

# The impact of changes to healthcare payment arrangements on private healthcare in South Africa

---

By

**Evangelos Apostoleris**

GIBS student number: 96251311

Qualifications: MbChB (UP), FC Urol SA, PG Dip (UP)

Address: Gordon Institute of Business Science, 26 Melville Road, Illovo, Johannesburg,  
South Africa

Mobile: +27 83 256 5185

Email: [eaurology@gmail.com](mailto:eaurology@gmail.com)

A research project submitted to the Gordon Institute of Business Science, University of Pretoria, in partial fulfilment of the requirements for the degree of Master of Business Administration.

**7 November 2018**

## **ABSTRACT**

Alternative healthcare reimbursement models (ARMs) have been implemented around the world in order to ensure that quality, evidence-based medicine remains affordable and accessible as health service delivery costs continue to rise. The South African private healthcare system has traditionally relied on a fee-for-service (FFS) model, which is not sustainable within the current environment.

One such model is the recent introduction of an arthroplasty bundled payment arrangement. The objective of the study is to evaluate the interpretation of the recently implemented model amongst all the relevant stakeholders involved in delivering care for their patients related to an arthroplasty procedure. Using a qualitative design, with theoretical insights from the literature, the bundled payment arrangement has been reviewed with all the relevant participants in order to assess the arrangement's merits within the South African private healthcare system.

The findings of the study confirm many of the benefits for which the model was designed, but the research also identifies areas where the model could be modified and/or improved. In addition, clinicians' concerns about the ARMs are highlighted. At the same time, the research exposes some of the positive future trends in healthcare reimbursement, and the potential role of the event-based contract (EBC).

The research provides an insider view and insights that may be of immense value for those involved in designing or redesigning an ARM, specifically for the local healthcare environment. In addition, the study sheds light on possible considerations for rolling out the National Health Insurance (NHI) scheme, as the country seeks to provide improved access and quality healthcare to all citizens.

## **KEYWORDS**

Alternative reimbursement model (ARM)

Agency theory

Patient-centred healthcare

Value-driven healthcare

Informational asymmetry

## DECLARATION

I declare that this research project is my own work. It is submitted in partial fulfilment of the requirements for the degree of Master of Business Administration at the Gordon Institute of Business Science, University of Pretoria. It has not been submitted before for any degree or examination in any other University. I further declare that I have obtained the necessary authorisation and consent to carry out this research.

Name: Evangelos Apostoleris

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Turnitin submission attached: \_\_\_\_\_

# TABLE OF CONTENTS

<b>CHAPTER 1: INTRODUCTION TO RESEARCH PROBLEM .....</b>	<b>1</b>
1.1 Introduction .....	1
1.2 The bundled payment system .....	3
<b>CHAPTER 2: LITERATURE REVIEW .....</b>	<b>8</b>
2.1 Introduction .....	8
2.2 Agency theory .....	8
2.3 Alternative reimbursement models.....	12
2.4 Value creation.....	15
2.5 The contractual relationship .....	17
2.6 Information asymmetry.....	20
2.7 Behavioural economics .....	21
2.8 Conclusion .....	24
<b>CHAPTER 3: RESEARCH QUESTIONS .....</b>	<b>25</b>
3.1 Introduction .....	25
3.2 Research Question 1.....	25
3.3 Research Question 2.....	25
3.4 Research Question 3.....	25
3.5 Research Question 4.....	25
3.6 Table of research questions and questions.....	26
3.7 Conclusion .....	27
<b>CHAPTER 4: RESEARCH METHODOLOGY AND DESIGN.....</b>	<b>28</b>
4.1 Introduction .....	28
4.2 Choice of methodology .....	28
4.3 Population .....	29
4.4 Sampling method and size .....	30
4.4.1 Principal .....	31
4.4.2 Agents.....	31
4.5 Unit of analysis.....	34
4.6 Data collection.....	34
4.7 Data analysis .....	34

<b>4.8</b>	<b>Conclusions .....</b>	<b>35</b>
<b>4.9</b>	<b>Limitations.....</b>	<b>35</b>
<b>CHAPTER 5: RESULTS .....</b>		<b>37</b>
<b>5.1</b>	<b>Introduction .....</b>	<b>37</b>
<b>5.2</b>	<b>Description of participants.....</b>	<b>37</b>
<b>5.3</b>	<b>Presentation of results .....</b>	<b>39</b>
<b>5.4</b>	<b>Results for the agents.....</b>	<b>39</b>
<b>5.5</b>	<b>Results for Research Question 1 .....</b>	<b>40</b>
5.5.1	“Describe the orthopaedic bundled payment arrangement.” .....	40
5.5.2	“Were you invited to participate, or did you ask to be involved?” .....	42
5.5.3	“Why are you involved?”.....	43
5.5.4	“Is this the ideal relationship between principal (funder) and agents (all those involved in delivering healthcare for the joint replacement)?” .....	44
5.5.5	“Who benefits most from the payment arrangement?” .....	46
5.5.6	“Was there a negotiation with regard to remuneration in any way or form?” ..	47
5.5.7	“Were you offered different options or packages?” .....	48
5.5.8	“Will you be using your usual billing codes for the joint replacement?” .....	50
5.5.9	“Who determined your professional fee?” .....	51
<b>5.6</b>	<b>Results for Research Question 2 .....</b>	<b>52</b>
5.6.1	“Will this model put patient care at risk in any way, whatsoever?” .....	52
5.6.2	“Who has the power in the relationship? You, the medical aid, the hospital, the surgeon?” .....	54
5.6.3	“Does this model create value?” .....	55
5.6.4	“If value was created, for whom?” .....	55
5.6.5	“Are you better or worse off because of the model?” .....	57
5.6.6	“In your opinion, what is the biggest driver of cost in joint surgery?” .....	58
5.6.7	“Could you have said no?” .....	59
5.6.8	“What would have been the implications? Why did you say yes?” .....	61
<b>5.7</b>	<b>Results for Research Question 3 .....</b>	<b>62</b>
5.7.1	“Do you think that there could be some information asymmetry in the arrangement? For example, either you are not sure what the funder, the hospital or any clinician in the medical team is doing, and vice versa?” .....	62
<b>5.8</b>	<b>Results for Research Question 4 .....</b>	<b>64</b>
5.8.1	“Does the bundled payment arrangement have built-in incentives?” .....	64
5.8.2	“Do you get remunerated more with the bundle or not?” .....	65
<b>5.9</b>	<b>General insight questions .....</b>	<b>66</b>

<b>5.10 Results for the principal .....</b>	<b>70</b>
5.10.1 Discovery (principal).....	70
<b>CHAPTER 6: DISCUSSION OF RESULTS .....</b>	<b>77</b>
<b>6.1 Introduction .....</b>	<b>77</b>
<b>6.2 Discussion of results for Question 1 .....</b>	<b>77</b>
6.2.1 Relevance of findings for Question 1 .....	82
<b>6.3 Discussion of results for Question 2 .....</b>	<b>84</b>
6.3.1 Relevance of findings for Question 2.....	93
<b>6.4 Discussion of results for Question 3 .....</b>	<b>95</b>
6.4.1 Relevance of findings for Question 3.....	97
<b>6.5 Discussion of results for Question 4 .....</b>	<b>98</b>
6.5.1 Relevance of findings of Question 4.....	100
<b>6.6 Discussion of general questions .....</b>	<b>101</b>
6.6.1 Relevance of findings on general questions .....	104
<b>6.7 Conclusion .....</b>	<b>105</b>
<b>CHAPTER 7: CONCLUSION.....</b>	<b>107</b>
<b>7.1 Introduction .....</b>	<b>107</b>
<b>7.2 Answering the research problem.....</b>	<b>107</b>
<b>7.3 Summary of the research findings.....</b>	<b>111</b>
<b>7.4 Implications for academia .....</b>	<b>113</b>
<b>7.5 Implications for policy and practice .....</b>	<b>113</b>
<b>7.6 Limitations.....</b>	<b>114</b>
<b>7.7 Recommendations for future research.....</b>	<b>115</b>
<b>REFERENCES.....</b>	<b>116</b>
<b>APPENDICES: ADDITIONAL DOCUMENTS .....</b>	<b>119</b>
<b>Appendix 1: GIBS ethical clearance.....</b>	<b>119</b>
<b>Appendix 2: Medical ethical clearance .....</b>	<b>120</b>
<b>Appendix 3A: Informed consent and questionnaire for the principal – Discovery Health Medical Scheme.....</b>	<b>121</b>
<b>Appendix 3B: Informed consent and questionnaire for agent – hospital group.....</b>	<b>126</b>
<b>Appendix 3C: Informed consent and questionnaire for agent – orthopaedic surgeon.....</b>	<b>130</b>
<b>Appendix 3D: Informed consent and questionnaire for agent – anaesthetist.....</b>	<b>134</b>

<b>Appendix 3E: Informed consent and questionnaire for agent – physiotherapist</b> .....	<b>138</b>
<b>Appendix 3F: Informed consent and questionnaire for agent – medical device company</b> .....	<b>142</b>
<b>Appendix 4: Copyright declaration</b> .....	<b>146</b>
<b>Appendix 5: Appropriate additional support</b> .....	<b>148</b>

# CHAPTER 1: INTRODUCTION TO RESEARCH PROBLEM

## 1.1 Introduction

South Africa spends a large proportion of its Gross Domestic Product (GDP) on health expenditure. The proportion of total health expenditure as a percentage of GDP was 9% in the 2016/17 financial year (Still, 2017). The funding of healthcare is a priority and our health outcomes need to be seen within the context of our spending and whether or not South Africa is getting value for its healthcare spend. South Africa is spending more than its BRICS (Brazil, Russian Federation, India, and China) counterparts, who are spending between 5-8% of their country's GDP on healthcare (Still, 207, p. 92). Are we as a nation getting value and quality healthcare for that spend?

