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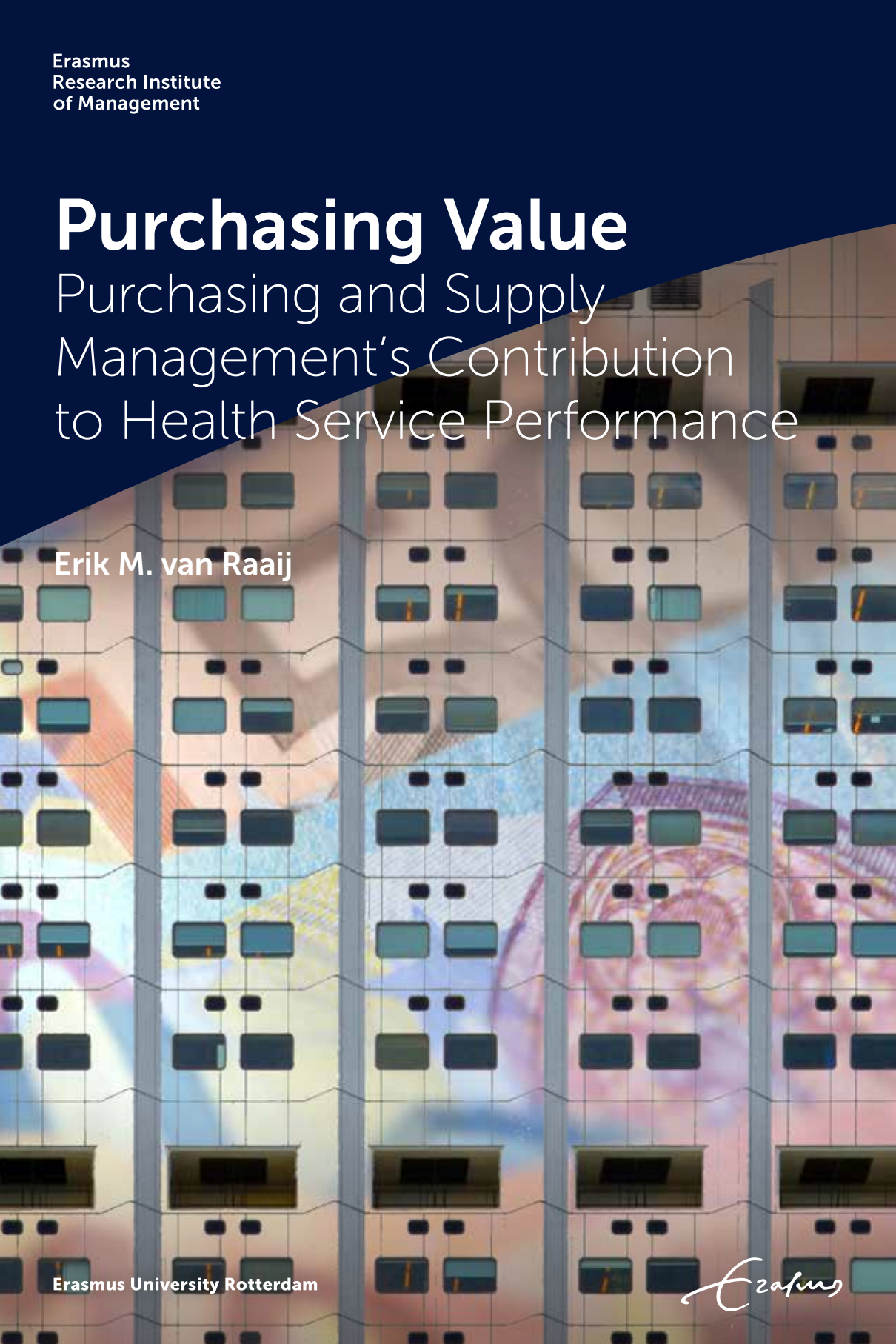
Purchasing Value

Purchasing and Supply Management's Contribution to Health Service Performance

Erik M. van Raaij



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Purchasing and Supply Management's Contribution to Health Service Performance

Prof. dr. Erik M. van Raaij

Address delivered at the occasion of accepting the appointment of endowed professor of Purchasing & Supply Management in Healthcare on behalf of the Vereniging Trustfonds, Erasmus University Rotterdam, at Rotterdam School of Management and the institute of Health Policy & Management, Erasmus University, on Friday, 14 October 2016.

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Samenvatting

Veel landen in de wereld kampen met de uitdaging van stijgende zorgkosten, die vaak harder stijgen dan het BNP of het besteedbaar inkomen. In een poging de zorgkosten te beheersen, maar ook om kwaliteit en toegankelijkheid te bevorderen, hebben overheden een splitsing tussen inkoop en levering van zorg in het zorgsysteem ingevoerd. Financiers van de zorg (zoals lokale overheden, werkgevers, zorgverzekeraars) vervullen de rol van zorginkopers; zij selecteren zorgaanbieders, contracteren zorgaanbieders en beheren inkooprelaties met gecontracteerde aanbieders. Dit is wat ik inkoop van zorg noem. Tegelijkertijd vindt er ook inkoop voor de zorg plaats. Zorgaanbieders, zoals ziekenhuizen, klinieken, huisartsen, moeten ook leveranciers van medische en niet-medische goederen en diensten selecteren, contracteren en relaties met deze leveranciers beheren. Beide soorten inkoop- en leveranciersmanagement in de zorg moeten professioneel geschieden om de financiële houdbaarheid van de zorgsector te waarborgen. Ik betoog dat een hoog volwassenheidsniveau van inkoop noodzakelijk is, met name bij inkoop van zorg. Inkoop met hoge volwassenheid start met het perspectief van de eindgebruiker; in de zorg is dat de patiënt. Inkoop van zorg en inkoop voor de zorg moeten beiden gericht zijn op het bereiken van de beste waarde voor de patiënt, met andere woorden, de best mogelijke uitkomsten per bestede euro. Inkoop en leveranciersmanagement in de zorg moet zich ontwikkelen van een **"zero-sum game"** met weinig vertrouwen naar een **"positive-sum game"** met optimaal vertrouwen, waarbij inkopers erop gericht zijn samen met partner-leveranciers waarde voor de patiënt te realiseren tegen de best mogelijke condities.

Abstract

Many countries across the globe face the challenge of increasing healthcare costs, often increasing faster than GDP or personal income. In an effort to manage these costs, but also to improve the quality and accessibility of healthcare, governments have introduced a purchaser-provider split in the healthcare system. Healthcare financers, such as local governments, employers and health insurers exercise the role of healthcare purchasers. They select and contract providers, and manage buyer-supplier relationships with contracted providers. This is what I call purchasing of care. At the same time, purchasing for care takes place. Healthcare providers, such as hospitals, clinics and family doctors select and contract suppliers of clinical and non-clinical goods and services, and manage relationships with these suppliers. Both types of purchasing and supply management in healthcare need to be executed professionally, in order for a healthcare system to remain financially sustainable. I argue that a high level of purchasing maturity is needed, especially in purchasing of care. High-maturity purchasing starts from the perspective of the end customer, which is the patient in the healthcare sector. Purchasing of care and purchasing for care should both be oriented towards achieving the best value for the patient, which means the best possible health outcomes per euro spent. Purchasing and supply management in healthcare needs to develop from a low trust zero-sum game to an optimal trust positive-sum game with purchasers aiming to realise patient value with supplier-partners under the most favourable conditions.

