Challenges in the decision-making process for Dutch healthcare organisations – The purchasers' perspective

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ABSTRACT,
Due to rising purchasing costs in the last years in Dutch healthcare organisations it has become of greater importance to study the causes hereof. Known problems in literature are Physician Preference Items(PPI's), those are products(or suppliers) that physicians have personal preference for based on habit or familiarity rather than lower cost. Together with the close relationship a physician can have with a supplier this complicates the decision making process for a purchasing manager. Due to this complexity many challenges may arise in the decision-making process. In order to investigate the main challenges the purchasing department faces, a case study of interviews with purchasing managers was done. By conducting these interviews it came to light that the PPI problem no longer exists in Dutch hospitals due to their organisational structures and drawn up rules and regulations to protect the purchasing process and restrict the power of the physician. The close physician/supplier relationship is still present but poses less of a threat and is more used by purchasers as an advantage in the negotiation or contracting. External factors like a scarcity of computer chips, raw materials, a global pandemic, stricter regulations in the medical supplies market and a war in Ukraine are the biggest challenges and main reasons of the costs increases nowadays. These cannot be solved directly by a purchasing department but have to dealt with in the most favourable way.

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1. INTRODUCTION

Healthcare organisations, like hospitals, have been dealing with rising costs in the past years. Next to an increase in personnel costs, costs for treatments and medication also account for a great part of the 50% cost increase regarding Dutch hospitals in the period from 2011 to 2020. (Intrakoop, 2022) In the Netherlands it is estimated hospital purchasing ratios are generally between 30% and 40%. (Van Raaij, 2016) Also in other countries, for example the US, it is identified that supply chain costs can also make up to 40% of all hospital expenditures. (Abdulsalam & Schneller, 2019) The total procurement costs for Dutch hospitals have risen to 11 milliard in 2018 which is a 5.3 percent increase compared to the previous year. (Lippolis & Lankhorst, 2019)

Because of increasing costs over the past years the purchasing department in a hospital is becoming of higher importance to hospitals, but also society, as the insurance price rises along with the procurement costs. In a healthcare environment, costs reduction efforts and optimising the supply chain are not as straightforward as in other industries. Physicians have a huge influence on the decision-making process regarding suppliers because of their expert power. A known problem for the procurement department in healthcare organisations is PPI's, Physician Preference Items. These PPI's are tools or products with which a physician works and he or she prefers them over other products from different suppliers. PPI's can be, for example, products with which a physician has worked all his life and is reluctant to switch away from. These items (e. g., knee and hip implants) are preferred by physicians but with little attention for costs or favourable conditions for the supply chain. (Burns et al., 2018) This problem can manifest itself during the decision-making process when the physician can surpass the purchaser in the selection of products. Purchasing managers in healthcare organisations, concerned with the decision making of products and suppliers, do have an eye for implementing cost reduction strategies in the supply chain. The purchasing department can however be limited in the decision making process, for example in the case of PPI's, were a physician might surpass them in authority and stand firm on a particular preferred product. To study what concrete problems the purchasing department faces, the research question examined will be:

What are the main challenges the purchasing department faces in the decision-making process in Dutch Hospitals?

The purchasing department has a strategic position in every business and in a hospital no less. From a purchasers perspective the influence of physicians in the procurement process can create bottlenecks to optimize and create efficiency in the supply chain. To solve the issues that a purchasing department in a hospital or other healthcare organisations might face, a comprehensive understanding of the underlying problems is necessary. This study can lead to a better understanding of the contemporary problems that are existent for the purchasing department in a healthcare organisation and how they affect the purchasers' work in practice. This also entails that employees working in the purchasing department are better aware of what challenges they might face. This research also contributes as a foundation for further research to solve the issues identified in the findings or to see if the problems differ among circumstances. With a better understanding of where problems arise for the purchasing department in a hospital. It can make it easier to study the possible solutions already implemented by hospitals or give better propositions on how to counter the challenges faced by purchasers.

In this qualitative study, that is a case study of interviews with seven purchasing managers and an employee of Medical Techniques (involved in the purchasing process) in three different hospitals, those problems are identified. Firstly, this paper provides an overview of the existing literature regarding purchasing in a healthcare environment and its known challenges. After this the Dutch healthcare system will be explained plus an overview of the purchasing process (applied in a healthcare environment) will be given. The next section is regarding the methodology used in this research. Following this the results of the interviews with the purchasing managers are presented and discussed and lastly a conclusion is provided.

2. LITERATURE REVIEW

In the past few years it has come to the attention of scholars that the costs in healthcare purchasing in most countries have risen drastically and will continue to do so in the coming years. It is identifiable that since 2017 more research has been done into the topic of healthcare purchasing and its flaws. Two topics widely discussed by scholars are the Physician Preference Items (PPI's) and physician engagement to enhance the performativity of the supply chain. Recent academic work both contributes to how physician involvement can improve supply chain performance (Kumar et al., 2018) but other work also identifies, and tries to solve the problem, of physician preference impeding supply chain performance. (Shbool and Rosetti, 2020)

Montgomery and Schneller (2007) were one of the first to broadly study PPI's and how to overcome the problems that PPI's create in supply chain optimisation efforts for purchasers. They investigated what efforts hospitals were making to solve the PPI's problem. Their findings mentioned that hospitals tried to implement standardising strategies for PPI's, for example by limiting the amount of suppliers to choose from or limiting the budget on certain product categories. In this study it is shown that the standardisation process has some barriers on the way but those are not unsolvable, physician engagement in the standardisation process and physician incentivising can be a plus.