The delivery of affordable healthcare in South Africa has been under the spotlight since 1994, as the country has been moving toward the adoption of a national health service. Crucial to the success of its implementation will be the way in which public-private healthcare partnerships are formulated to deliver affordable, quality, evidence-based care that all citizens can access and be proud of.

Private healthcare has been an area of focus for spiralling healthcare costs that seem to be spent on a proportionally much smaller segment of the population as the majority rely upon a less expensive public healthcare sector. The fee-for-service (FFS) model that is currently being used to reimburse specialists in private practice is not sustainable. Around the world, there has been a significant shift towards new payment models that offer more value for all stakeholders, at a lower price. These payment models, which include "global fees", "capitation", "bundled payments" and salaried specialists, are possible alternatives to the current FFS model.

According to Deloitte's Global Health Care Outlook report for 2018, healthcare is transcending from a "volume to a value system" (Deloitte, 2018). This can be achieved, according to the report, by using incentives and coordinated care, and by optimising operational efficiency. Key to this process is the deployment (by stakeholders) of "innovative delivery models".

In Deloitte's Global Health Care Outlook report for 2016, it is stressed that the healthcare ecosystem is undergoing "change" and that all stakeholders need to engage in order to ensure that existing "business, clinical, and operating models" (Deloitte, 2016, p. 2) are invented, redefined and improved. The FFS model, which is still widely used in South Africa, presents a large obstacle to change. To achieve the best possible care at the lowest possible cost, one would have to move to a value-based care (VBC) payment model. However, there can be reluctance on the part of physicians due to loss of income from potentially better paying FFS models.

In healthcare, shifting the focus from volume to value means that we obtain more **quality** healthcare services at a lower cost (Deloitte, 2018). In the United States, this shift towards value is being driven by the Medicare Access and CHIP Reauthorization Act of 2015 (MACRA), which offers financial incentives to physicians who move away from traditional FFS models (Deloitte, 2018).

In South Africa, certain medical schemes have explored innovative options for reducing the burden of **high** service provider costs, to their viability, without compromising on patient care. One such model is the "bundled payment" system, which has recently been introduced for arthroplasty procedures, to reduce the costs of joint replacement surgery. This model will be assessed in terms of its appropriateness to deliver an affordable, quality arthroplasty service without compromising value. Can this model be used to provide "global fees" for other surgically treated medical conditions that could be successfully implemented in the endeavour to deliver quality healthcare? Review of the model will contribute towards our understanding of how the respective stakeholders feel about the model and how all the participants in the bundle work together to deliver the best possible care to their patients.

The South African private healthcare ecosystem is complex and not transparent enough for all the participants, as the multiple stakeholders do not engage one another in one open forum. Medical funders, hospital groups, pharmaceutical companies, healthcare providers and ancillary healthcare providers all work independently in silos, and communication amongst all stakeholders is not optimal through the whole value chain. Negotiations behind the scenes dictate patients' referral systems/networks. Medical practitioners and patients have little knowledge about these negotiations. Our country needs to move towards a value-driven healthcare system that ensures that patient outcomes are not compromised and that all involved in the delivery of healthcare are in agreement. Who has the power and who oversees negotiations? Are all the relevant

stakeholders working together to ensure that value is created for their patients and their business?

## **1.2 The bundled payment system**

The bundled payment system would go a long way towards ensuring that the patient is covered for all treatments relevant to their medical condition. It will also ensure that all the relevant healthcare providers start understanding the real cost of delivering healthcare instead of focusing solely on remuneration codes and fees. It would force insurers, hospital groups and all service providers to work together and be transparent about their pricing, while rewarding healthcare providers appropriately and ensuring that patients receive quality, evidence-based healthcare. Once all stakeholders start communicating with each other and are transparent about their needs and their concerns, South Africa can move forward in offering improved quality and comprehensive healthcare coverage.

The bundled payment system appears to offer more value than the FFS system, according to Porter (2009). The system is one in which a patient's medical treatment is paid for according to certain pre-defined medical conditions. Different medical conditions and their treatments are funded differently. The bundled payment would pay for the condition across the whole treatment cycle. This treatment cycle could be a payment for the complete treatment of prostate cancer or the payment for an all-inclusive knee replacement (arthroplasty procedure), as is explored in this research. There would be one bill and, subsequently, one payment that would need to be shared across all disciplines, for a predetermined fee.

The challenge is that the bundled payment would need to be shared among medical insurers, hospital groups, pharmaceutical and medical devices companies, laboratories, specialist radiology services, medical practitioners (general practitioners and specialists) and ancillary healthcare providers. The pool of healthcare funds is limited and these funds need to be used wisely in order to cover all their patients (members of their medical aid scheme) for appropriate evidence-based care. This task is made even more difficult by the inflationary environment both globally and in South Africa, in which healthcare costs are perpetually on the rise.

One of the most important downstream benefits of the bundled payment arrangement is that it encourages more teamwork from the medical team, which can only be positive for all stakeholders, as now they need to work together. This should “accelerate the formation of integrated practice units (IPUs)” (Porter & Kaplan, 2016, p. 7). “Porter and Kaplan (2016) believe that IPUs allow clinicians to integrate better due to the design of the model; they also encourage cost reduction and greater accountability (on the part of the clinician) for patient outcomes”.

One of the key challenges is that the costs of running a medical practice have escalated, while the fees of practitioners have not increased as much. The rising costs of medical malpractice, for example, have made it near impossible to run a viable practice in the discipline of obstetrics and gynaecology. How do we ensure that we have the best medical doctors looking after us while, at the same time, remunerating them appropriately?

Medical practitioners may be resistant to changing the way in which they are reimbursed, for example, as we move from an FFS to a bundled payment system, as this means moving from a known and predictable system to what that is unknown. It would also be necessary to determine the subsequent impact on the economic viability of their practice. What would their perceived clinical outcomes be with regard to their patients? What are the major obstacles preventing practitioners from providing affordable quality healthcare? Is it medico-legal costs, practice costs, insurers or hospital groups, or is it the practitioners, themselves?

This study is relevant because, if the future of healthcare is left to the regulators, it will result in lower remuneration of doctors, which will mean that practices are not viable. The study will acquaint us with alternative methods of funding to the current system that could allow for better utilisation of the precious and limited pool of medical funds so that they are used to their maximum benefit for all members.

Healthcare for all is a goal that South Africa needs to achieve. If the private sector is more transparent and efficient, much-needed extra capacity for better interaction with the government sector could be created, especially as South Africa moves towards the implementation of National Health Insurance (NHI) in 2025.

The purpose of this research is to shed light on the global fee payment arrangement that has been implemented with regard to the orthopaedic arthroplasty bundled payment

arrangement. This will be achieved by interviewing all stakeholders (that participate) in the alternative reimbursement model (ARM). The study will aid all those involved in creating or managing ARMs in understanding how different stakeholders within this complex healthcare ecosystem make sense of the payment arrangement. It will further explore how different healthcare professionals utilise the payment arrangement to extract the most value for both their patients and themselves. Through an interpretive approach, the self-interest of various groups can be elicited to facilitate a redesign of these arrangements, if necessary, or to inform future payment arrangements for the same service or other disciplines to follow.

The South African healthcare environment is a complex adaptive system (CAS); within this context, the stakeholders and/or practitioners need adaptability and new ways of leading in order to navigate and make sense of this local healthcare ecosystem (Uhl-Bien & Arena, 2017). Key to understanding the CAS is watching for signs of emergence of any patterns or trends as well as existing tensions within the healthcare environment. One can assess the relevant pattern of information flows within this ecosystem, thus enabling greater connectivity, and transparency amongst all participating stakeholders, with the resultant opening of the adaptive space creating conditions for emergence (Uhl-Bien & Arena, 2017).

Complexity thinking is key to reading a system and looking for signs of emergence (Uhl-Bien & Arena, 2017). Adaptive leadership will be needed in order to tackle the change required within the healthcare space. Adaptive leadership focuses on change within organisations in order to disrupt the status quo.

Healthcare companies and clinicians often operate in silos, with multiple stakeholders each looking after their own self-interests. There is a common link, though, in that the patient is at the centre of this ecosystem, and, in the interaction, all stakeholders wish to extract the most value for their customer (patients), as well as reasonable economic value for themselves. It will be beneficial to see how all stakeholders feel about the orthopaedic payment arrangement model and how their roles are perceived.

The status quo cannot continue whereby connectivity is lacking and there is no interconnectedness in healthcare as this results in increased costs and reduced efficiencies. The significant pressures related to funding quality care as well as the trends in healthcare reimbursement create tensions and pressure on all participants, which can assist in opening up an adaptive space (Uhl-Bien & Arena, 2017). Enabling leadership

will be the key to supporting and sustaining this adaptive space (Uhl-Bien & Arena, 2017). Many of the stakeholders involved in the funding of the ARM and all those involved in delivering care for the patients are leaders, in their own right, and it will become apparent from the study how they all work together in delivering the capabilities needed to perform the arthroplasty procedure.