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1. Introduction

Dear Rector Magnificus,
Dear board members of the Vereniging Trustfonds,
Dear dean of Rotterdam School of Management,
Dear vice-dean of the institute of Health Policy & Management,
Dear colleagues and students,
Dear family and friends,
Dear distinguished guests,

The health sector forms a large and growing part of GDP across the globe. Financers, such as national and local governments and insurers, face the challenge of using these ever increasing budgets to purchase high-quality health services and meet the demands of their populations. In many countries, healthcare spending is growing at a faster rate than GDP or household disposable income[1] (Figure 1). When we take the Netherlands as an example, healthcare spending exceeds our collective spending on defence, education, police and infrastructure together[2].

Many wonder whether the Dutch healthcare system is financially sustainable in the long run, and many question the benefits of ten years of healthcare as a regulated market system. In 2006, a purchaser-provider split was introduced in the Netherlands, with the aim to improve quality, accessibility and affordability of healthcare. Following recent

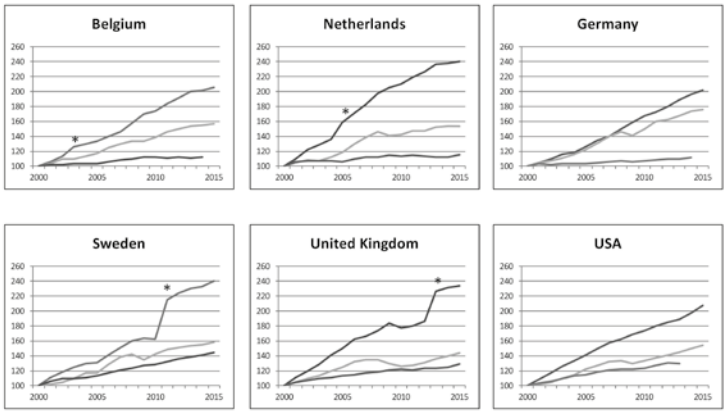

Figure 1: Indexed growth of health spending (highest), GDP (middle), and household disposable income (lowest line) for selected countries (based on OECD figures of 2016; * denotes break in data collection or measurement method)

1 www.oecd.org
2 www.rijksbegroting.nl

reforms in healthcare and social care, municipalities and health insurers are responsible for purchasing care with an annual value of approximately 80 billion euros. How this money is actually distributed among providers of care is determined by purchasing policies and processes, and ultimately by the behaviours of purchasing professionals (although they may not always refer to themselves as purchasers). The contracted providers, in turn, spend part of their budget again on purchasing. This determines in part to what extent these care providers are financially healthy or not. My research is motivated by questions related to how these purchasers behave, what policies and procedures they follow, and what their purchasing behaviour ultimately means for the quality of the goods and services they purchase.

The main title of this inaugural address is "Purchasing Value". This title can be read and understood in two different ways. First, it can refer to the purchasing of value. This relates to the question if and how a purchasing process leads to selecting the most valuable alternative. Second, the title can refer to the value of purchasing. This relates to the question if and how the purchasing function is of value to its stakeholders. The relationship between the two different meanings is clear: a purchasing function is most valuable to its stakeholders if it selects providers and products that create the best value.

2. Purchasing and supply management (PSM)

Before we continue, it is important to define the term purchasing. In the subtitle of this paper, I use the term purchasing and supply management. I actually prefer this term to just purchasing. Purchasing and supply management, often abbreviated as PSM, refers to a business process, or in other words, a set of activities. It refers to the activities organisations engage in to ensure that the goods and services they need from their suppliers are available at the right time, in the right place, of the right quality, and at acceptable cost. Without the supply of such goods and services, the buying organisation may be forced to halt its production processes and fail to achieve its mission. Take as an example Volkswagen, who had to halt production in six factories this August because of a contract dispute with a Bosnian supplier[3].

In my teaching I use a definition of purchasing and supply management which builds on definitions provided by Van Weele (2010) and Wynstra (2006). The need for an adapted definition arises from the fact that in healthcare, the purchaser of health services often does not acquire the services for its own use. I thus define purchasing and supply management as:

"The design, initiation, control and evaluation of activities within and between organisations aimed at securing inputs from suppliers at the most favourable conditions."

Some view purchasing as a purely operational process, such as placing and managing orders, as just selecting suppliers, or as running a tendering procedure. Such views of purchasing do not do justice to the scope of purchasing. As a field of academic study, and therefore also as the object of study of this endowed chair, purchasing and supply management encompasses strategic, tactical and operational processes. In a recent review of purchasing process models, one of my Master students identified 35 different models that describe the activities that make up purchasing and supply management (Chen, 2016).

I have tried to capture the most important purchasing and supply management activities in one picture, based on the results of Chen's study (Figure 2). Any former students in the room today will recognise that this is a further development of the model I have thus far used in my courses Purchasing & Supply Management and Healthcare Procurement & Value Chain Management.

3 See http://www.bloomberg.com/news/articles/2016-08-22/vw-restarts-talks-as-supplier-feud-expands-to-golf-production

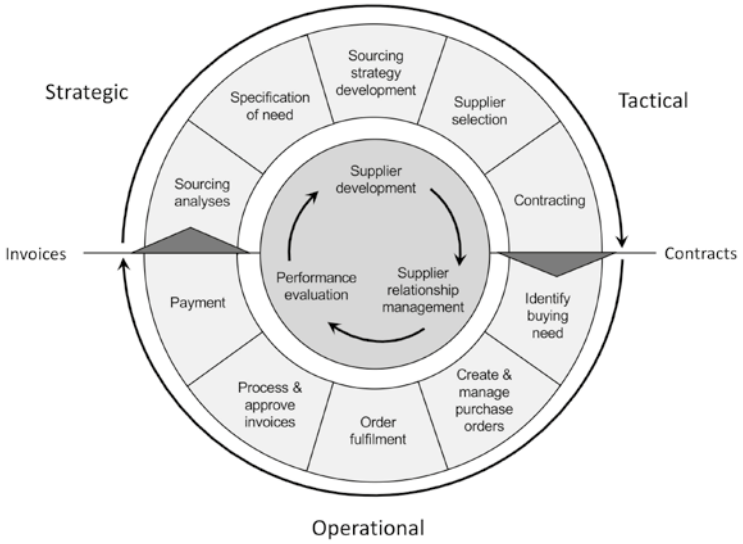

Figure 2: PSM process wheel

Using the term purchasing and supply management instead of just purchasing better captures the total set of strategic, tactical and operational activities, given that some scholars associate "purchasing" with more operational processes and "supply management" with more strategic processes (cf. Burt et al., 2003; Cousins et al., 2008). The development of purchasing and supply management from a clerical to a strategic function has been well documented elsewhere (e.g., Rozemeijer, 2009; Van Weele, 2010). My main message here is that purchasing and supply management is of strategic importance, includes activities within and between organisations, and covers a full range of (strategic) analysis, strategy development, supplier selection, order management, and supplier relationship management activities.

My chair is about purchasing and supply management in healthcare. Why take a specific look at PSM in the healthcare sector? PSM in the healthcare sector is in part very similar to PSM elsewhere, and in part very special. There are basically two quite distinct areas of purchasing and supply management in healthcare. I have termed these **purchasing of care and purchasing for care**[4] (see Figure 3).