Nyaga and Schneller (2018) have also investigated PPI's and how hospitals are tackling this challenge, to come up with suggestions and best practices. By interviewing employees involved in the PPI's purchasing process, two already used practises were found. Their first finding was in accordance with the previously mentioned research of Montgomery and Schneller (2007) namely that incentivising schemes that promote gainsharing between hospitals and medical staff can help in solving the PPI's problem. When physicians are benefitting themselves from cost efficiency they are more willing to switch to cheaper alternatives and more tempted to move away from his or her favoured product or supplier. Furthermore it was found that effective engagement of physicians in the purchasing process was key to gradually address physician preference. Although several practices were put in place they concluded as well that the Physician Preference Items challenge was still present and impeding the decision making process.

To further solve the issue of the PPI's problem Shbool and Rosetti (2017, 2020) came up with a decision-making framework for Physician Preference Items based on their costs weighed

against the perceived value of the product. They further improved the model and let it be evaluated by practitioners. The practitioners, in this case physicians and nurses, perceived the model as very useful however, it was also deemed potentially difficult and lengthy to implement. Research to why physicians have the preference they do for some products, the core of the PPI's problem, was researched by Burns et al. (2018). In his research it becomes known that physicians have little attention for costs in the purchasing process and their product preferences are not solely based on product quality. Their preference is partially based on familiarity with the product and habit.

In order to optimize the supply chain of healthcare organisations it is also researched if physician engagement can solve related challenges. It was already determined by The King's fund (2012) that organisations with overall more engaged clinicians and staff achieve better outcomes and experiences for the patients they serve. Kaissi (2014) builds on this to create recommendations on enhancing physician engagement in supply chain management. By analysing and summarising articles and reports Kaissi suggests three points to improve physician engagement. Developing clear and efficient communication channels with physicians, building trust, understanding, and respect with physicians and identifying and developing physician leaders are the proposed solutions. By Kumar et al. (2018) the physician engagement topic is approached in another way. They propose a model to better understand the role of physician engagement on organisational performance. With this model they want to examine if physician engagement enhances purchasing performance and expect it to have a significant result.

The research of Atilla et al. (2018) is focused on the supply chain manager/physician/salesperson relationship. By interviewing people in the work field they identified two recurring themes of problems that exist in the relationship between those three parties. The first problem is the experts resistance to change. The expert, in this case the physician, is very attached to the vendor or product that they are used to which means switching away from certain PPI's or suppliers can be a problem for physicians. Problem number two is the imbalance of relationship strength. Although supply managers and physicians are from the same organisation and share the same goals, their relationship is often weaker than that of the salesperson and the physician. This imbalance complicates negotiations and consequently cost reduction efforts become more difficult. To solve the first problem of the experts resistance to change Attila and al. (2018) suggest to communicate change as early as possible to everyone involved and to set up a multi-disciplinary committee to help in the decision making process. For the second problem, the imbalance of the relationship, it is suggested to promote more information transparency towards the physicians regarding PPI prices to persuade them to take a second look at the possible products and suppliers available.

Research in the field of challenges in purchasing at healthcare organisations is mostly centred around two topics: the problems that arise with PPI's, were products and suppliers are chosen by physicians on personal preference with little attention to costs and how to solve them. And secondly, if physician engagement in the purchasing process leads to better supply chain performance. Most research done on these topics is based on information and organisations from the United States and little to no research has been done on the challenges faced in Dutch healthcare organisations form a purchasing perspective and is a gap in existent literature.

2.1 The Dutch Healthcare System

The Dutch healthcare system is one of the best in the world but also a complex one. It is based on three principles, namely: access to healthcare for everyone, solidarity through a mandatory and easily accessible health insurance and good quality of the care provided. These principles are maintained by four laws that cover different kinds of healthcare. The health insurance law (Zorgverzekeringswet), the law for long lasting care (Wet langdurige zorg), the social support law (Wet maatschappelijke ondersteuning) and the youth law (Jeugdwet). The health insurance law covers the insurance that every citizen must have and thus ensures that everybody has the right to the same basic package of healthcare. This basic package contains short hospital stays, GP visits, some medication and much more. The law for long lasting care is for example focused on people that are in need of care every day or people that need constant medical supervision. The third law, the social support law, is there to ensure that municipalities support the mentally and physically disabled. The last more general law is the youth law. This law is about the municipalities concerning themselves with the well-being and growing up of the youth. (Rijksoverheid, 2016) Next to these four general laws there are also a number of more specific ones that and help shape the healthcare in the Netherlands.

There are three main actors in the Dutch healthcare system with the government as regulator and supervisor. In the following figure those actors and their interplay is displayed.