According to Heifetz and Linsky (2002), one must diagnose the system by considering three major components, which are structure, culture and defaults. One also needs to look at each stakeholder and clearly define their role within the healthcare ecosystem. The solution may be in the form of public-private partnerships so that all the stakeholders need to ensure that their interests are well aligned to co-create these strategic partnerships. How are these payment arrangements structured, and do they deliver on what they were designed to do?

Different payment arrangements, including global fees, can be successfully implemented in South Africa, and may be applicable to treatments of other medical conditions, too. One of the concerns about the proposed transition from volume- to value-based healthcare is whether healthcare professionals are ready for the transition. Hospital groups regularly engage with medical funders, but healthcare providers either do not engage with them or have limited involvement with them. Healthcare providers and specialists, in particular, usually work independently, and, because of the significant stressors and time constraints upon them, specialists are fully engaged in volume delivery to survive and thrive. Often, there is communication from each individual specialist organisation, for example: the South African Urological Association (SAUA) is for the urologists; but the strength and success of each organisation is determined by its members and how they lead their colleagues within this environment.

Our private healthcare system needs to prepare for integration into the NHI. Is this model or another model the correct framework for a system that needs to change? Is the relationship between the funders, hospital groups, healthcare practitioners, pharmaceutical companies and medical device companies ideal? Do they actually communicate, or do they dictate to one another? Are the associations involved in leading our healthcare through turbulent times? Do all the relevant stakeholders have about whether or not to participate? What are the dynamics?

The recent Health Market Inquiry (HMI) by the Competition Commission revealed that, with regard to the hospital groups, Netcare, Mediclinic and Life Healthcare have a

combined market share of 83% of the national South African private market and 90% in terms of total admissions (Competition Commission of South Africa, 2018, p. 11). There is one open medical scheme, Discovery Health Medical Scheme (DHMS), which comprises 55% of the open scheme market (HMI, 2018, p. 10). The HMI further discusses ARMs and raises the point that the ethical interpretation of ARM by the Health Professions Council of South Africa (HPCSA) could potentially be a barrier (Competition Commission of South Africa, 2018, p. 361). The HMI also encourages quality measurement and reporting for successful implementation of ARMs (Competition Commission of South Africa, 2018, p. 361).

Our specialists need to prepare to engage with all the relevant stakeholders within this complex ecosystem to forge ahead with the bundled payment system for arthroplasty and make it a success. How do our specialists and all relevant stakeholders view their position in this new relationship that promises to change the way healthcare is delivered in the private healthcare industry in South Africa and, soon, within the larger environment of a national health system? We require healthcare leaders who will truly lead us to greater and greener pastures for our healthcare system and our patients.

All stakeholders involved in managing care for patients need to understand the impact of changes to healthcare payment arrangements, like the orthopaedic bundled payment arrangement, on private healthcare in South Africa. How will it change the complex environment in which we operate, and will it finally bring our stakeholders closer, increasing transparency and teamwork for our patients, our people and our nation? The NHI will be upon us soon, and it is envisaged that ventures like this, in search of innovative funding models to achieve VBC, will be instrumental in making it a success and delivering quality healthcare for all, in the near future.

# CHAPTER 2: LITERATURE REVIEW

## 2.1 Introduction

There are multiple methods of paying for healthcare providers. Three of the worst payment mechanisms in terms of achieving value-driven healthcare are fee-for-service (FFS), capitation and a monthly salary (Robinson, 2001, p. 149). The inappropriateness of the traditional funding models and the spiralling costs of healthcare have resulted in a new method of payment in the form of an incentive contract (Robinson, 2001).

In this research, the recently launched orthopaedic payment arrangement model will be reviewed. The payment arrangement model is a new method of payment for single joint arthroplasty in South Africa. It is more complex than the traditional FFS model, as it involves multiple stakeholders (agents) delivering quality healthcare for a fixed price for the patient (member), on behalf of the medical scheme (principal).

For the purposes of this research, “agency theory” provides the theoretical basis for understanding the relationships between the relevant stakeholders in the bundled payment arrangement. Agency theory is concerned with understanding behavioural outcomes or patterns that arise where “one party (the principal) delegates work to another party (the agent) who performs that work” (Eisenhardt, 1989, p. 58). This is similar to the relationship in the bundled payment arrangement, between the medical funder (the principal) and the specialist performing the procedure (the agent).

## 2.2 Agency theory

The agency relationship can be defined as “a contract under which one or more persons (principal(s) engage(s) another person (the agent) to perform some service on their behalf which involves delegating some decision making authority to the agent” (Jensen & Meckling, 1976, p. 5). In this context, an example of the agency relationship would correspond to the orthopaedic surgeon (agent) who will perform the arthroplasty procedure for the respective client (patient) of the principal (medical aid). Jensen and Meckling mentioned that if both the principal and the agent are utility maximisers, then the agent (surgeon) may not necessarily act in the best interests of the principal (medical aid). Furthermore, the “principal can limit divergences from his interest by establishing appropriate incentives for the agent and by incurring monitoring costs designed to limit

aberrant activities of the agent” (Jensen & Meckling, 1976, p. 6). Specialists may be sceptical of the motives of the funder, so this theory may be an applicable explanation of the relationship between the principal and the agent(s) in the bundled payment arrangement.

“Physician agency” is a term used to answer the fundamental questions related to the motives of physicians and their market power (McGuire, 2000, p. 463). Physician behaviour (in this instance, of the orthopaedic surgeon) is central to the payment arrangement. When one is looking at implementing managed healthcare, “drugs, surgery, and other health care inputs cannot be had without physician initiative and concurrence” (McGuire, 2000, p. 463). Activating the clinical pathway, for example: deciding a patient needs a surgical procedure, is the responsibility of the orthopaedic surgeon, who is trained to execute on this, using his/her clinical judgement and experience. “Physician agency”, here, pertains to the “physicians’ motives and market power” that they possess. Physicians should hold clinical power as a virtue, and their daily work is epitomised by the “Hippocratic Oath”. Physician behaviour has been studied in depth in health economics, but it is important that the clinicians maintain clinical independence and do what is in the best interests of the patient, at all times, despite pressure from funders, hospital groups, pharmaceutical and/or medical device companies, and even fellow colleagues. Physician agency can also be defined by “physician preferences which weigh his profit and the patient’s health benefit” (Choné & Ma, 2011, p. 1).

In the physician-patient relationship and contract, it is not so much that the physician asks how many services the patient would like, but rather that he/she recommends the best treatment option(s) for the diagnosis or the conditions for which the patient has sought advice. “Physicians set quantity”, and it is what they have been trained to do with impeccable accountability and the highest ethical standards. “Physician-induced demand” (PID), as described by Evans (1974), refers to persuasive activity on the part of the physician in order to shift the patient’s demand curve according to the attending physician’s self-interest (McGuire, 2000, p. 464). Physicians undoubtedly have an advantage over the patient and other stakeholders in the relationship, due to their superior clinical knowledge of their patient, their patient’s medical condition, and their planned treatment. Interestingly, at the same time, the funders can potentially set or manipulate prices in terms of coverage, payment arrangements, network deals and terms of reimbursement. One must question whether managed healthcare organisations and their associated plans or options seek to impose their will on the physician’s

decisions about treatment plans and/or procedures (McGuire, 2000, p. 464). How does one monitor this complex relationship between these two stakeholders?

The complex environment of healthcare is, at the same time, undergoing changes with regard to the physician-hospital relationship due to pressure from market competition/forces. How can such a crucial aspect of the healthcare delivery system be fragmented, especially within the setting in South Africa, which consists of multiple independent solo practices and very few integrated practice units (IPUs)? For decades, the relationship between hospitals and physicians has been characterised by an “arms-length informality”, in which there has been no formal contract and in which physicians utilised the hospital facilities for admission, surgical procedures, consulting rooms and emergency (casualty) cover (Robinson, 1997, p. 4).

The traditional physician-hospital relationship has been one of clinical autonomy on the physician’s side, and the hospital has been a for-profit business, with many hospitals even listed entities on the Johannesburg Stock Exchange (JSE) in South Africa. This relationship/understanding meant that the physician used the hospital’s facilities, capital and nursing staff as if he/she owned them, but without paying the costs associated with them (Robinson, 1997, p. 5). The two seemed to work together independently, with the patient’s interests being the primary focus.

The relationship became more complicated as hospitals competed for more profitable physicians and/or category of patient admissions (more profitable admissions), while, at the same time, physicians demanded new capital equipment, specialised units and preferential treatment (Robinson, 1997). In addition, it has become more difficult to manage the environment, as physicians can own and manage their own hospitals and own shares in the hospitals in which they work. This has created what is referred to as an “integrated delivery system” (IDS) whereby the hospitals and physicians join to form a vertically integrated organisational structure which then aligns ownership, authority and profits (Robinson, 1997, p. 6). The resulting spiral of utilisation and rising costs of healthcare have led to apparent retaliation by payers through what is referred to as “managed healthcare”. Managed healthcare” includes bundled payment arrangements, capitation and salaried physicians (Robinson, 1997).

The description above of the changing dynamics of the healthcare system is not unique to South Africa, and this research is key to help identify the relationship between the principal (funder) and the respective agents, which include the hospital groups, physician

(orthopaedic surgeon) and other clinicians, pharmaceutical companies and medical device companies. Agency theory could be an appropriate lens through which to understand the current scenario with reference to the orthopaedic bundled payment arrangement and the resultant relationship between the principal and agents, as it currently stands, as well as the direction in which it is trending.