4 Note that I use purchasing here, as well as later in this text, as short-hand for purchasing and supply management.

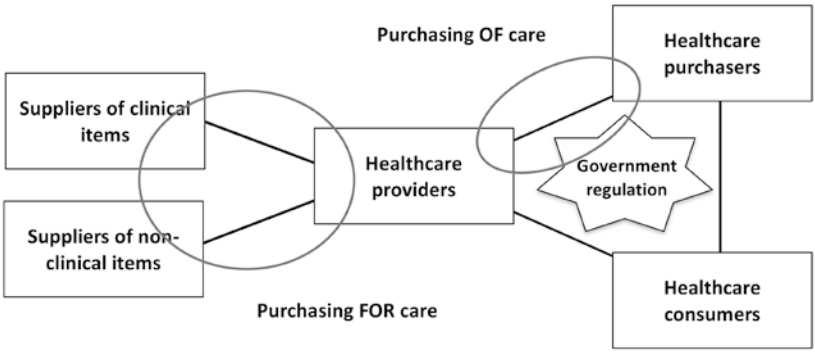

Figure 3: PSM in healthcare = purchasing for care + purchasing of care

Purchasing of care refers to the process through which healthcare financers (e.g. health insurers) select, contract and manage relationships with healthcare providers (e.g. hospitals and GPs). This type of purchasing and supply management in healthcare takes place in countries with a purchaser-provider split (Figueras et al., 2005). In the Netherlands, this is the process we call **zorginkoop**. Purchasing for care refers to the process through which healthcare providers select, contract and manage relationships with suppliers of clinical and non-clinical inputs. As an example think of the Erasmus Medical Centre (pictured on the cover of this inaugural address booklet) purchasing hospital beds or cancer drugs.

While purchasing of care and purchasing for care could be studied separately, there are good reasons to study the two areas together. First of all, an integrated approach enables a supply chain, or rather, a supply network perspective on value creation in healthcare, including patients, financers, health service providers, suppliers of clinical and non-clinical inputs and government (cf. Allen et al., 2009; Sanderson et al., 2015). This creates opportunities for optimisation along the supply network. Second, the supply network is becoming more integrated in practice. Suppliers of medical technology are developing propositions for care financers, and financers are involved in negotiations with suppliers of, for instance, pharmaceuticals.

Now that I have defined purchasing, or rather purchasing and supply management, I turn to the concept of value.

3. What is value?

In this inaugural lecture, I would like to set out a path to study how value can be purchased in healthcare, such that purchasing creates value in healthcare. But first, we need to define the concept of value. I build on my own background in marketing management (see for instance Stoelhorst & Van Raaij, 2004), also taking into account how others, such as Van de Klundert (2009), treat the value concept in healthcare.

The most straightforward definition of value is benefits divided by costs. Decision-makers can evaluate alternatives by comparing the benefits of each alternative and the costs of each alternative. Three important issues need to be raised. First, that value is in the eye of the beholder: it is the decision-maker's (subjective) assessment of benefits and costs that determines the perceived value of an alternative. Second, that costs include monetary and non-monetary costs, including efforts, (waiting) time, anxiety and stress. This variable is therefore also often labelled "sacrifices". And third, that benefits includes notions like quality, outcomes, and satisfaction of needs (cf. Lindgreen & Wynstra, 2005).

The value of an alternative course of action increases if benefits increase against similar or lower cost, or if costs decrease for the same, or improved benefits.

Since value is in the eye of the beholder, stakeholders may assess the value of a certain alternative differently. It is thus important to evaluate alternatives from the perspectives of the various stakeholders (Yong et al., 2010). Purchasing is about making decisions about what inputs to secure, from which suppliers, and at which conditions. In a purchasing situation, typical stakeholders include the user of the product, the financer, the purchaser and the supplier/provider. Other actors, such as the government or the public, may be stakeholders as well in certain purchasing situations. In purchasing of care, stakeholders include the healthcare provider, physicians employed by the provider, patients, the healthcare financer, politicians and the public. In purchasing for care, for instance, purchasing a certain type of pacemaker, stakeholders include the physician, hospital management, the purchaser, the patient and the insurer.

When assessing value, it is also important to distinguish between the short-term and the long-term value of purchasing decisions. Certain courses of action may increase value in the short-term, but decrease value in the long-term. Bundling volumes with one supplier may lead to price reductions in the short run, but to loss of competitiveness in a supply market in the long run. Certain courses of action, such as limiting access to expensive experimental treatments, may increase value for one stakeholder (e.g. the public), but destroy value for another stakeholder (a specific patient).

If we want to assess the relative value of purchasing alternatives in healthcare, we need to assess the benefits and costs of these alternatives, both in the short-term and the long-term, for different stakeholders, including consumers affected as patients/clients, professionals such as physicians, nurses and other caregivers, provider organisations and their management, financers/funders of care, politicians, and the public (e.g. as tax payers).

The assessment of value is subjective and driven by the values of the particular stakeholder. Such values could include autonomy for medical professionals, solidarity for the public, small government for politicians, and best possible care for a patient.

Value is a hot currency today in healthcare. Michael Porter, with colleagues, drives an agenda for value-based healthcare (VBHC) (Porter, 2009; Porter, 2010; Porter & Kaplan, 2016). This concept built around health outcome measures has been adopted in various countries and by various actors in the healthcare sector, including our own Erasmus Medical Centre[5]. The Centers for Medicare and Medicaid Services (CMS) in the US is promoting hospital value-based purchasing (HVBP), a program in which hospital are rewarded for quality, not just quantity (VanLare & Conway, 2012). The Affordable Care Act, colloquially knowns as Obamacare, also promotes value-based insurance design (VBID) in healthcare (Chernew et al., 2007). This is about benefit plans that incentivise consumers to make cost-effective health choices. In other words, value is used in healthcare today to denote concepts and designs that emphasise health outcomes for patients, quality in combination with quantity, and cost-effective choices.

5 http://www.erasmusmc.nl/perskamer/archief/2015/5134636/?lang=en

4. Purchasing for care

Let me now focus first on purchasing for care. How much healthcare organisations spend on clinical and non-clinical inputs – as a percentage of total costs – depends on the type of organisation. Pharmacies, similar to retailers, have a very high purchasing ratio (75% or higher). Dutch hospitals have a typical purchasing ratio of 30% to 40%. Analyses of annual reports by the Dutch GPO Intrakoop[6] show that organisations in social and mental care have typical purchasing ratios of 20% to 25%. Finally, smaller practices like GP practices and dentists have purchasing ratios closer to 10%, with personnel costs accounting for the vast majority of their budgets.

Lichtenberger et al. (2010) claim that in many countries, purchasing costs of hospitals are growing faster than personnel costs. Signals about the degree to which purchasing for care receives attention from the boards of Dutch provider organisations are mixed. On the one hand, there is a very active community of purchasers in the healthcare sector that participate in conferences and other meetings organised by the Dutch professional purchasing association NEVI and its sub-chapter NEVI Zorg. On the other hand, there are signals that the savings potential for purchasing is not always recognised, and that reorganisations and personnel lay-offs are the first remedies of choice when healthcare organisations are under financial pressure.

