What do we know about purchasing health care? A systematic literature review and research agenda

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Abstract
Health care reforms have resulted in the emergence of health care purchasing markets, in which care financers \textit{purchase health care} from care providers. The purchasing of health care has received extensive scholarly attention, yet not from purchasing and supply management researchers. We conduct a systematic literature review of health care purchasing. Our main objective is to develop a research agenda for both health care management (HCM) and purchasing and supply management (PSM) scholars. We conclude, among other things, that specific purchasing topics such as specification of needs, category management, and supplier management deserve more attention in future research.

Keywords: Health care; purchasing; systematic literature review

Introduction
Despite various efforts to control costs in the health care sector, many countries worldwide are faced with ever-increasing health care costs. For example, in 2010, the US spent 17.9\% of its Gross Domestic Product (GDP) on health care (Worldbank, 2011). In Europe, the Netherlands is in the lead, with health care expenditures of 11.9\% of its GDP in 2010, closely followed by France (Worldbank, 2011). While US health care expenditures have risen well over 3.5\% per annum, France and the Netherlands show annual growth percentages of 2.3\% and 1.3\% respectively (Worldbank, 2011). Driving these cost increases are aging populations and increased development of new technology to facilitate treatment and prevention (Idenburg and Van Schaik, 2011).

In response to the continuing rise of health care costs, several countries have started to experiment with a variety of instruments to control costs and/or improve quality. Separating the responsibility for providing health care from the responsibility for financing health care has been viewed as an important instrument to increase the quality and accessibility of care at reasonable costs. Through this separation, a \textit{health care purchasing market} is created: a market in which public and/or private financers purchase health care from public and/or private providers (Waters et al., 2004).

In some countries, the government is still heavily involved with public financers purchasing care from (mostly) public health care providers. One example is the United Kingdom, where public fund holders purchase care from a mix of public and private providers. In other countries, such as the United States, the government has a

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significantly more limited role, with a large portion of health care purchasing and health care provision in the hands of private entities. The Netherlands is a third case in point, where private insurance companies purchase curative health care from mostly public, and some private providers. In The Netherlands, the government appears to be ambivalent in its role: It aims to stimulate market competition through health care purchasing, but regularly intervenes in the process with regulations restricting the freedom of purchasers.

Regardless of health system changes and the introduction of health care purchasing, governments are confronted with ever-increasing health care costs, while quality and accessibility of care remain topics of ongoing debate (e.g., Deas, 2006; Korda and Eldridge, 2011). This suggests that there is room for further improvement of the process of health care purchasing. In order to bring this domain forward, it is important first to understand what we actually know about the purchasing of health care. At first glance, it seems that the majority of contributions on health care purchasing stem from scholars with a background in (health care) economics. Hence, much of the debate is about issues that are of interest to economists, such as how the market operates and which contracts are most appropriate. Topics like the actual purchasing process, the character and roles of purchasers and providers, and the purchaser-provider relationship remain largely unacknowledged. These topics belong to the realm of purchasing and supply management scholars, who seem far less engaged in debates on health care purchasing than one might logically expect.

With the purpose of clarifying what we know to date about health care purchasing, we conducted a systematic literature review. In order to achieve this clarification, we interpret the papers in our review in relation to a purchasing process model. By taking stock of what we know of each part of the health care purchasing process, we are able to identify any gaps that remain. As such, we can develop a research agenda for health care purchasing. As we focus on purchasing of health care services by insurers, governments, and employers on behalf of healthy and unhealthy policy holders, citizens, and employees, we do not study the purchasing activities of health care providers (i.e., purchasing for the health care sector). The purchasing of health care insurance by individual consumers is also outside the scope of this work. Finally, we note that we review the literature on the process of health care purchasing, and not the many contributions on how health care systems should be structured (the context in which health care purchasing takes place).

The remainder of this paper is organized as follows. First, we present our methods for our systematic literature review. Subsequently, we present the main results of our analysis. These results inform the development of a research agenda. This is followed by a conclusion and discussion.

Method
In order to conduct a rigorous and replicable systematic literature review, we adopted the guidelines proposed by Tranfield, Denyer and Smart (2003). In this section, we describe our procedures for data collection and analysis.

The data input for our literature review is academic refereed journal articles. We used the search engine of Web of Knowledge to search for articles with specific search terms in the title and/or abstract. We chose this search engine primarily due to its broad coverage of peer-reviewed journals across different academic fields (Rashman et al., 2009).