Eisenhardt (1989) explains that agency theory can resolve two problems that may occur. “The first is an agency problem when (a) the desires and goals of the principal and agent conflict and (b) it is difficult and/or expensive for the principal to verify what the agent is actually doing” (Eisenhardt, 1989, p. 61). How does the principal confirm that the agent has performed as per the contract? As it stands, feedback on healthcare providers is not formalised. Surgeons are accustomed to operating independently and would now need to give feedback to the principal (medical aid). The principal also now asks the patient (customer) for feedback. If there is a complaint, it may be lodged with the medical aid or the Health Professions Council of South Africa (HPCSA). In general, it is lodged by the patient.

What would add more value in the transition from volume- to value-driven healthcare is an extra feature whereby the various stakeholders in the principal-agent relationship are rated. In terms of delivering on the agreed contract between the principal and agent, if one has agreed to perform a knee replacement, this can be verified by following due process, while other procedures may be more difficult to confirm. In terms of actual value, patient outcomes, complications et cetera, this would need to be agreed to and formalised by the principal-agent contract.

The second problem identified is when the “principal and the agent have different attitudes towards risk” (Eisenhardt, 1989, p. 62). It may seem trivial that one needs to question whether the principal and agent are in agreement, but this needs to be monitored. All relevant healthcare providers acting as agents should be aligned with the patient and their clinical outcome as the main priority. This is the same standard that one would apply to the principal in the bundled payment arrangement and, in fact, should include all stakeholders. If the principal is risk-tolerant, they may be willing to pass this on to the agent (surgeon). This may not be ideal for a surgeon who is risk-averse.

## 2.3 Alternative reimbursement models

A complex issue, to be considered in the design of payment arrangements, is how to coordinate the efforts of one agent with those of other agents in the payment arrangement (Robinson, 2001, p. 153). Payment of an individual agent, based on their own individual effort, can undermine cooperation (Robinson, 2001, p. 154). Physician behaviour is also complex: it can be difficult to monitor. In addition, patient outcomes are not always predictable, making simple payment methods difficult to enforce.

Physicians do not adjust their clinical practice methods in response to payment incentives (Robinson, 2001, p. 154). FFS models are obsolete in most other occupations and seem to persist in healthcare. The persistence of FFS and the rise of capitation can be reviewed in light of certain billing behaviours required by physicians (Robinson, 2001, p. 154). These models may include retrospective and prospective payment (Robinson, 2001).

**Table 1: Four key features of clinical practice enabling alternative reimbursement models (Robinson, 2001)**

Four key features of clinical practice (economic incentives)	Advantages	Disadvantages
Physician productivity and patient service	FFS ideal; One-on-one profession; Rewarded for long hours many procedures; Attentive to individual patient; Pays more to those that do more	Capitation poor in this setting; Payment determined prospectively regardless of service; Underpay those that do more or perform complex procedures and overpay those that do few cases
Risk acceptance	Reward physicians better when treating sick and complicated patients; Reward less when treating routine cases; FFS performs well as sicker patients can result in more fees	Capitation remunerates physicians poorly for deteriorating sick patients

Efficiency and appropriate scope of practice	Should be rewarded more for not overtreating and/or undertreating; Appropriate level of care and scope of practice; Capitation ensures that supplier-led demand is limited	Limitations of FFS as capitation encourages the physician not to provide unnecessary treatment, especially in high-cost settings; FFS can add to medical inflation
Cooperation and evidence-based medicine	Encouraged to cooperate with clinicians, evidence-based care, limiting treatment variation for similar conditions Limiting unnecessary office visits	Limited in FFS (actually counter-productive in this regard) Limited collaboration

(Adapted from Robinson, 2001, p. 155)

The literature certainly supports the notion that payment incentives can influence physician behaviour. The FFS model certainly encourages resource consumption, while capitation has the opposite effect, in discouraging it (Robinson, 2001, p. 157).

There has been a trend to pay for an episode of illness analogous to the Medicare's Diagnosis Related Group (DRG) system for hospital payments. This has been in response to the vertical integration between the hospital and physician with the IDS, as discussed above. In this case, the hospital receives set payment for an episode of care when the patient is admitted to hospital (case-rate payment) (Robinson, 2001, p. 162). Case-rate payment can help differentiate between epidemiological risk or "probability risk", as well as the clinical or "technical risk" (Robinson, 2001). The probability risk would include the costs of care that the attending physician cannot control, whereas the technical risk is linked to both the resource use and skill level of the physician. The probability risk should be spread across the whole patient population, while technical risk is held by the clinician who has accepted responsibility for the case.

One means of simplifying payments is to bundle them in order to optimise care, limit costs, and still achieve the best outcome possible (Jacobs, Daniel, Baker, Brown & Wodchis, 2015). Bundled care provides an opportunity to maintain control of some of the costs associated with the provision of delivering quality healthcare; at the same time, it can allow clinicians to focus on delivering quality healthcare so that all stakeholders (principal and agents) are aligned. The ideal bundled payment (which holds the most promise to reduce total costs) is one where "variation in outcomes is low while variation in cost is high" (Jacobs, Daniel, Baker, Brown & Wodchis, 2015, p. 3).

Jacobs et al. (2015) recommend that policymakers consider the 12 steps outlined in Table 2, below, before implementing bundled care payment arrangements:

**Table 2: Twelve steps to consider before implementing bundled care payment arrangements**

<b>Recommendations</b>	<b>Comment</b>
1. Choose condition carefully	Single joint arthroplasty is simple to define and is reproducible
2. Definition of episodes covered by payment should match the duration of the condition	The procedure can be standardized and the entire duration of treatment for the condition should be covered
3. Include all providers in a bundled price	All providers must be included in the bundled payment that are relevant to the delivering of care for the whole treatment cycle
4. Early physician leadership is critical	Physician leadership is key, and it is best if it is driven by the relevant associations and they develop the clinical pathways themselves (evidence-based care)
5. Ensure continuing physician engagement through a number of mechanisms	Continuous reassessment of all aspects of the bundled payment should be regularly discussed in open, transparent forums by all relevant stakeholders
6. Ensure timely and integrated data	Quality care indicators can easily be identified and measured in a timely manner
7. Invest in information technology	Information technology in the form of electronic health records will certainly lead to an improved service offering as long as the management team is on board
8. Monitor quality of care	Quality of care is always monitored but with a bundled payment arrangement all relevant stakeholders should be closely integrated and continuously reassessing desired clinical outcomes
9. Choose bundles based on provider and cost variation	The ideal bundled care solutions are when there is little variation amongst providers
10. Ensure transparency of cost and quality data	Transparency in terms of creation of the bundle, pricing, delivery of care, and evaluation of the bundled payment arrangement
11. Include risk adjustment prices	It is important to adjust for the higher risk patient so as not to compromise care as well as identification of outliers

12. Move towards as much bundling as possible	It is important to ensure that costs are tracked in order to determine if they are occurring outside the bundle
---	---

(Jacobs et al., 2015, pp. 2-4)

In South Africa, the private healthcare system consists of many solo or single practitioners. A silo, fragmented system has been created. This has encouraged the FFS system to flourish. Capitation has not really taken off in the local environment, and new ARMS, like the orthopaedic payment model are overdue in the healthcare system. How does one monitor the contract between the respective agents and the principal-agent relationship, especially in view of the considerations listed in the table above?

## 2.4 Value creation

Bosse and Phillips (2016) explain that agency theory comes about when the principal enters a relationship with the agent when there is value to be created. Although it is difficult to quantify the amount of value that will be created by the agent, the principal expects this of the agent, and said value is termed “expected amount of value” E (V) (Bosse & Phillips, 2016, p. 278). In the bundled payment arrangement, the E (V) would be defined in the agreement and would refer to the completion of the arthroplasty procedure, achieving the best possible clinical results at the best price, without compromising on quality.

“Assuming the agent and principal are self-interested utility maximisers, a problem arises for the principal when (1) the two parties have divergent interests and (2) the agent has better information than the principal” (Bosse & Phillips, 2016, p. 278). The principal will have access to all the economic aspects related to the bundled payment as well as information related to similar arrangements at other hospitals or with other orthopaedic surgeons. Will this information be available and shared willingly to all stakeholders in order to make the necessary adjustments so that there is value creation? The agent is the clinician and is privy to clinical information that is not accessible to the principal and other stakeholders. The principal has certain expectations of the agent, and vice versa, and will this be shared with equal enthusiasm and transparency?

The fundamental agency problem is that this can create a situation in which the agent will not act in the best interests of the principal, and, subsequently, the “principal will not get the full expected amount of value  $E (V)$  but less value that is referred to as  $E (V-C)$ ” (Bosse & Phillips, 2016, p. 278). In the bundled payment arrangement, the patient is central to the system, and, as both the medical aid group and the specialist have the patient’s best interests at heart, this should not be prevalent in the programme.

Who will accept risk if some of the value is not achieved? This would depend on the reason for the value not being achieved. Bosse and Phillips (2016) state that principals want agents to assume some of the risk for value not being achieved, while the agents do not want to accept this risk. How will the risk sharing aspect of the agreement be covered? Eisenhardt (1989, p. 62) raises an important consideration: should the principal-agent contract be a “behaviour-orientated contract or an outcome-orientated contract? Behaviour can allude to options such as salaries, hierarchy or, perhaps, pattern of payment. An outcome-orientated contract can be assessed by defined clinical outcomes, the lack of complications (morbidity), the need to re-operate, et cetera. The concern, here, is that different surgeons possess different skills, and certain patients need more complicated surgeries and may have significant medical problems, thus requiring a more diverse medical team, including a physician and cardiologist, et cetera.