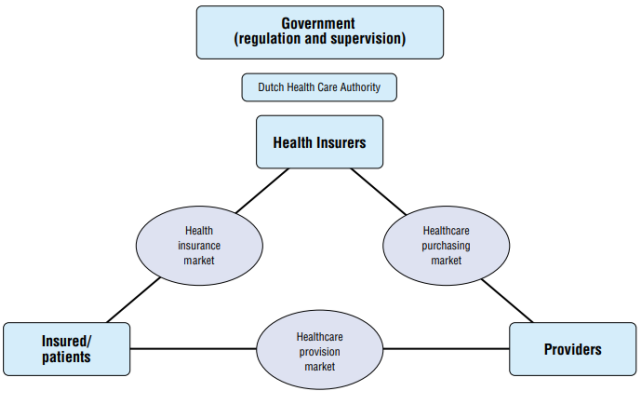

Figure 1: Actors and markets in the Dutch healthcare system since 2006 Source: Kroneman (2016), p. 24

The people in need of medical care or in possible future need of medical care insure themselves at healthcare insurers. Citizens can freely choose which insurer they will become customer of and what they want to have insured next to the basic healthcare package provided to everyone. They will pay the determined premium and, when necessary, a corresponding amount that is called "own risk" (eigen risico). The government is monitoring this process to make sure everything is going fairly and that solidarity is maintained. The health insurers in their turn contract and manage relationships with the by them selected healthcare providers (e. g., GP's and hospitals). This is the purchasing of care or Zorginkoop. (van Raaij, 2016) Those healthcare organisations, like hospitals, provide care to the people insured that are in need of medical attention. To do this the medical

organisations purchase supplies from tissues to MRI-scanners and from implants to needles. The procurement of this array of products is called purchasing for care or Inkoop voor de zorg. (van Raaij, 2016)

2.2 The Purchasing Process in Dutch Healthcare Organisations

To better grasp how purchasing in healthcare works and to see where there is physician involvement, a short overview of this process is given. A very clear understanding of the purchasing process is given by van Weele (2018) in the following model. (Figure 2)

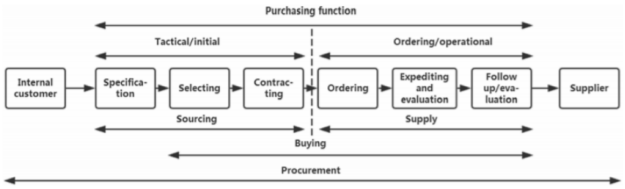

Figure 2: The purchasing process Source: van Weele (2018)

In the Dutch healthcare environment a slightly different model is in practice with a few alterations. NEVI (2011), a Dutch healthcare purchasing organisation, has described this process with six identifiable steps. The first step is specification, here it is written down what criteria the wanted product should meet. The physicians and other users have the desire for a new product so they are often the ones setting the requirements for the products and equipment. When the criteria are set the search and selection of suppliers can begin. This is a crucial step were the purchasing department can exercise their strategic value. However this is also the step where physicians can lever their expert power to get the supplier they are familiar or connected with. When the two desires of purchasers and physicians are clashing it complicates the selection procedure and the supply chain as a whole. When a desired supplier has been chosen the negotiations and contracting can start. The purchasing department is mainly responsible for this third step in the purchasing process. These first three steps are strategic purchasing and this is the most important part were supply chain optimisation and cost reduction efforts are the goals.

The ordering, guarding and aftercare (evaluation) of the products, the last three steps, are operational purchasing. (NEVI, 2011) These steps have a smaller strategical value in the supply chain performance but are important to ensure product delivery and information for next purchases.

3. METHODOLOGY

To examine the research question:

What are the main challenges the purchasing department faces in the decision-making process in Dutch Hospitals?

a case study research will be conducted. Seven purchasing managers and an employee from the Medical Techniques department who is heavily involved in the purchasing process, from three different hospitals in the Netherlands are interviewed to gather the necessary data. An overview follows of the respondents and in what context they made their statements written in the results.

Interviewee	Gender	Hospital	Years active	Position
1	M	A	4	Strategic Purchaser
2	F	A	10	Strategic Purchaser
3	M	A	10	Biomedical Engineer (Medical Techniques)
4	M	A	2	Strategic Purchaser
5	M	A	5	Strategic Purchaser
6	F	A	9	Strategic Purchaser
7	F	B	1	Strategic Purchaser
8	F	C	6	Strategic Purchaser

Table 1: Overview of the interviewees

Hospital A has a number of beds of around a 1.000, hospital B has around 700 beds and hospital C around 600 beds. All hospitals are larger city hospitals but none are academic.

The selection criteria for the chosen hospitals were that it has to have a surgery centre. This in connection with the investigation into Physician Preference Items and the possible challenges they pose in the decision-making process. PPI's are often surgical items of higher value and hence the choice to include only hospitals with a surgery centre. The chosen organisations were contacted by email to get in touch with purchasing managers who were potentially one of the interviewees. The most important criteria in selecting the purchasing managers who were interviewed was that they were a strategic purchaser. That entails that they are directly involved in the selection of the products and suppliers and strategic purchasers are dealing directly with physicians in the decision making process.

