor de leverancier om hun product aan te bieden omdat ze weten dat artsen een aardige vinger in de pap hebben. Ik zie het meer als een sales werking voor leveranciers."	Relationship
4	'Een proefplaatsing voor nieuwe producten is een win-win. De arts kan kijken of het product werkt en de leverancier kan dit gebruiken om zijn product op de markt te brengen."	Relationship/ Innovation
5	"Dokters worden opgeleid met bepaalde apparatuur, vooral jonge artsen, je merkt als ze in het ziekenhuis komen te worden dat ze gewend zijn met bepaalde apparatuur. Daarom toetsen we hun bekwaamheid via het JCI om zeker te weten dat ze het kunnen."	Relationship / Familiarty
5	"Veel dokters doen aan research en op dat moment heeft de arts automatisch een tweede huwelijk. Op dat moment moet je wel weten wat de dokter afspreekt, of hij er iets voor krijgt, anders kan het fout gaan. Hij moet transparant zijn. Gelukkig zijn hier ook mechanismes voor"	Relationship

5	“Op het moment dat een arts gevraagd wordt om te helpen aan een non-disclosure agreement en zo met research kan bijdragen aan ontwikkeling is dat natuurlijk erg positief aan de relatie.”	Relationship
6	Ik ken de oude geenratie orthopeden waarbij niet alleen relatie maar ook persoonlijk belang een rol speelde, Ik heb niet de indruk dat dat nogsteeds zo is, de nieuwe generatie is kosten bewust en kijkt ook wel naar.”	Relationship
6	“Artsen hebben ook een geschiedenis, suppliers waar ze in het verleden bij andere ziekenhuizen meegewerkt hebben zijn ze ook niet vergeten. Dat speelt natuurlijk ook een rol.”	Relationship /Familirity
8	‘’Voor je eigen onderhandelingskracht is het niet handig maar voor de arts om op de hoogte te zijn van ontwikkelingen wel.”	Relationship / Innovation

6.4.8 Relationship purchaser-supplier

Interviewee	**Response**	**Codes**
1	“In mijn vorige ziekenhuis waren neurologie, cardiologie een aantal speerpunten, dan weet je oké, dan zijn dat ook de leveranciers waar je dus meer aandacht aan moet geven. En waar je meer in die ontwikkeling van verwacht en er meer ontwikkeling in zit want op die gebieden willen wij voorop lopen. Als het niet een van de speerpunten is dan heb je gewoon een andere relatie met die leverancier, dan koop je het op prijs. Je maakt een afspraak voor een aantal jaar en je gaat door.”	Relationship
2	“Samen met de gebruiker ga je naar de leverancier toe. Ik denk dat je het samen met de Markt moet doen. Dus die leveranciers hebben veel meer kennis dan wij hier hebben. En dus, Waarom zou je alles zelf moeten oplossen en bestaan er Misschien oplossingen die wij in ons beperkte gebeuren?”	Relationship
3	‘’Als je een goede relatie hebt, krijg je toch misschien net wat artikelen meer op voorraad waaardoor je toch wat meer patienten kunt helpen. Ik zie het vooral als een beschrikbaarheids voordeel.”	Relationship

3	‘’Natuurlijk helpt een sterke relatie ook om te weten wat er op de markt is aan innovaties, dat is het ook wel.”	Relationship/ innovation
4	“Performance van de nieuwe leverancier is niet altijd bekend daarom kunnen we in overleg een pilot doen om te kijken of het werkt	Relationship/ Quality
4	‘Het liefste zou ik een strategische relatie met de leverancier willen, waarin je samen ontwikkeld, alvast kijkt wat er in de toekomst komt er of je al testen/pilots in je ziekenhuis kunt doen daarmee.”	Relationship/ Innovation
6	“Het is wel van belang dat je een goed relatie hebt met je leverancier, voor nieuwe dingen/innovaties”	Realtionship/ innovation
8	Goeie relaties zijn belangrijk voor innovatie en meedenkendheid. Daar zijn we af en toe toch iets te terug houdend in.	Relationship / Innovation