Eisenhardt (1989) believes that rewarding the agent based on their outcomes is an appropriate incentive-alignment mechanism. This certainly fits well with the bundled payment arrangements model. The clinical outcome, defined as a successful joint replacement, is what both parties have agreed to and can be recorded and measured. One concern is that the agent may not agree to being held accountable for complications that may occur if they are out of the surgeon or agent’s control.

Another interesting point is that in the traditional FFS model, regardless of the clinical outcome, the surgeon would still be paid for services rendered, even if the resultant surgery was not successful. In the traditional FFS model, any council-registered surgeon could qualify to participate and bill the funder. In the bundled payment arrangement, surgeons can only participate if they work at hospitals that agree to partake in the payment arrangement. This bundled payment arrangement could then disqualify certain surgeons from treating patients and being allowed to bill. Would the surgeons prefer a larger fee for the procedure than what is currently offered/proposed? Perhaps a salary (behaviour-based compensation scheme) or an outcome-based compensation scheme (shares)?

The selection process for the principal-agent contract (for the bundled payment arrangement) can be made more difficult by the “classic agency problem of asymmetric information” (Shapiro, 2005, p. 263). When Shapiro refers to this classical agency problem, she is referring to the fact that the principal does not really know the skill level of the agent. Only the agent knows their true ability compared to that of their peers, and this can be complicated by the fact that the agent may over-exaggerate their talents. The principal may not be aware of the true skill of the agent, which means that the selection process “could be tainted by adverse selection” (Shapiro, 2005, p. 276).

Do the principals have enough clinical data to choose the correct partner, or did the principal not provide enough incentive to attract the best talent? There may be senior/more experienced surgeons in arthroplasty who perhaps charge a higher rate for their services than what the funder is willing to pay. Will they be excluded if they bill more than the bundled rate, or not? Will they be allowed to treat their patients in their practice, or will exclusions or co-payments apply? Will newly qualified surgeons, who perhaps are comfortable charging a lower rate, attract more patients because of them potentially agreeing to a lower rate from the funders? What criteria will the principal (funder) use, or do we let the market decide? This is one of the dilemmas the funding of healthcare faces, as funders and other participants move from volume- to value-driven healthcare.

Ultimately, one would want the most experienced surgeon performing the procedure, as the operating times would be shorter (more cost-efficient) and the results arguably better (clinical outcomes), but would they be willing to accept the bundled payment arrangement? If so, at what price? Shapiro (2005) questions the theory by questioning whether the agents can be seen as opportunistic. In terms of the bundled payment arrangement, would agents use this as an opportunity to attract work that ordinarily would not have come their way, were they not aligned with this new network opportunity?

## **2.5 The contractual relationship**

With reference to agency theory, “most organizations are simply legal fictions which serve as a nexus for a set of contracting relationships among individuals” (Jensen & Meckling, 1976, p. 8). Shapiro (2005) explains that “in this paradigm, agency relationships are contracts, and the incentives, monitoring devices, bonding, and other forms of social control undertaken to minimize agency costs constitute the elements of

the contract” (Shapiro, 2005, p. 266).

The nature of these contracts may be problematic. Those with a mathematical bent (in what is known as “principal-agent theory”) model the “structure of the preferences of the parties”, “the nature of uncertainty”, and “the informational structure” on contracting practices (Shapiro, 2005, p. 266). The principal-agent contracts are complex for the healthcare provider to understand. The principal comes from a position of strength in terms of understanding the legal and contractual jargon. The agent is well-positioned to understand the needs of the patient and the clinical pathway that must be followed. How do the two meet and understand each other on equal terms so that the patient ultimately gets the value that they deserve? “The assumption that complex organizational structures and networks can be reduced to dyads of individuals is one of many assumptions – regarding efficiency and equilibrium, that individuals are rational and self-interested utility maximisers prone to opportunism, et cetera – that are off-putting to other social sciences. To be tractable, however, mathematical modeling requires such simplistic assumptions” (Shapiro, 2005, p. 266). It remains to be seen how the bundled payment agreement will change after implementation and how the initial teething problems will be addressed.

The principal-agent contract in healthcare is more complex than the average contract, because it often involves multiple agents, and (in the future) will also involve multiple principals, as each medical aid rolls out their own bundled payment arrangements. Shapiro (2005) describes theories as “more complex (and interesting) when they allow for the possibility that collections or teams of principals (or agents) disagree or compete over interests and goals”. How is the team defined for low-risk patients (those with no or few comorbidities), versus the healthcare teams for high-risk patients (those with many comorbidities)?

It would be of great value to all the participants of the bundle and to managed healthcare companies to see how all the agents behave within this bundled payment arrangement relationship in order to improve the model and/or create new models. It will be crucial for all agents to work in a specialised practice unit/clinical team, with the patient taking priority and the agents being remunerated for a well-defined outcome, which is a successful joint replacement. “The behaviour of the organization is the equilibrium behaviour of a complex contractual system made up of maximizing agents with diverse and conflicting objectives” (Jensen, 1983, p. 15). Although this clinical time may be complex and diverse, it will certainly have the patient’s best interests as the primary

focus; therefore, in theory, all agents should be well-aligned.

It will be more complicated in the future, when agents in more than one healthcare team could potentially be dealing with multiple principals with conflicting instructions and terms and conditions. This would be in the form of multiple medical aids all rolling out their own payment arrangement. Shapiro (2005) questions whether the agents will play off one principal against the other, in the future. Multiple agents, as would be necessary with the bundled payment arrangement, make it even trickier, which is made more complex, still, when agents have “competing interests or [when] perhaps the interests of some agents may be more congruent with those of the principal than with the other agents” (Shapiro, 2005, p. 267).

The existence of multiple agents and principals can further create “informational asymmetries”. This can put the relationship under strain and make it difficult to monitor the contract. Multiple agents can “help to right the imbalance of information, such as when competitive agents leak information to principals in an effort to gain the upper hand over other agents” (Waterman & Meier, 1998).

It is problematic to assume that principals are placed in the driver’s seat by creating contracts that agents must follow, incentivising agents and specifying preferences (Shapiro, 2005; Sharma, 1997). This can be difficult to manage, as the principal (medical aid) has the power to send the patients to whichever agent is willing to accept their terms. This is further complicated by the fact that, although the agent (orthopaedic surgeon) is willing to accept the contract, the hospital they work at is not. Therefore, the orthopaedic surgeon will not be allowed to participate; he/she will lose out in terms of doing what he/she enjoys doing and will ultimately lose income too.

Waterman and Meier (1998) explain the principal-agent theory from a different perspective. Evans (1974) and Waterman and Meier (1998) view the patient as the principal and the physician as the agent. Assuming that both are “rational utility maximisers”, the physician and patient are likely to have different goals (Waterman & Meier, 1998, p. 174). The principal (patient) wishes to extract as much value as possible from the relationship, but at the lowest possible price. The agent (physician) is interested in maximising their income and may be tempted to charge more for a procedure/services rendered, or perhaps overservice the patient. This links up with the shift from volume to value and a move from FFS healthcare to bundled payment healthcare. So, here, an information asymmetry exists in the favour of the agent (physician).

## 2.6 Information asymmetry

“The sociology of the professions provides a window on agency as expertise, problems of asymmetric information, and one kind of model for delivering agency services. The assumptions of the agency paradigm are stretched where principals seek out agents for their specialized knowledge” (Shapiro, 2005, p. 276).

Sharma (1997) observes that run-of-the-mill information asymmetry (not knowing what the agent does) is exacerbated in encounters with professionals by knowledge asymmetry as well (not knowing how the agent does a job). Adverse selection by principals can be problematic, especially when the medical aid is unable to evaluate the skills of the potential orthopaedic surgeon (agent). This can be further complicated if the principal (medical aid) does not know what additional professional services (additional agents) are required, should there be concomitant medical problems.

To complicate the issue even more, the trend in healthcare is to superspecialise, which means that orthopaedic surgeons are superb at performing a joint replacement, but not as good at managing general medical problems, for example: diabetes and hypertension, et cetera. This can lead to a situation in which the agent (orthopaedic surgeon) must call in a physician (another agent). Will the principal be willing to pay for an additional agent, and will this extra cost for the bundled payment be factored in? Another issue is: which agent will make the call to involve an additional agent, for example: a physician, and will the principle agent (orthopaedic surgeon) be penalised for involving other healthcare providers? This will undeniably result in improved patient outcomes but less remuneration for the surgeon. These are some of the challenges that all the relevant stakeholders will face as they pursue value in healthcare.

To limit some of the agent selection concerns for the agent, the professional bodies could be of assistance as long as they do so in a non-biased way. The HPCSA is the regulatory body for the specialist, but the qualification that is obtained (once he/she qualifies as a specialist) is accredited with the College of Medicine South Africa (CMSA). There are also smaller sections of professional bodies, for example: the South African Society of Anaesthesiologists (SASA) and the South African Orthopaedic Association (SAOA). The SASA and SAOA will play a critical role in advising their members, such as orthopaedic surgeons and anaesthetists, respectively, and they should be able to assist their members when engaging with the principal (medical aid), at least with relevant

professional protocols and/or best practice/ethical guidelines.