A questionnaire was developed with three blocks of questions. The first block contained more general questions regarding the purchasing process in the hospital, the actors involved and what products were bought by the organisation and the respondent. The second block were questions about the involvement of physicians in the purchasing process and the third block was more focussed on the purchasing department and its role. This last block also includes questions regarding the main challenges of purchasers and what can be done to solve the issues. These interviews took between 25 and 40 minutes and the period of data collection was May 13th 2022 until June 14th 2022. Two out the eight interviews were conducted online and the other six were held in person. All interviews were transcribed and coded to identify overlapping or contradicting themes. These themes that arose during this process are elaborated in the next sections.

4. RESULTS

To understand how purchasing is organised in Dutch hospitals and what challenges they encounter it is important to first know what the management structure of the hospitals look like. The interviewees revealed that most hospitals divide their complete business into more standalone pillars. These pillars comprise several departments, for example vascular surgery, thorax surgery or oncology. Every pillar has a business manager to control and supervise all departments that fall under their pillar. The head of a department, also called the head of the team or department manager, has a yearly predetermined purchasing budget for which they are responsible. They have to manage the budget in an efficient way and they decide whether money is spend or not and on which product. A purchasing manager assists a multitude of these departments in a commercial and juridical way but does not spend a single dime as they only support and facilitate. There are more advisory bodies to aid the head of a department in the purchasing process. A purchasing manager from hospital A shared this about the actors involved in the purchasing process:

With equipment, the Medical Techniques department is also involved, so the technicians. They are the ones that draw up the technical specifications the equipment has to comply with. There is always a user, so that is often a nurse and a physician, they say it has to comply with the functional specifications. They have to map out the user-friendliness and the like, what they like about it. And the project leader is often the department manager, we are more an advisory role so we are not the project leader. That is always the department manager, he is actually responsible for his department and it is his budget so he is always project leader.

It depends on what kind of product is bought, who is involved and what advisory bodies have to assist in the purchasing process. Medical Techniques is an advisory body mostly involved in with the purchasing of electrical devices ranging from a cheap finger-saturation meters up to an MRI-scanner worth millions. The role of Medical Techniques is described clearly by this purchasing manager from hospital A:

They have to make a program of requirements that the device has to comply with on a technical level. And they do come along with the entire process so also when a trail placement is done or the equipment is tested they are also involved. And when a choice has to be made, also because they have to indicate what supplier they like best on a technical level because maintenance has to be carried out, they are also involved in that.

When electrical equipment has to be connected to the hospital, the ICT department also has a voice in the selection process of suppliers and products. The chosen device has to be compatible with the hospital network and the product software must be usable. Next to Medical Techniques and ICT there sometimes is an expert medical device present when a product or device has to be sterile. So depending on what type of product is being purchased different actors have a say in what is bought.

As the budget is not in the hands of the purchasing department the role of purchasing in healthcare organisations is different from the corporate sector. A purchasing manager from hospital A describes what his role looks like in his hospital:

Actually, I don't buy anything at all, that sounds a bit stupid. I facilitate the hospital that they can buy. So the budget is with the department and I do arrange the meetings and the price agreements, in the end, I decide together with the specialist what he wants. And then we arrange that, but the real purchasing is basically done by an assistant.

Even though the purchasing managers are not responsible for the budget their role is to help the head of the department achieve cost savings and stay within budget. They facilitate the hospital to purchase products by negotiating with suppliers, contracting and juridical support. The role of purchasing manager has changed in the past few years from a light-weight position to a mature position that can even add value in strategic perspective. A purchasing manager of hospital B talks about the changed role of the purchasing department:

I think that purchasing used to be a bit of a neglected child in hospitals and I also think that a lot of people in the purchasing department have ended up there because they have been there for years and I think that the, call it new guard, might be something overdone. But that nowadays there are many more strategic buyers with an economic background. And purchasing is really a profession and I think previously it was believed purchasing can be done by anyone. People with a very different background than people who really had received education for this were put in that position and I think that it is completely different now.

Another purchasing manager from hospital A noticed the following change regarding the role of the purchasing department.

I don't know whether the Healthcare sector in particular is even more progressive but I think the purchasing role in general is getting more and more up to standard because people are becoming to realise that you can work really hard at the sales side. But, let's say, if you sell one euro more at the sales side you don't automatically have one euro more profit. All kinds of costs are deducted. But if you can buy one euro cheaper on the purchasing side, you simply have one euro more in your cash flow and that is now seen more and more. Apart from that, as a purchaser you are often a little bit like a spider in a web. You are often very capable of interfering with all kinds of processes with a sort of helicopter view.

The trend of more maturity for the purchasers role is identified by all interviewees. The purchasers did not gain more power necessarily but they are not overlooked or bypassed anymore. And together with the Medical Techniques and the other advisory bodies they have a strategic role in the purchasing process that makes sure that the purchasing power no longer belongs solely to the physicians or budget holder.