The search terms used can be requested from the authors, and contained terms such as “health care procurement”, “purchasing of care”, and “care contracting”. We limited the
timeframe for our study to the period 1980-2012. The 1980s is generally recognized as the decade in which new competitive approaches took effect in the health care sector in the US (Enthoven, 1993; Shelton, 1989). These health care reforms led to the emergence of the phenomenon of “health care purchasing”.

Our search with these search terms on April 1st 2012 resulted in a set of 346 articles. Given the fact that we used a large variety of keywords, and covered a long review period, it is striking that we found such a small number of potentially relevant papers. The total set of 346 articles was subjected to further investigation to determine which articles suit the purpose of this review. Each of the three authors read the titles and abstracts of the first 25 articles and then decided whether the full article dealt with the purchasing of health care and should therefore be included in the review. Immediate agreement was reached on 11 of the 25 articles. The remaining 14 were discussed by all authors until agreement was reached. These discussions helped to refine the rules for inclusion or exclusion of articles. Subsequently, all authors reviewed another set of 25 articles. We calculated Fleiss-Kappa as an indicator of inter-rater reliability (Fleiss, 1971), and found that the value of this indicator had increased from .38 for the first 25 articles to .73 for the second set.

We divided the remaining set of 297 articles among the three authors. Each title and abstract was read by two of the three authors. If these authors disagreed regarding the article’s inclusion, the third author made a final decision. If the third author was not confident about the decision to be made, the article was discussed by all three authors until agreement was reached. This resulted in a selection of 76 articles.

The next step was to read the full articles and capture relevant data. For this purpose, a data extraction sheet was devised to enable structured reading and analysis of the articles (Tranfield et al., 2003). We captured fifteen data fields such as type of article, main topic, main results, what part(s) of the purchasing process the article is about, and possibilities for future research indicated by the authors. Each author filled out the data extraction sheet for their respective set of articles and checked the summaries of the other authors for clarity and relevance. After reading the full articles, we removed five more articles from our set, as these articles turned out to focus on topics that are outside the scope of our research. Thus, the final set for analysis consists of 71 articles.

**Results**

In this section, we present our main results. First, we show the descriptive results. After this, we summarize the content of the main topics found in the articles.

*Descriptive results*

The 71 articles found are scattered across more than 50 different journals. Most of these journals have published only one or two articles on health care purchasing. Three or more articles were published in *Health Affairs* (seven articles), *Managed Care Quarterly* and *Medical Care Research and Review* (four articles each), and *Health Care Management Review, Journal of Health Services Research & Policy, Inquiry*, and *JAMA* (three articles each). Larger numbers of publications can be identified particularly in the period 1995-1998, with an absolute peak in 1997. Contributions were mainly from the US and to a lesser extent Europe, more specifically the UK. A limited number of contributions come from countries like New Zealand, Australia and China.

About half of the articles could be classified as articles reporting on a scientific study (49%); of the remaining set, 34% were classified as scientific reviews or more general overviews of a specific theme and 17% were classified as opinion pieces. In over one third of the studies, the purchaser is a private sector organization. About 23% of the
studies focus on multiple types of purchasers, while 15% focuses on health insurers as purchasers. Public sector organizations and the national government follow with 9% and 7% respectively. We found explicit reference to (management) theory in only 27% of the studies. The most popular main theoretical lens of the articles studied is agency theory (adopted in three studies).

Figure 1  The Purchasing Process Model: Coverage of topics in health care purchasing literature

Figure 1 shows a health care purchasing process model based on the work of Buter and Loa (2008) and Hensher and Fulop (1999). Using colour coding ranging from red (no articles found), through orange, yellow, green, to dark green (relatively many articles found), we show to what extent specific health care purchasing process steps are addressed by the 71 articles in our data set. The topics “performance management” (24% of the papers), “health care purchasing strategies” (23% of the papers), and “contracting” (11% of the papers) are most frequently discussed. Topics such as “how to develop a specification” and “supplier relationship management” are rarely discussed. “Diagnosis of need”, “treatment and preventing adverse selection”, and “claiming, invoicing, and payment” are never the key topic of the papers in our set. We now turn to summaries of the main findings concerning the three topics that were most frequently discussed in the literature.