Ethical guidelines/codes are of paramount importance in healthcare, so the principal-agent relationship should not be an opportunity for self-interest and opportunism of practitioners to be a factor. It could be difficult for principals to determine whether exceptional or substandard service has been rendered, so it would make sense to have the outcomes and surgical pathways peer-reviewed within the SAOA, for example. This should strengthen the principal-agent relationship and allow for transparency, which is key as all participants push to create value in the healthcare ecosystem. This would also enable future bundled payment arrangements, for example: in urology, whereby the South African Urological Association (SAUA) can play the same role as the SAOA. Professional organisations, themselves, could be used as tools to strengthen the relationship between principal and agent, as well as to limit unnecessary agency costs.

There is literature that reflects on the different agendas of professionals as they seek to “secure monopoly” (Larson, 1977). Clinicians are not concerned with monopolies but rather in doing the best that they possibly can for their patients while, at the same time, earning a reasonable wage for all their years of training and sacrifice. This frame is by no means incompatible with a principal-agent perspective.

## **2.7 Behavioural economics**

Conrad (2015) reviewed the “economic theory of agency (and secondarily behavioral economics) to explicate the probable incentive effects of different models of ‘Value-based payment’ in healthcare” (Conrad, 2015, p. 2057). Conrad (2015) defines “value” as “maximum health benefit at minimum cost, and – operationally – better value translates into a combination of improved health outcomes and process of care (clinical quality), better patient experience, and reduced costs of care” (Conrad, 2015, p. 2058).

Value, as defined by Conrad, encompasses what all involved in the delivery of healthcare are striving towards, which is ultimately the best possible outcome for patients, at the lowest possible cost. Through this managed care process, how do funders drive value so that all stakeholders are looked after and reimbursed appropriately? There should be no single agent or principle involved in the process that should benefit unfairly so that the hospital group or medical device company makes more relative profit compared to the orthopaedic surgeon, anaesthetist or physiotherapist.

In search of value, one needs to distinguish between a “strong and weak payment incentive” (Conrad, 2015, p. 2063). “Behavioral economics suggest that a penalty of a given size for failing to advance health benefit will more strongly encourage providers to deliver improved health than an equally large reward for advancing health benefit” (Conrad, 2015, p. 2063). Therefore, if one were to frame an incentive as a gain or a loss, it can increase the strength of the response to that gain or loss. Conrad (2015) recommends that the value-based incentive should cover the costs involved in efficient clinical practice but not the costs of the provider organisation. Another factor that can determine the strength of the incentive is whether the payment is made prospective or retrospective (Conrad, 2015). Individual providers are risk-averse, so a prospective payment may elicit a stronger response. Providers may also be incentivised to participate if they are reimbursed more in the ARM than the traditional FFS model.

Different payment options allude to FFS, bundled payment, capitation (global payment), and shared savings that could have additional incentive options, as well as penalties, attached to the payment arrangement. The bundled payment, and, in fact, any payment in healthcare, is complicated by the multiplicity and complexity of principal-agent relationship in healthcare (Casalino, 2001). The medical aid is the payer of services incurred by the patient. The orthopaedic surgeon becomes the agent and provider for the patient undergoing the joint replacement. In addition, he/she acts as the agent for the principal (medical aid) by carrying out the procedure according to a pre-arranged contract. The surgeon thus becomes the provider for the patient and medical aid. In terms of choice of hospital, the patient will be obliged to choose one of the hospitals and doctors that/who the medical aid has an arrangement with; otherwise the funder will not reimburse the team/authorise the procedure.

A recent systematic review concluded that patient experience was consistently positively related to outcomes across a broad array of health conditions (Doyle, Lennox & Bell, 2013). Minimising the cost of producing health is key in the search for value (Conrad, 2015), and different funders will look to different incentive/payment arrangements, depending on their costing data as well as their definition/perception of value. The clinician is quite familiar and comfortable with delivering healthcare whereby the best outcome for the patient is ensured, regardless of the cost or effort. Now, the clinician must ensure the best outcome for the patient at the lowest possible cost, without compromising on quality and patient outcomes.

When it comes to designing value-based healthcare remuneration, the time lag between health outcome and multiple influences can be unpredictable (Conrad, 2015, p. 2061). The outcome is influenced by different providers, patient response, and comorbidities and complications of the patient (if any). All these factors can become a problem when one wishes to measure outcomes and compensate appropriately. These outcomes may also be viewed differently by the principal (medical aid) and agent (healthcare provider). This has become one of the stumbling blocks as one moves from an FFS to a bundled payment model. FFS billing certainly allows for an environment of volume-driven healthcare but does not formally define and measure quality and clinical outcomes. The provider may be unfairly penalised for an outcome that perhaps was out of their control. This “asymmetry of quality, outcome, and price information between providers and health plan intermediaries and the patient renders compensation based on clinical quality imperfect, but less so in terms of assessing the provider’s actual contribution to patient health benefit” (Conrad, 2015, p. 2061).

Designing healthcare that rewards value and looks at clinical outcomes can be difficult, for the reasons stated above. In the bundled orthopaedic payment arrangement that has been rolled out, it is easier to define and monitor outcomes, as the patients are followed up post-operatively in the rooms of the same orthopaedic surgeon and medical team that were originally involved in their hospital care. Conrad (2015) believes that as long as measurement of the quality of healthcare and patient outcomes is unbiased and is carried out using large volumes of data, it may be possible to produce relatively precise estimates. This can make the prospects for a value-based remuneration system possible. Clinical quality and patient experience are more controllable by providers and provider organisations, and measurable at relatively lower costs than outcomes (Conrad, 2015; Khullar et al., 2015).

Khullar (2015) refers to behavioural economics that views “incentives as fundamental determinants of behaviour” which can be utilised to look at not only the amount of payment, but also the timing and frequency of payment, for example: upfront and monthly payments versus payment at the end of the care cycle. Another important factor is that behavioural economics has been successfully implemented by medical insurance companies in patients’ lives with the advent of programmes that reward or incentivise patients for exercising, eating healthfully and discontinuing smoking. These same companies have been slow in utilising similar principles within the healthcare industry for healthcare providers. Rolling out of the bundled payments is a strong indicator of this change in South Africa. “Chalkley and Khalil (2005) remark that if the payer can observe

both outcomes and treatment quality (evidence-based care processes), the optimal contract will be based on incentives for outcomes and clinical quality, subject to the costs of measuring both” (Conrad, 2015, p. 2062).

## **2.8 Conclusion**

On reviewing the literature, it is clear that there is a significant drive towards value creation in healthcare. The traditional models of healthcare reimbursement are not sustainable and are changing rapidly. In South Africa, experience with these models is limited, and, using agency theory as a lens, all involved stakeholders plan to make sense of the complex ecosystem that exists such that it may inform the roll-out of the bundled payment arrangement in 2018. This theory is an appropriate tool to gain deeper insight into the dynamics of the bundled payment policy, both for the orthopaedic model and potentially for new models, to follow.

The relationships between funders and all the respective agents comes under the spotlight, with these new models. How do they all work together within this context under the imperceptible force of behaviour economics and information asymmetry? Is the healthcare fraternity leadership bold and authentic enough, and are those tasked with managing our healthcare moving in the right direction together?

It is of paramount importance that the quality of care is never compromised in the effort to curtail rising costs. If all the stakeholders want to truly deliver quality healthcare for all the people of South Africa, then research of this nature is critically important. Bundled payment models need to be altered appropriately, if necessary, or new initiatives and/or payment models need to be designed so that health delivery can go further within the constraints of limited funding, in order to finetune this model and/or seek new initiatives or payment models so that we can deliver more for the limited funding available.

## **CHAPTER 3: RESEARCH QUESTIONS**

### **3.1 Introduction**

The following chapter will present the research questions that have formed the basis of the study. The questions have been created from reviewing the literature on agency theory in order to gain a greater understanding of how the principal and agents feel about the orthopaedic payment model and how it creates value. The purpose of these questions is to explore this funding model in depth, in order to understand its relevance for South Africa's own healthcare system.

### **3.2 Research Question 1**

This set of questions reviews whether an agency relationship in the form of a bundled payment arrangement is the ideal contract between the principal and the agents (Jensen & Meckling, 1976) (Eisenhardt, 1989) (Waterman & Meier, 1998).

### **3.3 Research Question 2**

These questions explore whether true value is created when a principal and agent enter into a bundled payment arrangement relationship (Bosse & Phillips, 2016) (Shapiro, 2005).

### **3.4 Research Question 3**

This set of questions examines whether information asymmetry could be a problem in the principal-agent relationship (Shapiro, 2005) (Sharma, 1997).

### **3.5 Research Question 4**

The aim of questions in this group is to establish whether incentives are critical in influencing the behaviour of the agent (Conrad, 2015) (Porter & Kaplan, 2014) (Porter, 2009).