One of the most important themes in purchasing for care is the role of the medical professional in the purchasing process. Historically, the medical professional has had a big influence on the selection of suppliers and brands, with suppliers rather than the purchasing function influencing the purchasing process through the medical professional. It is telling that Lichtenberger et al. (2010) identify four classes of hospital purchases: capital expenditure, basic indirects, low-preference clinical products, and high-preference clinical products. The distinction between low-preference and high-preference is not common in other industries, and refers to the extent to which medical professionals have preferences for certain brands. Preferences for certain products/brands are often established during medical training, and reinforced through supplier visits, free product samples (e.g. for research) and sponsorships. However, many countries, including the Netherlands, have increased the transparency of physician-supplier relationships, and have restricted financial ties (e.g. via consultant positions).

Purchasing for care takes place in a tetradic force field, consisting of the supplier, the user, the purchaser, and the board of management of the provider organisation (Figure 4). The patient is an important stakeholder, but rarely has influence on the product that is being purchased. For each type of product, and for each medical professional in a given provider organisation, a power analysis of these ties may lead to a different picture. In order for purchasing to be meaningfully involved, with the capacity to design, initiate,

6 www.intrakoop.nl

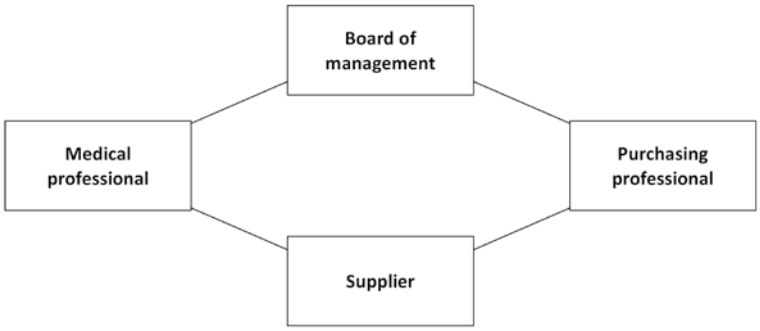

Figure 4: The purchasing tetrad for care

control and evaluate the purchasing activities in order to create maximum value, it needs to understand, and if possible manage this network of stakeholders.

All stakeholders should be oriented towards purchasing (and supplying) the product that creates maximum value for the patient. The product should help to attain the best possible health outcomes for the patient. Other values that may be at play are the board's wish to work efficiently and sustainably, the professional's wish to work with products he or she can use safely and confidently, and the purchaser's wish to buy the product at the most favourable conditions, e.g. from a preferred supplier with lower transaction costs. In an ideal situation, the ties between the board and the professional and the board and purchasing are of equal strength. Moreover, purchasing has a relationship of mutual respect with the medical professional, and works in cross-functional teams with the medical professional where appropriate. Finally, the supplier discusses commercial aspects with purchasing and content issues with the professional, or this supplier relationship is mostly with the aforementioned cross-functional team.

However, in practice the situation may be different. The board may be inclined to listen more to the medical professional than to purchasing. The relationship between professionals and purchasing may be one of conflict and competition. And the supplier may be very good at building relationships with health professionals, but may ignore the role of purchasing. This creates a situation conducive to supplier-induced demand, with potentially few checks and balances on how the provider's budget is spent. Recent research shows that the employment situation of medical specialists may be an important factor in whether or not alignment between the medical professional and purchasing is achieved. Young et al. (2016) show that US hospitals with a higher share of employed physicians have lower purchasing and inventory costs.

Professional purchasing can bring commercial sense to the purchasing process, create synergies across departments, bring purchasing decisions in line with other functions, integrate suppliers where appropriate and help translate patient needs and demands into purchasing requirements. These potential contributions are illustrated nicely in the purchasing maturity model (Rozemeijer, 2009; Van Weele, 2010) (Figure 5).

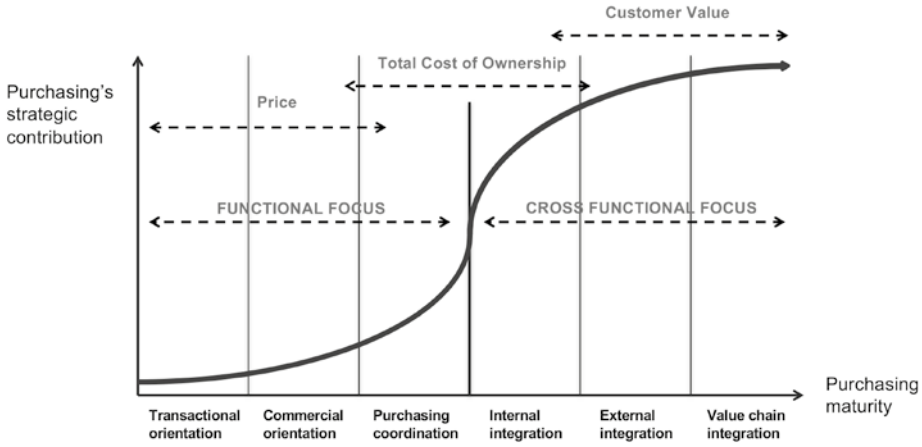

Figure 5: Purchasing maturity model (based on Rozemeijer (2009) and Van Weele (2010))

The sixth stage in this model describes the situation in which the needs and demands of the end user are translated into requirements for purchasing. One possible corollary of using patient value as a driver for purchasing is to contract suppliers on the basis of the outcomes they (help) generate for patients. This type of outcome-based contracting could be an integral part of a provider's implementation of value-based healthcare. However, this involves more risk and outcome uncertainty for the supplier, and requires providers to take up a facilitator role in the contract management phase of outcome-based contracts (Nullmeier et al., 2016). The PhD research of Fabian Nullmeier is oriented towards understanding how buyers and suppliers cope with increased outcome uncertainty in the contract management phase of outcome-based contracts.

The value of purchasing increases if the purchasing professional can lower the total cost of purchased inputs or limit its growth, and accomplish this while health outcomes for patients improve. However, purchasing could also destroy value, in case it leads to the procurement of low-quality products, inferior service to patients/clients, delays in restocking, increasing transaction costs or demotivation of the healthcare professional.

When it comes to purchasing for care, I would like to focus my research on two main questions. First, how should the relationship between purchasing and medical professionals in the quest for patient value be managed? Second, What is the future of outcome-based contracting in purchasing for care?

5. Purchasing of care

I now turn to the purchasing of care. This is the process through which financers, or funders of care select care providers, contract care providers, and manage buyer-seller relationships with care providers. Purchasing of care takes place in all healthcare systems with a purchaser-provider split (Figueras et al., 2005). The process is also known as healthcare contracting or healthcare commissioning. Financers of care can be public or private bodies, and care providers can also be public or private, or a mix thereof. Purchasing of care obviously also takes place where healthcare is purchased out-of-pocket by individuals or via personal voucher or personal budget schemes.

In order to speak of a purchasing process, there needs to be freedom for the purchaser to select or not select providers for certain healthcare services and/or freedom in the conditions against which services are contracted. Such conditions include price, quality, and volume. Through its impact on accessibility, affordability, and quality of care, the level of professionalism of healthcare purchasing affects the health of the population the purchaser serves (Øvretveit, 2003).

In most cases, purchasing of care takes place in a triadic setting (Figure 6). The purchaser of care contracts care providers in order to secure care capacity for the population it is responsible for. The purchaser does not consume the services. Consumption and delivery of the service take place between consumers and providers. Purchasers can include municipalities or governments contracting for their citizens, insurers contracting for their insurees, or employers for their employees. As soon as members of such populations need care, they become care consumers in this triad.