4.1 Theme #1: Physician preference is often not a complicating factor

In the last years in Dutch hospitals the purchasing department and other actors involved in the purchasing process have gained a more significant role in the purchasing process and this is at the expense of the power of the physician. Before this the physician, who is almost always the user of the product, was able to purchase what he or she liked based on quality but also on personal preference and familiarity with the product or supplier. The choice for products was not based on costs, partly because it was less necessary then it is now but also because a department like purchasing was not yet mature. So over the years the role of

the physician in the purchasing process has changed as well. At the moment the role of the physicians is still crucial as they are still the most qualified to see if products and equipment comply with the functional specifications and decide what is best for the patient. However they can no longer just order the one they find best personally. A purchasing manager from hospital A shares how the role of the physician in the purchasing process is at her hospital:

They must indicate very clearly and objectively what exactly they want from the device or the means. And then you always have to be careful that they do not specify, we would like an Opel, but we would like a means of transport to get from X to Y. So an objective specification is sometimes difficult. Brand independent or supplier independent. And they have to test in practice with trial placements whether it actually meets the requirements, if it meets the requirements on paper then we switch to trial placement and then they have to assess in practice whether something actually does what it should do.

The preference of a physician for a certain supplier or product still exists but it is less prominent than it used to be. And as it stands, physicians can no longer act and buy products on personal preference alone because of the procedures set up to guarantee this. Examples of these procedures and rules can be that the Medical Techniques department has to give an approval to use the product just like the ICT department. A purchaser always have to give his or her signature to approve a purchase and they are responsible for the relationship with the supplier and drawing up the contract.

The purchasing departments make use of a model to give grades to different suppliers to assess their quality based on assigned weighting factors to the features of the equipment or product. Costs are also included in the model and in this way a ranking emerges of the different suppliers available and the emotion of a physician is not taken into account. This model is not always decisive, that depends on whether the hospital has a tendering obligation or not. A hospital without a tendering obligation, a non-academic hospital, is not required to make the weighting factors they use in their models public and can deviate from its results in the purchase. For many hospitals the model is more a tool then an all-determining factor to ensure that the purchasing process is not solely based on cutting costs and efficiency. This purchasing manager from hospital A noticed the recent changes in the past years regarding the power of the physician and says:

A few barriers have been raised in the past, to put it simply. And that may also make it more bureaucratic, but it has ensured that the power that previously rested with the physicians to counteract it. This gives us better insight, which in turn leads to better choices.

As the power of the physicians in the purchasing process decreases the problem of backdoor selling, which was a bigger issue 10 to 15 years ago, was also reduced to a minimum. This problem arose because of the strong relation between a physician and a supplier or salesmen who meet at conventions or during assistance in the operating room with the equipment. The salesmen or representative of the supplier tried to win over the physician and sell his products to him via the “backdoor”. The purchasing department used to be bypassed here but with the more prominent presence of purchasers and the drawn up procedures this is no longer possible nowadays. Many interviewees know of the problem by hearsay or have experienced it once or twice. An employee of Medical Techniques from hospital A shares the scenario of backdoor selling in the hospital:

In such a way that we were sometimes confronted with medical equipment in the hospital that had not gone through the purchasing process at all. So that the supplier actually already came to the department with the device and actually left it there. But the laws and regulations surrounding medical equipment have become much stricter in recent years, much stricter. And it has come to mind now that that can no longer be the route, so that everything has to go through the regular process.

The well-crafted present-day purchasing process prevents these practices and physicians are becoming to realise this is not the way to make a purchase anymore. Every purchase has to go through a certain predetermined process and if it is not done that way the device or product cannot be used. The purchasing process as it is supposed to go is protected by the rules and procedures that have been drawn up in recent years. However, the strong relation between a physician and a supplier is still noticed by purchasers today and does still create a challenge once in a while. As sometimes a salesmen from suppliers try to extract information from the physician about the hospital or their purchasing position. This can make purchasing from that supplier harder when their salesmen has too much knowledge prior to the negotiations. This purchaser from hospital B describes whether the problem still exists:

I think that it depends on the distance you have from your specialists. If your supplier is closer to the physician than you are, it makes the relationship very difficult. I often try to enthuse specialists to work with me and that often works well. So if you involve them early and also show them what strategy you choose and include them in it, then yes, they often like it very much. They also play the game along, also when you invite them for a price negotiation. Also because that often when a doctor is present, the supplier becomes a bit more nervous. When I say that we are willing to switch, then not much happens but when the doctor says that we are willing to switch, then it is taken more seriously.

The tight relationship between a supplier and a physician is still an issue but can be reduced if a good relationship between a purchaser and a physician exists. This purchaser from hospital A shares that it can even be to their benefit:

It can also be a strength, it can also help you. I also sometimes got a bit stuck in a negotiation and then I knew one of those doctors, one of the cardiologists, who had a good relationship with that company, he spoke to them a lot. And then I did ask hey, I can't really work it out with them. I know there's more to it. … So I waited a little longer and then he (the cardiologist) will call, he will exert a little pressure from his role and then it turns out to be possible. … Sometimes we enter into a negotiation together with a doctor. Then a company comes here, I sit down with a doctor when they are here and then you start a conversation together. Yes, it also happens, you can also help each other.

The feeling that a the strong physician/supplier relation doesn't necessarily have to be a problem right away but also can work to your advantage is shared by several respondents. The role of purchasers in the selection process has become more present and the most relationships between the physician and the purchaser have also become stronger. This limits the threat of the tight

supplier/ physician relationship and the problem of backdoor selling.