Performance management in health care procurement
The overall topic of performance management in health care procurement includes issues related to (1) the definition of performance, (2) the assessment of performance, and (3) steering on performance.
First of all, the performance of health care providers can be defined in terms of cost, or rather, price of service (Bard, 1998; Grimaldi, 1997). Other performance indicators include clinical quality (e.g., Maxwell et al., 2001), service quality (e.g., Rosenthal et al., 2007), customer satisfaction (e.g., Anonymous, 2001), and accessibility (e.g., Fisher et al., 1998). Health care purchasers also use proxies for quality, such as experience of
the provider (Fisher et al., 1998). Some studies mention quality indicators that should be used more widely, such as the extent to which providers pay attention to health promotion and prevention (Schauffler and Rodriguez, 1996).

When it comes to the assessment of health care provider performance, cost performance is first of all assessed by looking at the price charged for a specific intervention, diagnosis-related group (DRG), or care episode. Birnbaum and Tang (1998) warn that a total cost perspective should be taken, looking not only at the price of the health care services, but also at the cost of “adverse events”. Low-price health care services may be of relatively low quality, leading to a higher incidence of remedial care, such as hospital recidivism and emergency room, physician, and nurse visits. Indeed, these authors find that the ranking of five providers of home infusion therapy on price is quite different from the ranking on total cost.

Health care quality can be assessed using structure, process, and/or outcome measures (Gonzalez et al., 2007). Structure measures assess the setting in which health care services are provided, process measures capture how a particular provider delivers health care, and outcome measures assess the results of the services provided. Accreditation of the provider (e.g., NCQA accreditation in the US) is a straightforward structure measure to assess quality (Bard, 1998). Surveys among providers and patients are used to collect process and outcome measures. This information is usually collected at the country level and health care purchasers can use this information to benchmark providers (Salber and Bradley, 2001). Examples from the US include country-level HEDIS data (from providers) and CAHPS data (from consumers). Some health care purchasers also collect additional information at a regional or local level, such as mortality rates of hospitals and user satisfaction (Bard, 1998; Maxwell et al., 2001).

When cost and quality are combined into a measure of “benefits per unit of resource consumed” or “health per dollar”, one is assessing the cost utility or value of health care (Deas, 2006). James, Leger and Rowsell (1996) report on a very detailed study of the cost utility of various orthopedic interventions, using outcome measures such as Ross QALY or EuroQol. Many publications argue in favour of value-based purchasing of health care (e.g., Deas, 2006; Ginsberg and Sheridan, 2001; Maxwell et al., 1998; Rosenthal et al., 2007).

Purchasers can steer on the basis of quality and value in five different ways. First and foremost, quality, or better still, value, can be used as a criterion in supplier selection (Anonymous, 2001; Birnbaum and Tang, 1998; Ginsberg and Sheridan, 2001; James et al., 1996). The extent to which quality is actually used for selection is debated in the literature; some authors state that price is the single most important indicator for health care purchasers (e.g., Bard, 1998; Grimaldi, 1997), while others conclude from their research that price is a relatively unimportant performance indicator for purchasers (e.g., Fisher et al., 1998). Second, quality performance standards can be included in contracts to formalize purchaser expectations and vendor accountability (Ginsberg and Sheridan, 2001). One study finds that in practice, these standards turn out to be more about service quality than clinical quality (Merrick et al., 1999). Third, pay can be made dependent on performance (Gonzalez et al., 2007; McNamara, 2006). Rosenthal et al. (2007) conclude that quality data is rarely used for pay-for-performance (P4P), and Gonzalez et al. (2007) find that it is not clear whether P4P improves quality of care. Fourth, purchasers can initiate quality improvement programs with providers (Rosenthal et al., 2007) and actively stimulate plans and providers to learn from each other’s “best practices” (Salber and Bradley, 2001). And fifth, employers can use quality report cards to channel employees to the best value plans (Ginsberg and Sheridan, 2001; Salber and Bradley, 2001; Schauffler and Rodriguez, 1996), although some say this tactic is hardly used in
practice (Rosenthal et al., 2007). Fraser and McNamara (2000) conclude that employers in the US, in their role of health care purchasers, are more quality takers than quality makers.

Value-based purchasing and pay-for-performance are difficult to implement, because cost and quality are hard to measure reliably (Deas, 2006; Ginsberg and Sheridan, 2001). This may explain why employers tend to have more attention for customer service quality than for clinical quality (Maxwell et al., 2001; Merrick et al., 1999). Young et al. (2001) claim that value-based purchasing is not enough to maximize health outcomes and customer satisfaction; what is needed is value-based partnering with plans and/or providers. The idea of partnering is reflected also in the ideas of sharing of best practices between providers (Salber and Bradley, 2001), a long-term orientation to value-based purchasing (Bard, 1998), and a call for relational contracting (Robinson, 1993).