Triadic relationships are challenging to manage (Wynstra et al., 2015), and the triadic setting in healthcare creates some specific challenges. Purchasers need to understand very well what their populations may need in the contract period, in terms of care types, quality, quantity, place, and time. These needs have to be translated in appropriate contracts with providers. At the same time, purchasers will want to manage their exposure to financial risk, and hence manage or influence the care that is actually

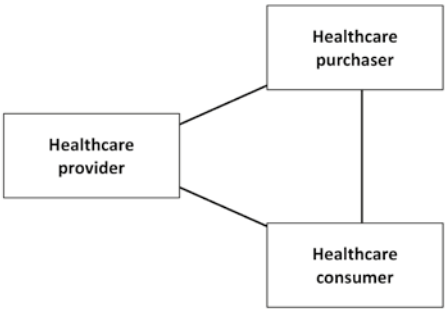

Figure 6: The purchasing triad of care

consumed and/or actually invoiced. Care consumers will want the best possible care, and often only limitedly (or perhaps not at all) pay a discretionary cost for the care they consume. At the same time, they want to pay the lowest possible fee/premium/tax, particularly if they do not need care. Providers can often influence the amount of care consumed by a patient, and often earn a discretionary profit from any extra care they provide to a patient. There are significant information asymmetries between the three parties concerning the true cost of care, the real quality of care, the real need of a patient and the most cost-effective treatment for a patient. These are not only information asymmetries where one party has more and better information than the other; there are also many situations in which the knowledge is not available to any party.

Without the appropriate checks and balances, patients in need of care may demand more care than is needed, providers may happily provide more care than needed, purchasers may increase fees, taxes or premiums to cover for increasing expenses, and healthcare costs may rise quickly in a way we can observe in many developed economies. This is a problem akin to the Tragedy of the Commons (Hardin, 1968) with excessive care consumption by some members of the population having negative externalities for others in the population.

Healthcare purchasers are often accused of focusing too much on the cost of care, and too little on the quality of care. More specifically, they are accused of focusing on the prices and volumes of treatments, rather than on the longer-term effects on the total cost of care for a population. This short-term cost focus may be quite understandable from the perspective of a risk-bearing purchaser in a system with quickly growing healthcare expenses.

A variety of innovations in healthcare purchasing are currently taking place. One of these relate to making consumers more aware of the consequences of the choices they makes. This can be achieved through co-payments for care, deductibles, and through rewards for cost-effective choices. Another of these innovations relate to sharing risks of overtreatment with providers. This can be achieved through fixed budgets, fixed price per diagnosis-related group (DRG), shared-savings programmes and managed care techniques. A third set of innovations relate to a shift from price and volume to total cost. Examples include disease management, population-based financing, and multi-year contracting with provider groups. And a fourth set of innovations relate to a shift from price and volume to quality and health outcomes. Examples in this area include selective contracting based on quality, outcome-based contracting, pay-for-performance (P4P), and value-based healthcare (VBHC).

Not all of these innovations are directed at increasing healthcare value. In fact, some are only directed at managing the cost and financial risk for the financer. Such healthcare purchasing practices lead to consumer criticism, visible in for instance the consumer backlash against managed care in the US (Blendon et al., 1998), or the recently announced large scale study into negative consequences of healthcare contracting in the Netherlands by the Consumentenbond. There is a real risk that healthcare contracting can destroy value instead of increasing it.

One road to value destruction is through withholding necessary care from patients. An exclusive or excessive focus on cost, especially if it is driven by short-term cost containment, can lead to care rationing. This may be detrimental to health outcomes for patients and increase healthcare costs in the long run. Another road to value destruction is through capital destruction as a result of competition between healthcare providers or healthcare financers. Healthy competition is expected to lead to a certain amount of "creative destruction", as competitive forces drive out inefficient actors from a market. At the same time, healthcare purchasers should be aware of their potential to destroy supply markets, which in the case of healthcare, have often been built using public money. As in other industries, healthcare purchasers should also take responsibility for managing supply markets. A hospital bankruptcy may result in a region becoming deprived of essential healthcare services.

Purchasing and supply management in healthcare thus also includes the responsibility to build and maintain a market of healthcare providers that is competitive, and that provides sufficient geographic coverage of services. Supplier development techniques are used in other industries, like the automotive industry, to build and maintain supply markets of sufficient quality and quantity (Sako, 2004). Toyota is a well-known example of building and maintaining a high quality supplier network through supplier associations, consulting groups, learning teams, and employee exchange (Figure 7). Long-term relationships with suppliers are a precondition for this type of supply base management, but the tradition of one-year contracting between insurers and providers in the Netherlands is at odds with this line of thinking.

The healthcare purchaser should be aware of how it can create value and destroy value. Value creation is associated with a focus on health outcomes for patients (as opposed to a focus on only prices and volumes), a focus on the long-term, a focus on the total cost of care, and a focus on prevention instead of treatment only. One of the big challenges is defining and measuring valid outcome indicators for the large variety of medical conditions (Eindhoven et al., 2015). A variety of approaches have been taken. Some financers, such as health insurers, have started projects to develop healthcare quality indicators, often with input from the field. Government agencies have set up national quality registries, professional bodies have developed quality indicators based on

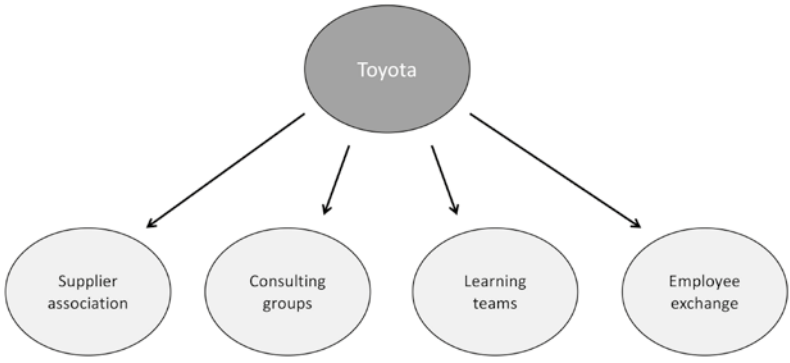

Figure 7: Supplier network learning at Toyota (based on Dyer & Hatch (2004))

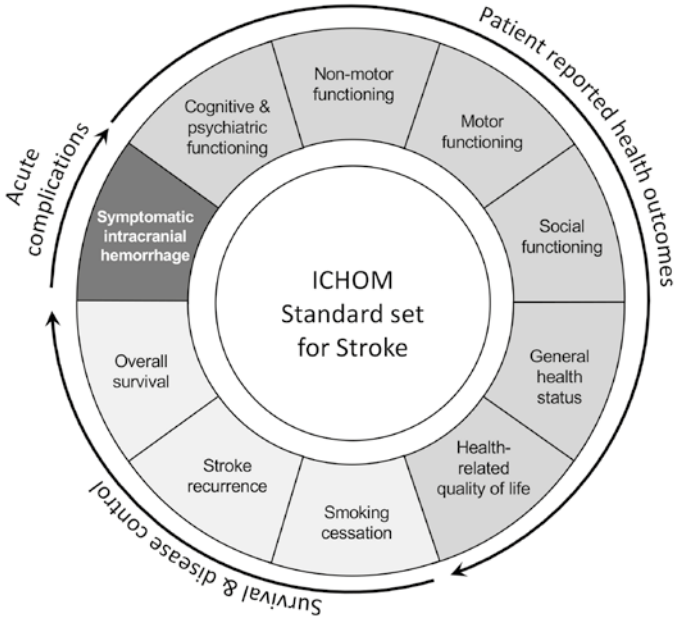

Figure 8: Example of an ICHOM standard set, for Stroke (ICHOM, 2016)

consensus between specialists, and the International Consortium on Health Outcome Measurement (ICHOM) have defined global standard sets of outcome measures (Porter et al., 2016) (Figure 8).