6.4.9 Collaboration between physician and purchasing

Interviewee	Response	**Codes**
2	“Als je met elkaar zit, kan zo'n discussie helpen. Want de medische techniek denkt aan items waar de gebruiker misschien niet aan denkt en als je dat samenvoegt, versterk je elkaar daardoor ook. Dan denk je oh ja, Maar dat heeft indruk op mijn proces. Ja, en op die manier kun je ja een betere totaal plaatje denken. Samenwerking is essentieel.”	Collaboration
1	So what mostly I'm trying to do is I'm trying to influence the physicians on the background. So that we keep sort of our story straight from the hospital side. So when I enter into negotiations, they also know that my point of view is also the physicians point of view, which is also the hospital's point of view. And in that case, we form like more of 1 one block. Instead of diffusing strategies where my physician talks to supplier and says something totally different than what I'm saying. We have the same story because then you have power.	Collaboration
3	‘’We trekken wel als team op, het is niet zo dat de orthopeed alvast zegt tegen de leverancier wat het gaat worden. We maken er wel een spel van.’’	Collaboration
4	‘’Een teamleidier vormt een projectgroep waarin een arts zit, inkoper, klinisch fysicus, ICT manager zodat er overal aangedacht wordt, goed samengewerkt wordt en niks gemist wordt.”	Collaboration
5	“Het kan niet zo zijn dat een dokter alleen iets beoordeelt en besuilt en het kan ook niet zo zijn dat een inkoper, alles besluit. Daarom wordt een clubje samengesteld voor de samenwerking.’	Collaboration
6	“In het kader van zo efficient en kosteneffectief mogelijkwerken sturen wij de arts wel in natuurlijk.”	Collaboration
4	“We proberen alle artsen, ook van andere samenwerkende ziekenhuizen op een lijn te krijgen, zo kan de leverancier heel veel doen met de prijs.”	Collaboration / Cost
8	We doen het met overleg. Als artsen ervaring hebben met een product kan het lastig zijn om iets te veranderen maar jongere artsen zijn daar wat makkelijker in”	Collaboration

6.4.10 Opinion on a predefined set of criteria

Interviewee	Response	Codes
1	"Most of the time there is some sort of checklist but it is not a set checklist. There is one, but that's very basic, it's a plan of requirement sort of a list of requirements which you can add on or leave out which states that for example the supplier is able to deliver in two working days but that is different from having a predefined set of criteria"	Opinion on criteria
2	''I think that a predefined list of criteria would have to be very general because there is high diversity in products. It would be to general to come up with a list that covers 80% of the features. Making a detailed lists for each product would take too much though."	Opinion on criteria
2	"Je moet het omdraaien naar de leverancier maar dat durft men heel vaak niet omdat je dan heel vaak de regie denkt kwijt te raken. Ik denk dat we hier de neiging in Nederland ook hebben, zo gauw als we alles in eisen vastzetten, dan zijn we veilig. Ik denk hoe meer eisen je stelt, hoe meer gaten je creëer."	Opinion on criteria
3	"Allen in uitzonderlijke situaties hoef je de leverancier als dienst voor oplossingen te gebruiken. Wij bepalen wat er nodig is en stellen daar eisen voor. Artsen hebben die niet snel de vraag hoe moet ik de patient helpen? Daarom denk ik dat het goed is om duidelijke criteria te stellen. Al zouden we wel eens verder kunnen kijken dan dat er daadwerkelijk op de markt is wellicht."	Opinion on criteria
5	Om te voorkomen dat dokters op emoties kopen en persoonlijke voorkeur opgeven, gaan we dat process in en kopen we op basis van een programma van eisen.	Opinion on criteria
5	'Ik denk dat het gevaarlijk is als je je eisen opzij zet en je lot in de handen van de levancier legt. Leveranciers zijn er om geld te verdienden en zullen dat zoveel mogelijk doen."	Opinion on criteria

5	“Natuurlijk weet de leverancier meer kennis heeft maar ze laten nooit het achterste van hun tong zien, het blijven commerciele mensen die geld willen verdienden.”	Opinion on criteria
2	“Met VBP vraagje een leverancier dit is wat wij nodig hebben, hoe kunnen jullie dit voor ons doen/ons hier helpen? Wij zijn nu heel erg allemaal die aan het eisen, aan het stellen. Dus wij zijn nu aan vertellen eigenlijk aan een leverancier wat ze moeten doen. De leverancier is de berggids en wij vertellen de berggids hoe die de berg op moet.”	Opinion on Critiria
8	We werken nog steeds erg met eisen maar het zou mooi zijn als we iets meer vertrouwen in de leverancier zouden hebben en hun vaker om hulp konden vragen	Opinion on Criteria

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