The still ongoing trend of more diffused power in the purchasing process ensures that the physicians preference and Physician Preference Items are becoming less of a bottleneck in the supply chain of hospitals. Another trend that is identified by the interviewed purchasing managers is the higher awareness of purchasing costs by physicians. Physicians have become more cooperative and more open to dialogue about the purchase that is being made. A purchasing manager from hospital B describes this phenomenon of more cost awareness:

They are very aware of that with us. So if there are large price differences, they will be one of the first to really take a critical look at the quality of the product, but that depends on the relationship that exist between the purchasing department and the doctors. And if you are close to the physician, those conversations are easier to have. And maybe even if you try to focus less on the content, they often bring it up faster themselves. So I often make that visible and then they come up with it themselves: hey, that's a very surprising price difference, how is that possible? And, the product that I thought was the best may not be if you look at the price difference. In any case, they are very cooperative in this.

This increased cost awareness can be due to a higher pressure on reducing costs from the organisation itself but also due to the better relationship between most purchasers and physicians. When purchasers have a better relationship with the physician it is easier for them to have the conversation regarding what product to buy and has more change of aligning interests of both parties. A purchasing manager form hospital C describes what changed in the relation between a physician and a purchaser:

There is a conversation now, there is always a conversation and they, like us, cannot do it alone. They also realize that they can no longer do this alone. … So what has really changed is that the conversation is always there. Does not imply that there will be no clashes from time to time. It does happen, but it does happen in a conversation. So I definitely see steps in that.

4.2 Theme #2: Current challenges are mostly external factors

Physician Preference Items are not the main issue causing troubles in the purchasing process anymore. However great challenges that can cause long-lasting problems are putting pressure on the purchasing department. Their task to assist the head of the department in staying within budget is becoming more and more critical.

External pressures like a scarcity of computer chips, a growing deficiency of plastic and other raw materials, a war in Ukraine and a recent global pandemic are driving up costs and lowering product availability. A purchasing manager from hospital A talks about what is most difficult and how it affects their work:

Yes, at the moment we are facing a shortage of raw materials, so we have a lot of back orders, so suppliers cannot deliver. That's just because of corona, war in Ukraine, there is a huge shortage of chips from raw materials. So delivery times of medical equipment is really going through the roof.

These external developments in the world are making it more difficult for purchasers and the departments to stay within the predetermined budget. Another reason why sticking to the budget is becoming more challenging is the availability and delivery times of medical equipment. When having the product in stock is suddenly no longer self-evident, costs are not the most important factor anymore. Were in the recent years purchasers have tried to go from multiple sourcing to single sourcing to cut costs, the recently perceived trend is going the other way around to ensure the delivery of the equipment that is needed. But as the budget is set a year ago it does not keep up with the recent drastic price changes. The budget is determined every year by negotiation between hospitals and health insurers and is not flexible or resistant to these price increases. A purchasing manager from hospital A explains how dealing with the price increases works in practice:

And you often have to absorb those price increases yourself because at the end of the year you make agreements with your health insurer about the reimbursements you will receive per procedure. So suppose you get 10.000 euros for a transaction, just to name something, and your purchasing side cost 2.000 euros, but it then suddenly costs 3.000 euros, that 1.000 euros extra, you cannot deposit it with the health insurer. You only get it the following year if you negotiate well. That is a complex mechanism.

Another external factor that is troubling purchasers is that the amount of (small) suppliers is shrinking and only the big world-wide suppliers are remaining. Because of stricter regulations regarding entry to the medical market it becomes harder and harder for new firms to enter the market for medical products and also to stay there. A purchasing manager from hospital A describes the situation:

Yes, they can no longer afford the certification. If you supply products to the market, to the medical world. Then you must meet medical certifications. And if I have understood correctly, for example, that if you want to put one product on the market, that alone costs I think. A certificate already costs half a million euros or something like that. And then you've been doing preliminary research for years. Before you can even put anything on the market. For example, the Dutch market for knees and then the Netherlands is especially strict. For example, if you decide to put a new type of knee on the market. So it may look like that one from the competitor but you're going to do a new type of knee. You must first study for 15 years before you can commercialize that product at all, 15 years of study.

In 2021 new regulations concerning medical equipment were drawn up like the MDR, Medical Device Regulation. This is to guarantee that medical equipment, newly developed but also equipment from years ago, meet more specific quality and safety requirements before they can get a certification. The obvious thought behind this is the improvement of the quality and safety of the care for patients which is a logical step. However it impedes the entry of new product variants and new suppliers to the medical market. When there are only a few big world-wide suppliers left it becomes more difficult for a Dutch hospital to negotiate a good price. A purchaser from hospital A describes how the trend affects purchasing:

It makes fewer options but also less negotiable in price. You get that naturally. If the suppliers know that there are only a few players, they can increase the price. And some suppliers know that too, so *they take advantage of you.*

These challenges from outside the organisation are to be dealt with by purchasing in the best possible way. A purchasing department cannot change the factors causing the problems but they can try to manage the supply chain and make sure they have alternatives ready in case delivery problems arise. Now that the focus is increasingly on availability and costs the purchasing department will become more to the fore. A purchasing manager from hospital C talks about how to deal with the external pressures as a purchaser:

So I think we should have a much better understanding of what's going on in the supply chain. Making different choices, not just single sourcing. Were the focus once was on as cheaply as possible, we now have to ensure that the products actually arrive. Of course at favourable conditions that we draw up well, and then relationships with the suppliers is very important.