Health care purchasing strategies
A health care purchasing strategy is used by health care purchasers to determine how particular health care services will be bought, and this strategy impacts the costs and quality of care, the community, and business performance (based on Fraser and McNamara, 2000). Based on factors such as a careful analysis of needs (Yip and Hanson, 2009) and expectations (Miller and Miller, 1993), the philosophy of the purchaser’s organization, beliefs and endorsements, organizational characteristics, and the market situation (Thompson and Hurley, 1996), a strategy is developed. Regarding the market situation, Shelton (1989) makes a distinction between situations in which there is ‘standard’ competition (low seller concentration, low market differentiation), specialist competition (low seller concentration, high differentiation), a dominant provider (high seller concentration, high differentiation) or a geographic monopoly (high seller concentration, low differentiation).

The first element to address as part of a health care purchasing strategy is how to select and monitor providers/health plans, and when and how to terminate a contract (Fraser and McNamara, 2000). For selecting providers, a purchaser can use direct contracting (Fraser and McNamara, 2000; Maciejewski et al., 1997) or use competitive contracting methods. According to Maxwell and Temin (2002), competitive (industrial) contracting is often preferred as it saves costs and leads to fewer complaints. Of course, competitive contracting leads to the best results if there is high competition in the hospital market (Morrisey, 2001). Note however that if a purchaser lets providers compete intensively and/or selects a limited number of providers, this can lead to (undesired) monopolies (Maciejewski et al., 1997).

A second strategic decision is how many providers/health plans to select and for what period (Hurley, 1993) in order to offer choice to clients and let providers compete during the contract period (Maciejewski et al., 1997). If not all providers in a region are selected, this is referred to as selective contracting based on price and/or quality (McNamara, 2006), which can result in positive outcomes for the purchaser and/or the client (Maxwell et al., 2004). If not all providers are selected, channelling clients to selected providers is necessary. In markets such as The Netherlands, where consumers are not used to restrictions on provider choice, the credible commitment problem such channelling can be a major challenge for purchasers (Boonen and Schut, 2011). Clients are generally reluctant to switch, and switching a client from a non-preferred to a preferred provider typically works best when clients move house and start looking for new health care providers nearby, or when out-of-pocket costs differ substantially between non-preferred and preferred providers (Boonen et al., 2009).
What type of providers to contract? A review of empirical evidence in the US shows that greater HMO penetration appears to be more effective than PPO penetration in creating lower premiums (Morrissey, 2001). But note that federal governments in the US pay approximately 5.7% more for HMO enrollees, because of selection bias and the exclusion of certain providers that attract high cost patients (Retchin, 1998).

What type of purchaser-provider relationship is desired? Shifting from vendor to partner relations with HMOs can increase costs (Robinson, 1995). A purchaser can even choose to fully vertically integrate with main providers (Hurley, 1993; Robinson, 1993). Based on transaction cost economics, vertical integration is more likely to be preferred if there is a knowledge and information gap between the purchaser and provider, if asset specificity and complexity are high and transaction frequency is high.

Another strategic decision relates to how providers are paid and whether or not sharing risks is preferable. Providers can be paid based on, among other things, the number of procedures/services provided (i.e., volume) or on performance (i.e., outcome) (Fraser and McNamara, 2000). Payment can be prospective or retrospective (Robinson, 1993). If purchasers prefer to purchase based on performance, they can use (lump sum) population-based purchasing and (non-)financial rewards and/or penalties based on the improvement of the health of a certain population. Another possibility is to pay excellent providers a higher fee for services provided (McNamara, 2006).

Whether or not to use purchasing coalitions (and standardize health care purchasing processes)? Purchasing coalitions can be used in order to increase the leverage with providers (Fraser and McNamara, 2000; Robinson, 1995; Schotanus et al., 2011; Yip and Hanson, 2009).

Who chooses the provider (Fraser and McNamara, 2000; Robinow, 1997a, b)? Should it be the client, the purchaser, another provider (e.g., a referring doctor) or a combination of these? The choice can be made based on factors such as availability, price, and/or quality. Price differences between preferred and non-preferred or non-contracted providers can be paid for by either an employer and/or the client. Freedom of choice for a client can also be limited to a certain period. For instance, it can be periodically allowed to have an open (enrollment) period during which clients have unrestricted possibilities to change from provider or health plan (Maciejewski et al., 1997).