### 3.6 Table of research questions and questions

<p><b>Results Research Question 1</b> This set of questions reviews whether an agency relationship in the form of a bundled payment arrangement is the ideal contract between the principal and the agents (Jensen &amp; Meckling, 1976) (Eisenhardt, 1989) (Waterman &amp; Meier, 1998).</p>	<ol style="list-style-type: none"> <li>1. Describe the orthopaedic bundled payment arrangement?</li> <li>2. Were you invited to participate, or did you ask to be involved? Why are you involved?</li> <li>3. Is this the ideal relationship between principal (funder) and agents (all those involved in delivering healthcare for the joint replacement)?</li> <li>4. Who benefits most from the payment arrangement?</li> <li>5. Was there a negotiation with regard to remuneration in any way or form?</li> <li>6. Were you offered different options or packages? Will you be using your usual billing codes for the joint replacement? Who determined your professional fee?</li> </ol>
<p><b>Results Research Question 2</b> This set of questions queries whether true value is created when a principal and agent enter a bundled payment arrangement relationship (Bosse &amp; Phillips, 2016) (Shapiro, 2005).</p>	<ol style="list-style-type: none"> <li>1. Will this model put patient care at risk in any way, whatsoever?</li> <li>2. Who has the power in the relationship? You, the medical aid, the hospital or the surgeon?</li> <li>3. Does this model create value? If so, for whom? Are you better or worse off because of the model?</li> <li>4. In your opinion, what is the biggest driver of cost in joint surgery?</li> <li>5. Could you have said “no”? What would have been the implications? Why did you say “yes”?</li> </ol>
<p><b>Results Research Question 3</b> The next set of questions probed to see if information asymmetry could be a problem in the principal-agent relationship (Shapiro, 2005) (Sharma, 1997).</p>	<ol style="list-style-type: none"> <li>1. Do you think there could be some information asymmetry in the arrangement? For example, either you are not sure what the funder, the hospital or any clinician in the medical team is doing, and vice versa?</li> </ol>
<p><b>Results Research Question 4</b> The next set of questions was purposed to identify whether incentives are critical in influencing the behaviour of the agent (Conrad, 2005) (Porter &amp; Kaplan, 2014) (Porter, 2009).</p>	<ol style="list-style-type: none"> <li>1. Does the bundled payment arrangement have built-in incentives?</li> <li>2. Do you get remunerated more with the bundled payment, or not?</li> </ol>

<p><b>General questions</b></p>	<ol style="list-style-type: none"> <li>1. What does your association say with regard to the bundled payment arrangement?</li> <li>2. If you could change one thing about the bundled payment arrangement, what would it be?</li> <li>3. Where do you see private healthcare in five years' time? Is the future bright?</li> <li>4. Could this model be applied to our future National Health Service (NHS), once implemented?</li> </ol>
---------------------------------	--

### **3.7 Conclusion**

The above questions have been answered through an interview process in which each agent (participant) was invited to describe the model, from their perspective. Interviews were conducted with the relevant principals and agents, and the interviews will be analysed using thematic analysis. The following chapter will discuss the methodology utilised for these questions.

# CHAPTER 4: RESEARCH METHODOLOGY AND DESIGN

## 4.1 Introduction

The research is a qualitative study that will be viewed through the lens of agency theory (Eisenhardt, 1989). A qualitative format has been selected, as the research aims to provide new insights into healthcare reimbursement trends in South Africa as the country searches for more value in healthcare. The aim of the research is to extract context-rich information that will facilitate a deeper understanding of how specialised groups of healthcare professionals view the new payment arrangement and how it can be transformed (if necessary) so that it appeases all stakeholders within the healthcare space.

## 4.2 Choice of methodology

The chosen research methodology is interpretivism, as the researcher wishes to explore how all the stakeholders interact with regard to the bundled payment system that has been implemented by the medical aid (funder). The aim of the research is to understand the social phenomena that underpin this payment model as all the agents align to provide valued healthcare to their customer, the patient. It will be helpful from a bundled payment model design perspective to see how these agents view their roles within the payment arrangement, both in their own capacity and within the team environment.

A deductive approach will be used to test the merits of agency theory and the principal-agent relationship in the application of the bundled payment arrangement (Jensen & Meckling, 1976). The data will facilitate an understanding of how the different stakeholders in arthroplasty-related service delivery understand the bundled payment arrangement within the context of the principal-agent relationship. Saunders and Lewis (2012) describe five sequential stages in deductive research, which will be observed in the study:

1. Defining research questions from the literature review;
2. Operationalising the questions;
3. Seeking for answers to the questions previously defined;

4. Analysing the results of the review and answers to the questions to determine if the theory is supported or not; and
5. Confirming or modifying the theory as a result of the answers obtained.

(Saunders & Lewis, 2012, p. 108)

Ethics approval will be obtained prior to commencement of all interviews. The patient will not be assessed in this study, as clinical outcomes can be difficult to define and are not the topic of the research.

The research will be conducted using a mono-methodological approach. The design will be descripto-explanatory. The research is descriptive, as it will describe how the principal-agent relationship will unfold as the bundled payment system is rolled out. It is also exploratory research, as the bundled payment arrangement is new within the South African private healthcare sector.

The strategy will be to interview all relevant stakeholders within the bundled payment arrangement once ethics approval is obtained. The intention is to extract as much information from the interviewee as possible in order to understand the position of the healthcare provider within the principal-agent relationship (medical aid and healthcare providers), as well as between the different agents, themselves (the healthcare team). The study will be a cross-sectional study, due to time constraints, and will focus on qualitative interviews, thus providing a “snapshot” of the industry with regard to the payment arrangement model.

### **4.3 Population**

“Saunders and Lewis (2012) suggest that one of the most useful ways to conduct exploratory research is through searching academic literature and conducting in-depth interviews” (Owens, H, 2016, p. 30). In this research, the principal (medical aid) and the respective agents (as set out in the table below) will be interviewed. With regard to clinicians, the aim is to interview at least three from each speciality, depending on how many of the orthopaedic surgeons involved in the bundled payment arrangement agree to participate in the research. Patient outcomes will not be examined, as this would be part of a clinical study which is not the subject of this research. Furthermore, it is assumed that the bundled payment arrangement has not been implemented to change any aspect of the patient’s treatment, whatsoever, in order not to compromise medical

care and/or outcomes.

All of the stakeholders involved in the bundled payment arrangement that will be invited to participate in the research have been included in Table 3 below.

**Table 3: Stakeholders participating in the bundled payment arrangement**

Principal	Agents
Discovery Health Medical Scheme	Hospital Groups: Life Healthcare, Netcare, Mediclinic
	Orthopaedic surgeons
	Anaesthetists
	Physicians
	Physiotherapists
	Medical device companies (surgeon's preference)
	Others (guided by the interviews)

Participation in the study is both voluntary and confidential. The respective associations will also be notified of the research. This is important, as their support of the research initiative will add weight to the study. Each interview will take the form of an open-ended, semi-structured and in-depth discussion. It is expected that the interviews will be carried out in a face-to-face fashion, and, should interviewees not be able to meet, a telephonic or Skype interview will be carried out instead.

Permission to record the interview will be requested. Participants will remain anonymous, for example, by providing a pseudonym such as "Orthopaedic Surgeon 1", "Orthopaedic Surgeon 2", et cetera. Patient or patient-specific details will not be discussed. Prior to the interviews, a pilot interview will be conducted in each discipline to assess whether the interview techniques and/or questions are appropriate for the study.

#### **4.4 Sampling method and size**

Purposive sampling will be used. This is a form of non-probability sampling (Adams, 2007), which will allow the interviewer to interview as many stakeholders as defined in the bundled payment arrangement. Certain stakeholders may not wish to participate, but the intention is to invite all relevant stakeholders within the payment arrangement (Table 3).

Purposive sampling is ideal for this research, as the bundled payment arrangement has been initiated by one of the medical aid companies, which is the only insurer that will be interviewed. In terms of the agents, all three of the major hospital groups will be invited to participate. With regard to the surgeons, those who practise in Johannesburg will be invited to participate in the study in order to allow for one-on-one interviewing. The remaining agents, which includes all healthcare professionals who are relevant (as defined by the surgeon) as well as the medical device company, will be identified by the interviewed surgeon and will be invited to participate. The sampling will be explained in greater detail below. It is worth noting that the respective medical associations for each discipline may request that one of their executives also be granted an interview. If this is indeed the case, the request will be accommodated and included in the study.

#### **4.4.1 Principal**

In terms of the principal, Discovery Health Medical Scheme is the only medical aid that will be interviewed, as it is the first medical aid company to roll out a bundled payment model of this nature. Discovery's head office is in Sandton, which makes it accessible for an interview. The medical aid's involvement is important to the study, as Discovery has been identified as the principal in the relationship, as defined in the literature review, above. The interview will provide insight into how the pilot study (first bundled model) informed the company's current policy.

#### **4.4.2 Agents**

A number of agents are currently participating in the bundled payment arrangement. For the purposes of this research, all participating stakeholders will be interviewed in order to gain more insight into this funding model. The prospective agents are listed below. It is worth emphasising that all the listed stakeholders will be interviewed in order to ensure a fuller understanding of the current healthcare environment and to provide more context for the research.

##### **4.4.2.1 Hospital group**

Life Healthcare and Netcare will be invited to participate in the research, as they look to roll out the bundled payment arrangements within their network. Mediclinic adopted the bundled payment model when it was phased in as a pilot study. The group has used this model for some time and will also be invited to participate in the research. If the would-

be participants agree to the interview, all interviews will be conducted with the appropriate and relevant individuals who are ultimately responsible for the implementation of the new payment arrangement at each hospital group. An interview with the Mediclinic group (should the interview be granted) would be especially valuable to the study, as it would provide insight into the group's experience with bundled payment, thus far, as well as changes that have been made to the model (if any). The Life Healthcare and Netcare head offices are located in Johannesburg, which is easily accessible for an interview. Mediclinic's head office is in Cape Town: a telephonic interview will be arranged.