Value-based healthcare purchasing entails upgrading the healthcare purchasing function to the highest development stage of the purchasing maturity model I mentioned earlier. At stage six, purchasing derives its strategies, tactics and actions from the needs and demands of the end consumer. Dutch healthcare insurers spend about 90 to 95 cents of each euro they receive in premiums on healthcare reimbursements. The need for a stage six purchasing function fits well with this extremely high purchasing ratio. The higher the purchasing ratio of an organisation, the higher the level of purchasing maturity that is needed.

High-maturity purchasing functions understand the need for differentiated purchasing. Each purchasing category has its specific supply market and user demand characteristics (Kraljic, 1983). Supply markets can have higher or lower levels of concentration, can consist of larger or smaller provider organisations with more or less professional sales functions, and the services provided may be of higher or lesser strategic value or cost. Users of the services may number many or few, may have common or specific demands, and may be in need of acute or plannable care. Purchase categories with different characteristics require different purchasing strategies (Ateş, 2014). Hence healthcare purchasers need to have a toolbox full of different purchasing tools, so that they can apply differentiated purchasing. Dental care needs to be purchased differently than diabetes care or breast cancer care. However, we have

yet not identified which purchasing tools should be available in that toolbox and which approaches work best in which situations.

When it comes to purchasing of care, I would like to focus my research on two issues. First, which designs of the healthcare triad create incentives for consumers, providers, and financers to maximise health value for the population served by the financer(s)? And second, which tools for provider selection, provider contracting and provider relationship management are available or need to be developed, and which tools should be used in which circumstances to maximise value for patients?

6. Tribulations in the healthcare triad

We have already seen that the healthcare triad may not always function to create maximum value for patients or for society. When consumer demand for healthcare turns the system in a Tragedy of the Commons, financers focus on minimising short-term risk, and providers are incentivised to maximise production.

It is quite straightforward to explain such problems as stemming from risk averse and opportunistic behaviours of the actors in this triad. If one assumes that each of these three agents is a self-interested utility maximiser, and is willing to act opportunistically (self-interest seeking with guile (Williamson, 1979)), then much of what can be observed in the healthcare triad can be accounted for. These assumptions and explanations fit agency theory. Agency theory points to certain types of solutions for these problems, such as investments in behaviour and/or output monitoring, and designing the optimal contract with the "best" incentives (Eisenhardt, 1989).

An alternative explanation for the same problems in the healthcare triad can be found in the concept of "honest incompetence" (Hendry, 2002; Kauppi & Van Raaij, 2015). Starting from the assumption that agents are not motivated by self-interest seeking with guile, but that they are pro-social and willing to generate utility for others (in other words, they are "honest"), problems in value generation could still arise given that people are not 100% competent. This "incompetence" is present in all actors in the triad. Actors are not fully competent in describing their needs, or in translating the needs of the actors into the best course of action in order to fulfil these needs. Hence, we see the same kinds of problems agency theory tries to explain on the basis of self-interest seeking with guile. However, the recommended solutions are very different: investing in training and guidance to resolve the misunderstandings between actors in the relationship (Hendry, 2002).

The concept of "honest incompetence" is not a theory in itself, but I think this idea can be integrated in stewardship theory. Stewardship theory (Davis et al., 1997) builds on the assumption that actors can be stewards of a larger whole, such as society or the healthcare system. It is not difficult to imagine that people start working in the healthcare sector because they want to be pro-social stewards, not because they are self-interested opportunists. However, agency theory is often used to provide descriptions of and prescriptions for healthcare purchasing (e.g. Figueras et al., 2005). This could be highly counterproductive, as repeated exposure to monitoring and distrust from one actor in the relationship erodes the stewardship motivations of the other. Davis et al. (1997) present an intriguing diagram of how stewardship and agency motivations come together in a kind of prisoner's dilemma situation (Figure 9).

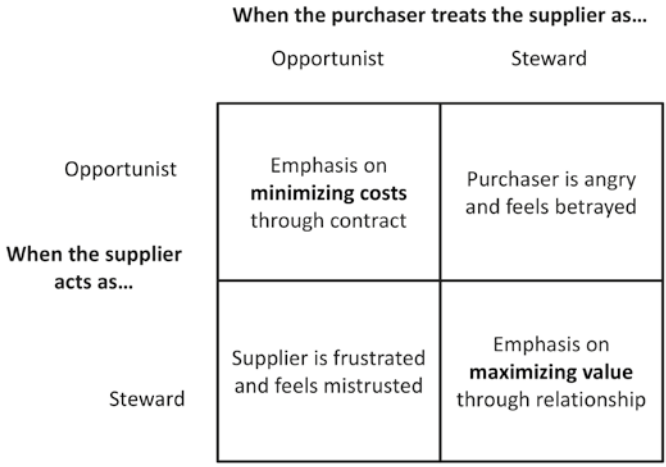

Figure 9: When stewards meet opportunists (based on Davis et al. (1997))

One of my earliest observations when I entered the Dutch healthcare sector was the lack of trust in some of the relationships in the healthcare triad. Only the relationship between provider and consumer (doctor and patient) appears to be a high trust relationship, although the public's trust in doctors in general may have been weakened by recent news about the extent to which medical professionals have been receiving payments from Medtech and pharmaceutical suppliers[7]. Research by GfK, together with Pauline van Esterik-Plasmeijer and Fred van Raaij, shows that Dutch consumers have very little trust in their healthcare insurer[8]. Finally, the relationship between insurers and providers is characterised by extensive contracting, elaborate monitoring and regular conflicts, with little room for dialogue and low levels of trust.

It seems that in the Dutch context, the insurer struggles with a legitimacy problem in the healthcare triad. Without "meaningful involvement" (Tate et al., 2010) in the triad, they risk to become irrelevant, and thus become the victim of bridge decay (Li & Choi, 2009). My interest is mostly in the relationship between financer and provider, but it is important to acknowledge that one bilateral relationship in a triad cannot exist in isolation from the other relations in that triad (Wynstra et al., 2015).

Davis et al. (1997) claim that most value is produced in stewardship relationships rather than agency relationships. Research by my colleague Merieke Stevens suggests that there is an optimal level of trust, and that buyer-supplier relationships can be hurt by either too little or too much trust (Stevens et al., 2015). The fact that insurers invest heavily in monitoring to protect against provider opportunism, that provider are generally unwilling to share tacit knowledge with insurers, and that both actors underestimate each other's positive intentions, all point towards too little trust in the insurer-provider relationship.

7 https://www.skipr.nl/actueel/id27696-farmaceuten-betalen-miljoenen-aan-artsen-.html

8 https://www.skipr.nl/actueel/id23544-drie-op-tien-nederlanders-wantrouwt-zorgverzekeraar.html

Healthcare purchasers contribute to the creation or the destruction of trust in the insurer-provider relationship through their behaviours and their usage of certain tools (see e.g. Medisch Contact, 2016). Together with my colleagues, Merieke Stevens and Peter Dohmen, I would like to deepen my understanding of what optimal trust means in the healthcare context and how purchasers of care can contribute to high-trust financer-provider relationships. I want to do this by adding theories and concepts from psychology and sociology to the predominantly economic theories used in research and teaching today.