How to provide information to clients, especially during open enrollment periods (Maciejewski et al., 1997)? If the client chooses the provider, the purchaser and/or providers should make sure that the client receives good information about both clinical quality and service quality of care (McNamara, 2006; Robinow, 1997a, b).

Various authors note that in current practice, health care purchasers mainly use passive health care purchasing strategies (e.g. McNamara, 2006; Yip and Hanson, 2009). Examples of passive purchasing strategies are strategies that are based on price and follow a predetermined budget or simply pay bills when presented. More active purchasing strategies explicitly seek to hold providers accountable for quality and safety of care (McNamara, 2006).

Health care contracting

Based on the literature reviewed, we were able to identify several contract types. Interestingly, these various contract types are all highly different and do not resemble the general distinction made in the purchasing and supply literature (i.e. fixed price contracts, cost-reimbursable contracts, performance-based contracts, et cetera (Van Weele, 2010)). The contract types that can be identified in the health care purchasing literature are furthermore described according to various different characteristics. We will first discuss the different contract types discussed in the literature. We first focus on
a specific contract form, the block contract, after which we turn to contributions discussing transaction characteristics relevant for the contract form chosen. This section is concluded by a discussion of the effects of different contract types.

Levaggi (1996) mentions the block contract: a contract under which the decision of how much to produce is shifted to the provider. By making the provider responsible for determining outputs, the uncertainty of health care commissioning is shifted from the buyer to the provider. There is no need to discuss state-contingent outputs; furthermore, the level of output is known at the time of signing the contracts. Levaggi’s (1996) study on contracting between districts and NHS trusts shows that block contracts have been widely used in the first agreements established between these parties (over 75% of contracts were block contracts). The block contract is mostly preferred by risk-averse purchasers, who experience risk as a result of information asymmetry.

Information asymmetry is also explicitly mentioned by Petsoulas, Allen, Hughers, Vincent-Jones and Roberts (2011), who discuss various Agency Theory variables in relation to the use of cooperative relationships. In the context of NHS contracting, they argue that high complexity, high information asymmetry, high frequency of exchange and high asset specificity make co-operative (local) relationships and mutual trust very important for success. However, they note that there is a tension between the need for relational contracting and NHS’ preference for adversarial relationships.

Doran, Pickard, Harris, Coyte, Macræ, Laschinger, Darlington and Carryer (2007) found that the consistency of principal nurse visits and client outcomes were largely unaffected by contract characteristics. Where differences existed, they were small. An example of such differences is contract length, which was found to positively affect the consistency of principal nurse visits. Furthermore, contracting for-profit providers results in higher client satisfaction with care and mental health outcomes than contract not-for-profit providers.

Finally, marginal-cost contracting appears to be fairly commonplace mainly in the UK (Beddow and Cohen, 2001). The main prompt for undertaking additional work on a marginal-cost basis is mainly coming from purchasers aiming to reduce waiting lists. Thus, the level of additional services offered, and the resulting level of resource use, may be related more to purchaser funds or shortfall in supply, rather than to any efficient level of production that makes maximum use of available capacity. The approach as such does not appear to be causing heavy conflicts between players.

Despite the various contract types discussed, we note that relatively little is known about the effects of these different contract types: only a few papers discuss such effects. With regard to block contracts, Levaggi (1996) states that one consequence of opting for a block contract is that incentive schemes must be put in place that incentivize providers to reveal information. Without this, purchasers will gradually lose relevant output information and hence contracting power. Another and perhaps more important effect of block contracts is increased hospital specialization. This in turn creates lock-in effects, as a result of which competition decreases. For this reason, Levaggi (1996) argues that block contracts can better be avoided.

Robinson and Phibbs (1989) found that selective contracting in the US by Medicaid and the private sector significantly reduces inflation in average costs per admission and per patient day. In contrast, Unruh, Rudner-Lugo, White and Fowler-Byers (2005) found a negative effect of selective contracting. They studied effects of managed care contracting and found that this type of contracting increases risks for patient safety (through health care utilization changes). It is therefore necessary to maintain quality and safety through monitoring and using safety strategies in selective contracting.
(financial incentives for performance, quality improvement programs, consumer education, and management and integration of care delivery). However, to date, these safety strategies are insufficiently used. Competitive bidding also has mostly negative effects, resulting in practical problems, quality issues, realizing promises made during tenders (Abelson et al., 2004). These issues hamper trust between providers and case managers\textsuperscript{114}, as case managers, who had developed long-term working relationships with a small group of providers in a non-competitive environment, are suddenly required to establish new relationships each time new contracts are awarded. A potentially more damaging effect, depicted by another case manager, is the lack of trust that can develop within this competitive environment where contracts were awarded based on assessments of what agencies said they could deliver and were then unable to deliver what they promised.