As the external pressures were mostly recent developments many respondents found it hard to already name concrete solutions and practices to solve these problems.

5. DISCUSSION

In the results of the interviews it came to show that PPI's and strong physician preference complicating the decision making process are problems of the past. The way a Dutch hospital is organised and managed in the present time is ensuring a fair and uniform purchasing process. Although purchasing is merely an advisory body in the purchasing process they are no longer overlooked and the purchasing department is able to really add value to the organisation. Also because of a trend in the recent years were the focus came to be more on cost efficiency, purchasing was being considered more valuable and even strategic. Recent literature proved that physicians had strong preference over a certain product or supplier based on habit and personal preference (Burns et al., 2018) and it is confirmed by the respondents that this was a very present challenge 10 to 15 years ago. However it is not causing problems anymore in today's purchasing process in Dutch hospitals.

Where the power in the selection process used to be with the Physicians, it is now dispersed among multiple actors like purchasing, who all have a say in what supplier and product is chosen. This makes the purchasing process more complex but leads to better choices for the organisation as a whole while still putting the patient first. The problem of physician preference complicating the purchasing process only becomes a problem if a hospital is organised in such a way that a physician can give a strong preference. And due to the recent changes in procedures, drawn up rules and advisory commissions the problem slowly faded away. Those regulations and barriers for the physician within the organisation have made the purchasing process more bureaucratic. However it might just be necessary considering the amount of actors involved in the process that all have a say in the selection process.

Shbool and Rosetti (2020) had developed a model to assist in choosing a product or supplier based solely on quality and costs and rule out the emotion of the physician. This type of model, or a similar one, is used in Dutch hospitals and is useful to get a more objective decision making process based on numbers and quality instead of a physicians personal preference. This tool and other procedures also helped transform the purchasing department from a more operational position to a mature and value-adding department. The research done by Shbool and Rosetti (2017, 2020) and their expectations that these types of models will help in decreasing the PPI problem is in accordance with the results from the interviews.

Another effect of the redesigned purchasing process with less power for the physician is the reducing of the backdoor selling problem. Here the physician contracted the supplier without consultation with others. This would result in equipment arriving in a hospital without purchasing or Medical Techniques knowing about the purchase. Atilla et al. (2018) had discovered an imbalance in the relationships of physicians with the supplier and physician with the purchaser and that this could lead to problems in the purchasing process like backdoor selling. Multiple respondents could relate to this problem, but they also mentioned that if you involve a physician in the purchasing process and you if have a good relationship with the physician you can help each other and get the best product against the best conditions. This is in line with the previously mentioned literature that suggested that a close cooperation between physician and purchaser is critical for cost reduction. The imbalance that once existed between the relationship of physician, suppliers and purchasers is more corrected and that pays off in the decision making process.

As most purchasers gained a more prominent role in the organisation and in the purchasing process over the last years they interacted much more with each other and the relationships grew stronger. As the relationship becomes closer the friction disappears and it was noticed by the interviewees that physician have become much more cooperative in the purchasing process. Kaissi (2014) studied how to improve physician engagement in the purchasing process and came to the conclusion it would need clear communications channels, trust and a physician leader. The physician leader, suggested by Kaissi (2014) is in place in Dutch hospitals in the form of a department manager who holds the budget. As indicated, physicians and purchasers have better communication and more trust nowadays which in turn leads to a smoother purchasing process.

Atilla et al. (2018) had a second finding namely the experts' resistance to change. Here the physicians were noticed to be reluctant to switch away from their preferred supplier or product, which is the core issue of the PPI problem in the purchasing process. To solve this problem two suggestions were made namely, the early on communication of change to all actors involved, for example when a change has to be made regarding products or suppliers. The second suggestion was to set up a multi-disciplinary committee to oversee the decision making process. These suggestions are in accordance with how Dutch hospitals and purchasers have tackled the physician preference problems. As described by every respondent multiple committees or departments are involved in the decision making process and the power is dispersed. All actors have a say in the decision making process and they monitor each other to keep a balance in all interests that exist. Although it is not one multi-disciplinary committee to control and manage the decision making process, as suggested by Atilla et al. (2018), the power is no longer with one person or department. Many purchasers are trying to build the relationship with the physicians they do purchasing with and involve them as early on as possible in the process to align preferences. This is in line with the second suggestion made by Atilla et al. (2018) to communicate change early to all stakeholders.