Lack of trust undermines a good functioning of the healthcare purchasing triad. It stimulates "zero-sum" thinking in contract negotiations between financers and providers. Lack of trust between actors in the triad may also be conducive to fraudulent behaviour. Numbers are scarce, but research in the US suggests that as much as 10% of healthcare spending may be due to fraudulent behaviour such as overbilling and kickbacks, where a small minority are responsible for a great deal of fraudulent behaviour (Policastro & Payne, 2013). Allegations of "massive fraud" in the Dutch system for personal care budgets threaten to undermine this arrangement in which care consumers can do their own healthcare purchasing. A call for more trust in buyer-supplier relationships also requires attention to fraud, in purchasing of care, as well as in purchasing for care. This line of research builds on my earlier research on deviant behaviours in purchasing & supply management, in particular maverick buying (Karjalainen et al., 2009; Kauppi & Van Raaij, 2015).

7. A value chain perspective

So far I have discussed purchasing for care and purchasing of care separately, but as I mentioned earlier, there are good reasons to study the two areas together and to explore the interrelationships. The value chain in healthcare has two connotations. The first connotation is the chain of activities (and associated providers) that is needed to achieve health outcomes for patients. This value chain in healthcare could be called the care chain.

Porter defines these activities as monitoring and preventing, diagnosing, preparing, intervening, recovering and rehabilitating, and monitoring and managing (Porter & Teisberg, 2006). The value chain is slightly different for chronic diseases, and consists of screening and preventing, diagnosing and staging, delaying progression, intervening, ongoing disease management, management of clinical deterioration (incl. palliative & hospice care) (Kim et al., 2013) (Figure 10).

Coordination across the care value chain is important to create optimal value for patients (Cramm & Nieboer, 2012; Otte-Trojel et al., 2014; Van Wijngaarden et al., 2006). This means avoiding duplicate work and other non-value-adding activities along the chain (e.g. duplicate tests, unnecessary transportation and waiting time) and preventing errors during handovers between providers or specialists (Meijboom et al., 2010). Patient outcomes can often be improved when providers coordinate their activities better, such as when rehabilitative physiotherapy already starts during post-surgery recovery in the hospital. Healthcare purchasers play an important in creating the conditions in which such coordination is stimulated and facilitated.

The second connotation of the healthcare value chain is the chain of buyers and suppliers. This value chain in healthcare could be called the healthcare supply chain, with the healthcare triad of consumers, financers, and providers at the end, moving upstream towards first tier, second tier and higher tier suppliers of healthcare providers (Figure 11).

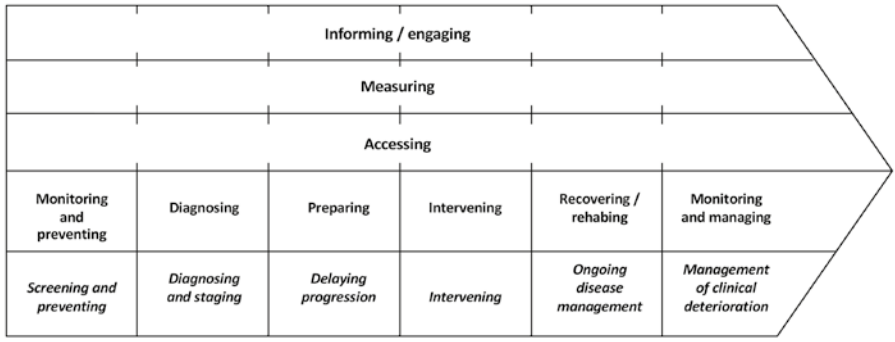

Figure 10: The care chain for elective/emergency care and for chronic care (based on Kim et al. (2013); Porter & Teisberg (2006))

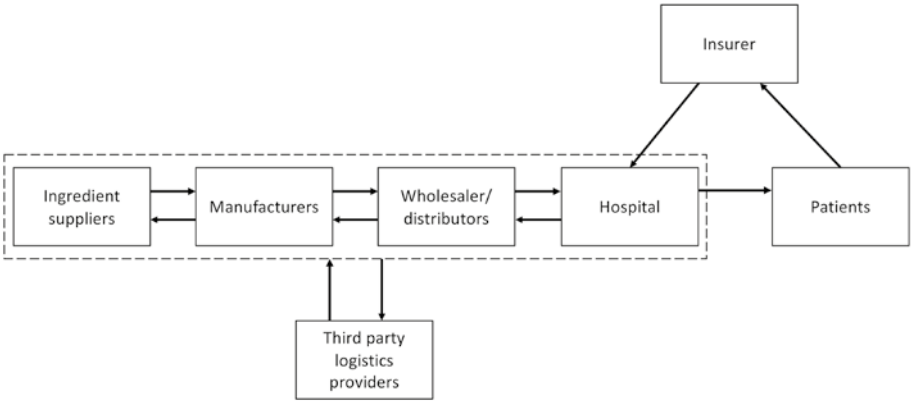

Figure 11: Example of a healthcare supply chain for pharmaceuticals (adapted from Bhakoo & Chan (2011))

Coordination across the healthcare supply chain is also important to create optimal value for patients (Bhakoo & Chan, 2011). Medical technology (medtech), pharmaceutical, and other suppliers of clinical and non-clinical inputs should be aware of the health outcomes that providers aim to achieve for their patients. Purchasers for care, i.e. purchasers working for provider organisations, should create the incentives and conditions for suppliers to offer goods and services that contribute optimally to patient outcomes and health value. Outcome-based contracting, based on patient outcomes, could be such a tool. Suppliers can take an active role in linking the supply chain to the care chain by offering products that enable error-free handovers between providers, by making products interoperable across providers, and the like. Healthcare suppliers play an important role in creating the conditions in which such coordination is stimulated and facilitated.

Both value chains in healthcare are in reality value networks, with not just one-directional relationships in a straight line, but with feedback loops, reciprocal relationships of buyers that are also suppliers of their suppliers, and multiple suppliers serving the same buyer.

Taking a network perspective, integrating the care chain with the supply chain, and integrating purchasing of care with purchasing for care, all result in increasing complexity of the object of study. I believe we need to break up the area of research into smaller pieces, but that we should keep in mind the overall perspective of the healthcare system as a value network.

8. Triple impact

With my research in the area of purchasing and supply management in healthcare, my aim is not to achieve double impact, as some colleagues claim is needed, but I would like to achieve triple impact.

The first type of impact is impact on the scholarly community through publications in reputable journals. These include journals in operations and supply management, but also journals in health services research. It struck me that there is little cross-fertilisation between purchasing and supply management and health services research. The first book I read on purchasing of care – just under 300 pages thick – had not one reference to the PSM literature (Figueras et al, 2005). I aim to use my diverse background in strategy, marketing and purchasing management to help solve complex problems in health services research. And to do that of course in collaboration with colleagues from both the institute of Health Policy & Management and the Rotterdam School of Management.