**Conclusion and discussion**

Based on the results of our extensive review, we conclude that research into health care purchasing is still limited in scope. The literature that is available mainly focuses on a limited number of purchasing process phases like strategy development, supplier selection, and contracting. Overall though, the articles studied mostly seem to stand on their own. In other words: we did not find many articles that tried to advance the field by explicitly building on earlier work. Opportunities for further research in these articles, although relevant, mainly continue on the topic discussed in the specific article. We therefore believe that there are ample opportunities for further research on health care purchasing. This certainly applies to the discipline that is of interest in this paper, purchasing and supply management, as we note that from this field have generally paid little attention to health care purchasing. For example: we found only a few articles that discuss the topic of supplier management, a core concept in purchasing and supply literature. Interestingly, purchasing literature indicates that the impact of supplier management on the performance of providers can be substantial (Krause et al., 2007). Other core concepts that hardly receive attention in the context of health care purchasing are for example category management, single versus multiple sourcing, and supply networks. We believe that by increasing professionalism in health care purchasing, purchasing and supply management researchers can also contribute to the debate on health care market reform, for example by increasing policy makers’ understanding of the extent to which current health needs assessments can be met by current or future supply market developments.

Second, in the articles studied, we found several examples of health care purchasing strategies or health care purchasing models. However, we did not find theoretical explanations for when certain concepts or combinations of strategic choices should work well. Finding out when certain concepts work well would be useful for both academia and practice. Purchasing and supply research could be very helpful. Among other things, the findings of Kraljic (1983) and all researchers that have built on his work could be used to improve the application of health care purchasing strategies and strategic decision-making in this respect. Similarly, scholars are increasingly advocating strategic segmentation of services (Van der Valk et al., 2009; Wynstra et al., 2006). Building on this, this could mean that further distinctions could be made between contracting different types or “purchase categories” of health care. For instance, for commodity-like types of health care, price might be a relatively important selection

\textsuperscript{114} A case manager is a representative of the health care purchaser, who is responsible for coordinating the care for a specific client (a case).
criterion, but for other types of health care, quality might be more important. In the articles studied, we could not directly find discussions on such category strategies for health care. In fact, most articles found do not build on a specific theory. We believe studies into health care purchasing could benefit greatly from adopting management theories. One example would be to use Agency Theory (Eisenhardt, 1989) in relation to developing health care performance measures, or to develop appropriate provider incentive schemes. While the literature we studied presents various examples, experiences, and correlations between health care outcomes and performance measures, we did not find any articles drawing on Agency Theory to predict whether purchasers should use structure/process measures or output/outcome measures. Tate and Van der Valk (2008) argue that the latter are usually much more valuable: in their specific research on call centres, they argue that customer satisfaction is much more important than the number of calls handled per day. This means that usually, organizations choose for a certain mix of measures/controls. It would be highly valuable to investigate the appropriate mix of controls in the context of health care purchasing, not in the least because issues of ex-ante specification and ex-post performance measurement are closely related to this. More generally, we believe health care purchasing could benefit from insights obtained in general service purchasing research.

With regard to contracts, we find that several types of contracts are discussed in the literature. We know the effects of only some of these contract types. The contract types identified however are not similar to the types of contracts that are commonly identified in purchasing and supply management literature (lump sum, time & materials, cost reimbursable, performance-based) the effects of which are to some extent known. Investigating the effectiveness of different types of contracts for different purchasing situations nicely coincides with an emerging debate in purchasing and supply management literature that much more attention should be given to studying actual contracts and their effects. Furthermore, relatively little attention is given to the relationship to which the contract applies. Robinson (1993) and Petsoulas et al. (2011) discuss relational contracting, but few other papers allude to the role of the relationship in addition to the role of the contract.

In sum, we find that there are many opportunities for future research. We expect that based on these opportunities, future work could better match interests of researchers with the needs of practitioners and further improve managed competition in the health care sector. This is important, as we do believe in the potential of professional purchasing and supply (chain) management to advance health care purchasing practices and positively impact cost and quality of health care delivery.

References
The full list of references is available from the authors.