Montgomery and Schneller (2007) suggested, and Nyaga and Schneller (2018) found the use of incentivising schemes to be effective in solving the PPI's problem. If you create gainsharing schemes to make physicians benefit from cost reduction in the purchasing process it can reduce the PPI's problem. These kind of incentivising schemes are not used in the studied hospitals and it is thus not an absolute requirement to be able to decrease the physician preference problem. It can however still be useful for other organisations who tackle the problem differently. The previously mentioned studies also found physician engagement is necessary to solve the challenges PPI's imposed on purchasers. As mentioned before, the cooperation between physician and purchaser is becoming better and better and with the conversations that are more often held in the purchasing process the process runs more smoothly. It also makes it easier for a purchaser to convince the physicians to switch suppliers or compromise in the decision making process. With a more prominent role for the purchasing department the physicians are also more prone to listen to purchasers instead of trying to get around them

As the physician preference in the decision making process is no longer the troubling issue, other factors must be causing the rise in purchasing costs. These factors are not yet found in literature as they concern recent changes in the world as a war in Ukraine, a scarcity of raw materials and computer chips and a global pandemic. Because of this, the challenge to make sure the equipment is available in the hospital becomes even bigger for the purchasing department. Cost reduction then comes second after availability as it is crucial the necessary equipment arrives in the hospital. Another recent change is the legislation around medical equipment that has become much stricter in 2021. As a result, the number of suppliers and the number of variants of a product are decreasing strongly. So as purchasers are looking for more and more alternatives to be sure of products being delivered to them the number of alternatives is decreasing. These external factors are not for a purchasing department to solve but they do face the consequences.

6. CONCLUSION

In a society and healthcare system were the costs are rising year after year it is important to know the underlying factors causing the cost increases. The issue of PPI's, a product were a physician has a personal preference for, causes troubles in the purchasing process and complicates cost reduction efforts. In literature this issue has been established and some possible solutions were given. During interviews with purchasing managers it came to light that over the past few years the hospitals were organised and managed in such a way that physician preference no longer really complicates the purchasing process. The changes made by Dutch hospitals and purchasers to decrease the PPI problem are in accordance with the suggested solutions in earlier literature. As noticed by the purchasing managers the problem of PPI's did really exist before, when rules and procedures that are now in place had not yet been implemented. The purchasing department has gotten a more significant role in hospitals and the decision making power that previously rested with the physician is now spread out among the actors in the purchasing process. As now the challenge of the physician preference is out of the way other challenges are causing the increase in costs. External factors like a scarcity of raw materials and computer chips and a war in Ukraine are big challenges. But also regulations like, stricter entry requirements for new suppliers and a difficulty for smaller suppliers to get certifications. In these conditions it is a more important challenge to ensure that the products are available and arrive in the hospitals than to stay within budget. In the upcoming years, the role of purchaser can become even more crucial.

The main implications of this research is to support purchasing managers to make better decisions, since it can pay off to involve a physician early on in the purchasing process. And also that if you provide a good insight into the different options in terms of suppliers and products regarding perceived quality and costs, the physicians often already will cooperate in cost reduction efforts. It can also help business managers in other hospitals that are still trying to solve the physician preference problem as they can take an example of the organisation structure or regulations regarding the purchasing process of the researched hospitals.

The results that are found can be based on the characteristics of the hospitals, country or healthcare system that the respondents were in. It can be that in different countries with different organisation styles or healthcare systems the problem of physician preference is still present. Or that in smaller regional hospitals in the Netherlands, who did not yet have to deal with cost reduction are more old fashioned and physicians still have more power. Another limitation is the number of respondents, with a higher number of interviewees, with potentially a different background, it is more likely to put more possible challenges to light.

The potential differences in the challenges in the purchasing process between hospital size, management structure, healthcare systems or countries can be researched as follow-up on this study's findings. As the purchasing manager from hospital C put forward in her interview as well it would be interesting to see if the same problems are existent in academic hospitals or in smaller regional hospitals. A possible research question to examine this can be:

Does the size of a hospital matter in what challenges a purchaser faces in the decision making process?

In this way it is also possible to research if other circumstances for example different countries or healthcare systems create different of similar challenges. Another research possibility is to approach this study from the physicians' perspective. Here the view of the physicians on the evolved purchasing process is determined to identify the problems they face in the purchasing process. A research question to study this can be:

What are the main challenges a physician faces in the decision making phase in the purchasing process?

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Appendix 1: Interview Guideline and Questions

Interviews Purchasing Managers

Opening of the interview

- Thanking the respondent and telling them about the research and how the interview will be conducted.
- Talking about the anonymity of the respondent.
- Asking if the interview can be recorded ?(only audio)
- Asking the respondents if they have any questions for me and telling them that if questions come up they need to feel free to ask them anytime.

Interview Questions

1. What types of medical supplies does your organization purchase, and what types of products do you purchase?
2. Could you describe the procurement process, please ?
3. Who is involved in the acquisition of medical supplies?

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4. Please, describe the role of the physicians in the procurement process
5. Are the physicians free to choose the brands of the medical supplies (especially prothesis and expensive items) ?
6. Do the physicians collaborate to contain costs in the purchasing department ? Could you explain, please.

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7. Is the purchasing department totally empowered to make its own decisions ? Please, explain.
8. Is the purchasing department seen as having a strategy role in your organization by others departments?
9. Do you think that the purchasing department role has changed over the past few years in terms of importance and decision making centralization ?
10. What are the main challenges faced by the purchasing department in the decision making process ?
11. How could these challenges be reduced ?
12. How do you think that the purchasing department could be further empowered ?

Appendix 2: Interview Transcripts

Not available