The second type of impact is impact on purchasing professionals and policymakers in the healthcare sector through direct interaction with such practitioners. The field experiments executed by Peter Dohmen are one example of having direct impact on practitioners through research. Fabian Nullmeier will also directly engage supply management professionals in his research. Some claim that there is a trade-off between the rigour and the relevance of academic research, suggesting that rigorous research leads to impact on the scholarly community, and relevant research to impact on practice. I see rigour as a necessary, but not sufficient condition for relevance. Before theories can be safely used by practitioners, they need to have shown robustness, in other words, they need to have undergone repeated rigorous testing (Van Weele & Van Raaij, 2014). Providing advice through committees is another road to achieve impact on policies and practices.

The third type of impact is impact on students through teaching. The course on purchasing and supply management in healthcare started in 2011 and is still running strong after two name changes. The course is now open to both healthcare management and supply chain management students. As an innovative feature, real purchasers for care participate in our negotiation skills workshop. I also teach a course on empirical research methods, and I aspire to also have an impact on student's thinking about what good empirical research entails. As an impactful innovation, I changed this research methods course into a blended format, boosting student satisfaction with the course (Figure 12), and also my own satisfaction in teaching it.

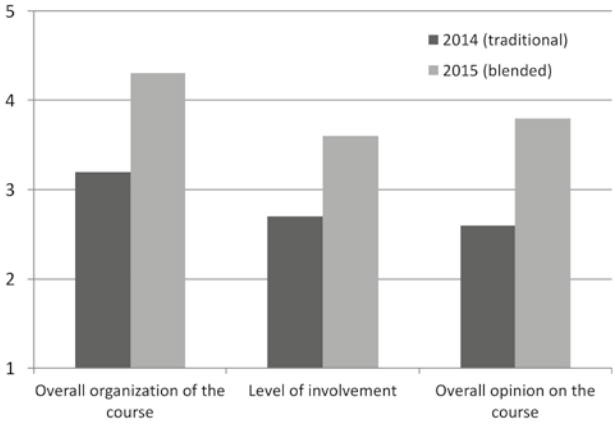

Figure 12: Student evaluations of the research methods course in traditional and blended formats

In this research methods course, I expose supply chain management students to design studies as a research methodology (Van Aken et al., 2012). I see design research as an important enabler to achieve triple impact. Design research is by definition executed in close interaction with practitioners. In both sections where this chair is established, the Supply Chain Management section at RSM and the Health Services Management & Organisation section at iBMG, design studies are accepted as a third type of empirical research strategy for Master thesis projects, next to theory building and theory testing strategies. I intend to remain an advocate of this particular research strategy.

9. Conclusion

I started this inaugural address by defining purchasing and supply management and defining value. I then elaborated on purchasing for care and purchasing of care. In both contexts, it is not enough to look at dyadic buyer-supplier relationships. Purchasing for care takes place in a tetradic relationship setting and requires a focus on the purchaser, user, supplier and board. Purchasing of care takes place in a triadic setting and requires a focus on the financer, provider and patient. Purchasing for care and purchasing of care can be integrated in a value chain perspective, with all actors in the value chain ultimately aligned around creating value for the patient. This means creating the best possible health outcomes per euro.

While it is not my intention to propose a new definition of purchasing and supply management in general, the above discussion calls out for a definition of purchasing and supply management in healthcare that captures patient value as the compass for all purchasing activities. Hence, I would like to propose the following definition specific for the research area of my chair. Purchasing and supply management in healthcare is:

"The design, initiation, control and evaluation of activities within and between organisations aimed at realising patient value with supplier-partners at the most favourable conditions."

This means that purchasing and supply managers should be aware of what health outcomes matter to patients. The efforts of the International Consortium on Health Outcome Measurement (ICHOM) are very valuable in this respect. Taking patient value as the compass for purchasing is a key characteristic of the highest level of purchasing maturity.

Contract designs, including outcome-based contracting, and payment structures, including pay-for-performance, are receiving due attention in academic research, amongst others at the Rotterdam School of Management (Selviaridis & Wynstra, 2015; Nullmeier et al., 2016) and the institute for Health Policy and Management (Eijkenaar, 2013). It is not clear yet, however, what
purchasing maturity means for purchasing and supply management in healthcare. Moreover, little attention has been paid to understanding how specific approaches to supplier selection, contracting, and relationship management relate to trust between partners in the healthcare value network, to patient outcomes, and to health service performance. Through my research, I want to help purchasing and supply management professionals in the healthcare sector achieve higher maturity and better health outcomes for patients. I want to achieve this through direct engagement with healthcare organisations and through teaching future generations of healthcare professionals.

10. Acknowledgements

My adventure into purchasing and supply management in healthcare started with two coinciding events triggered by NEVI, the Dutch professional purchasing association, and its NEVI Research Stichting. In 2009, NEVI asked the institute of Health Policy & Management whether they would be interested to include a course on purchasing management in their healthcare management curriculum. The institute asked Finn Wynstra and myself to develop and teach that course. At about the same time, the NEVI Research Stichting started a tender procedure for a multi-year research project into the purchasing of care, which was awarded to our team of researchers from RSM, iBMG, and the University of Twente.

Finn, we took up both challenges together, for which I am very grateful, and I would not have been in this position at all, had you not asked me to join RSM three years earlier, in 2006.

I am indebted to the late Kees van Wijk of iBMG for the trust he gave us to develop this new course, and to Jeroen van Wijngaarden for maintaining the course throughout several curriculum changes. Both the new course and the new research project were wholeheartedly supported by Joris van de Klundert, who ensured that purchasing and supply management became recognised as an important topic at iBMG. Thank you, Joris.

I wish to thank various people at NEVI, NEVI Zorg, and NEVI Research Stichting for initiating and sustaining this focus on purchasing and supply management in healthcare, including John Weinstock, Arie Slingerland, Ton van Geijlswijk, Erik van Assen, Hans Hopmans, Chris Snijders, Dik Geelen, Erik de Bruijne, Hans Bax and Ruud Olthoff.

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Plus of course Merieke Stevens and Peter Dohmen, but I would like to mention you as members of the PSM@RSM team, which constitutes my most inner circle of colleagues at RSM. Apart from of course Finn, this team further consists of Erick Haag, Fabian Nullmeier, Robert Suurmond, former members Hülya Türksever and Melek Akın-Ateş, and our latest member Anna Nikulina. The PSM@RSM team is part of the Supply Chain Management section of the Technology & Operations Management department, and I thank in particular Sandra Langeveld, Niels Agatz, Serge Rijsdijk, Carmen Meesters, Jan Dul, René de Koster, and Eric van Heck for the friendship and support you have provided over the years.

With my new appointment, I have also become a member of the Health Services Management & Organisation group at iBMG. I already feel very much at home, not the least because of longstanding collaborations with Robbert Huijsman, Anne Marie Weggelaar, Alexia Zwaan and others in the group. I look forward to becoming a more integral part of the HSMO section.

I thank Steef van de Velde, dean of RSM, and Werner Brouwer, vice-dean of iBMG, for agreeing on this first chair shared by these two institutes.

Looking at who I have become professionally, I would need to thank many people from my national and international network, but I would like to mention Jan Willem Stoelhorst, Arjan van Weele, Hans Berends, Helen Walker, and Katri Kauppi in particular.

Ik wil graag mijn ouders, Fred en Gerrie, bedanken voor de vrijheid die ze mij hebben gegeven om mijn dromen en ambities na te jagen. Ook dank ik mijn broers en zusje, Mark, Bart en Estia, en hun partners en kinderen voor de familie die we zijn geworden waar iedereen zijn eigen gerespecteerde en gewaardeerde plek heeft.

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Ik heb gezegd.

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