#### **4.4.2.2 Orthopaedic surgeon**

Ideally, one would like to interview at least five orthopaedic surgeons from across the various hospital groups. Their involvement is critical for two reasons. The first is that they are the custodians of the patient, and the surgeon is the one who decides that the patient meets the criteria for a joint replacement. Secondly, the surgeon and his/her team (other agents) have agreed to render a service according to the bundled payment arrangement under the principal-agent relationship. It is important to note that the hospital also needs to agree to the bundled payment arrangement, so orthopaedic surgeons must be selected for interviewing only if they work at one of the hospitals aligned with one of the aforementioned groups (that are involved in the payment arrangement).

This is initially a cross-sectional study, as surgeons are interviewed as the bundled payment is rolled out. If interviews can be carried out with the surgeons who were initially involved in the pilot study, or if time permits for a second interview for first-time users, a longitudinal study could be completed.

#### **4.4.2.3 Anaesthetist**

The anaesthetist is usually chosen by the orthopaedic surgeon, as he/she works together with the surgeon as a team (and may have done so for many years already). The surgeon may occasionally work with two anaesthetists, depending on his/her theatre days. Therefore, it is possible that more anaesthetists than surgeons will be interviewed.

#### **4.4.2.4 Physician**

The physician is often called upon by the orthopaedic surgeon and/or anaesthetist, should there be concomitant medical problems, or should the patient be at risk for increased peri-operative morbidity. The physician's involvement in the study would depend on the bundled payment arrangement and the surgeon, so the number of physicians interviewed could be less than anticipated.

#### **4.4.2.5 Physiotherapist**

The orthopaedic surgeon usually works with his/her dedicated team of physiotherapists. The number of participants in the research will depend, again, on the orthopaedic surgeon and their clinical practice's preferences.

#### **4.4.2.6 Medical device company**

The prosthesis used for the joint replacement is also determined by the orthopaedic surgeon. All medical device companies that work with the respective orthopaedic surgeons will be invited to participate in the research, so the number of companies interviewed will be guided by the interviews with the surgeons. These companies may be South African corporations or multinational corporations. If multinational corporations are invited, it would be interesting to see whether they have similar arrangements in terms of bundled payments in some of the other countries in which they operate.

#### **4.4.2.7 Other healthcare providers critical to the bundled payment arrangement**

If there are other stakeholders that are considered critical to the payment arrangement, they will be invited to participate in the interviews, should their involvement be necessary. The associations may request an interview too, and, should this be the case, their respective representative will also be interviewed.

## **4.5 Unit of analysis**

The unit of analysis for this research study will be the principal and various agents that will be interviewed in the bundled payment arrangement ecosystem. The researcher has determined that the unit of analysis is in line with the research problem (Adams, 2007). The data will be collected from the principal that has rolled out the bundled payment arrangement as well as the various agents that are participating in the arrangement as defined, both in its initial pilot study phase as well as its current format.

## **4.6 Data collection**

Data collection involved face-to-face, in-depth interviews using the questions that were approved by the health ethics committee. Interviewees granted permission for recording of the interviews which were duly recorded and backed up on Google Drive. The interviews were conducted in their offices, on their premises, in order to minimise disturbance and ensure confidentiality.

There were 13 interviews, in total. The principal was interviewed at their offices in Sandton. With regard to the agents, the physicians were excluded from the interviews, as they were not regularly involved in the payment arrangement. Two of the hospital groups declined interviews, with one of these requesting that research requests proceed through their own ethics committee before being granted an interview. The third hospital group agreed to respond to the questionnaire in writing.

## **4.7 Data analysis**

The audio from the recorded interviews was transcribed and checked on numerous occasions in order to ensure familiarity with the data, as well as accuracy of the transcription. The researcher began analysis shortly after each interview was conducted, during the six-week period of interviews.

Thematic analysis was used as a tool to identify, analyse and report themes (patterns) within the transcribed recordings of data (Braun & Clarke, 2006, p. 6), as it was the most feasible approach where qualitative research was a new venture. Thematic analysis will allow for an informative and thorough account of the data and will also provide an opportunity to “unravel the reality” of the bundled payment arrangement (Braun & Clarke,

2006).

The research will be further explored with reference to the principal-agent relationship in agency theory. The research will be reviewed using thematic analysis in order to identify and analyse patterns in the data (Clarke & Braun, 2013). The six phases of thematic analysis will be used, namely:

1. Familiarisation with the data,
2. Coding,
3. Searching for themes,
4. Reviewing themes,
5. Defining and naming themes, and
6. Writing up.

(Braun & Clarke, 2006)

## **4.8 Conclusions**

The aim behind the research design and methodology was to meet all the requirements and objectives of the study. The research aims to review the orthopaedic payment arrangement through the lens of agency theory in order to assess its relevance to the South African healthcare environment as the country aims to deliver value-based healthcare.

## **4.9 Limitations**

It is vital to receive health ethical clearance before proceeding with the research. Any delay in obtaining approval may delay the study, with the result that fewer interviews will be carried out. In addition, there would be limited time for a longitudinal view. Should there be any concerns with the rollout of the bundled payment arrangement, the research could also be compromised. It may be necessary to add additional stakeholders or agents to the research, should the agents insist on their relevance to the bundled payment arrangement. These healthcare professionals would then be added to the study.

During implementation of the bundled payment arrangement, there may be some hesitancy from the relevant medical associations, for example: from the South African Society of Anaesthesiologists (SASA) and the South African Orthopaedic Association

(SAOA), for the anaesthetists and orthopaedic surgeons, respectively. In order to minimise this risk, the relevant associations will be notified that their members will be invited to participate voluntarily and anonymously in research into the bundled payment arrangement.

All the questions for this research have been approved/cleared by the health ethics committee. In order to ensure that only approved questions were asked, the interviewer asked the questions as per the questionnaire, only, and allowed the interviewee to answer of their own accord. Repeat questioning and/or probing was avoided entirely, thus ensuring that the interview remained strictly within the boundaries stipulated by the health ethics committee.

The study required extreme sensitivity in order to ensure the protection of all respondents, and of their sensitive information. It was crucial that they remained anonymous, if they so wished, even more so because of the intricate topic and uncommon nature of this study, in the South African context. The researcher had to ensure that the information presented in the following chapters is truly representative of the interviews, and, at the same time, that it does not fall foul of any ethical or medico-legal boundaries. He has, to the best of his ability, represented the data from the interviews as they were carried out, while also including information that is relevant and that enriches understanding of the topic at hand.

Great efforts were made to ensure that the information will not put any individual or relevant stakeholder within the ecosystem at harm, and that the findings are presented in such a way so as to encourage deeper examination and understanding of alternative funding for healthcare.

As a urologist in private practice, the researcher belongs to the same ecosystem. This could hinder impartiality in the way in which the data is analysed. For this reason, a third party (research supervisor) will evaluate the inferences drawn from the data to ensure that there is no bias, whatsoever.

# CHAPTER 5: RESULTS

## 5.1 Introduction

The following section presents key findings from the interviews conducted with the principal and the agents. The key findings are presented and summarised as they relate to the questions raised in Chapter 3. The results are presented based on themes that emerged after an extensive qualitative analysis.

## 5.2 Description of participants

A study of this nature is difficult to carry out, at the best of times. Were it not for the researcher's medical background, it may have been near impossible to gain access to the relevant stakeholders for the purpose of interviewing.

The respective participants, as described above, were invited to participate in the study. The principal, Discovery Health Medical Scheme, welcomed the interview, and the interview took place at the company's building in Sandton, Johannesburg.

With regard to the agents, there was a mixed response. All three of the large hospital groups declined the opportunity to be interviewed. The first hospital group was not interested in participating in the interviews and requested that all information about the methodology, references and questions be sent to their ethics committee for approval and consideration prior to their participation in the study. Ethics approval had been obtained from the MBA Research Ethics Committee (REC) at the Gordon Institute of Business Science (GIBS). A separate health ethics clearance was also required and was obtained from The Faculty of Health Sciences Research Ethics Committee (FHSREC) from the University of Pretoria (UP). It was deemed inappropriate to send the hospital group detailed background information about the study before interviewing them.

The second hospital group declined an interview, even after a telephone call and an email to the individual responsible for the design of the hospital group's ARM. The third hospital group agreed to meet at their offices in Johannesburg and requested to respond to the interview questions in writing. At the time of writing of this report, their responses were not returned, despite correspondence.

Of the medical device companies that were invited to participate, two responded to the invitation and agreed to meet for an interview, provided that they remain anonymous. The clinicians also accepted the invitation to participate. Interviews took place at their offices or at a suitable, quiet venue – to ensure confidentiality and limit disturbances. The respective physicians reported that they were not really involved with the model. They were thus excluded from the study, as their role in the model (as it stood at the time of writing) was not clear.

Four orthopaedic surgeons, three anaesthetists and two physiotherapists were interviewed for the research, to provide a perspective from the clinician's side. The participating clinicians (orthopaedic surgeons) were from all three of the large hospital groups. All asked to remain anonymous. The anaesthetists also worked within all three hospital groups, while the physiotherapists worked at two of the large hospital groups. Both the anaesthetists and the physiotherapists will remain anonymous.

One needs to stress the limitations to the study, as raised in Chapter 4. Only questions that were cleared by the FHSREC were asked, to ensure that all conversations were ethically acceptable and not in breach of the FHSREC guidelines.

All respondents asked to remain anonymous, which, together with the fact that they were communicating with a fellow clinician, allowed for fascinating insights and great conversations. All the data has been captured and presented with care to ensure that sensitive information is protected and that no stakeholder will be affected because of their comments (whether or not harm was intended on their part). It is also vitally important to note that the researcher has included information that, to the best of his ability, does not infringe in any way on council regulations or raise any medico-legal concerns.

**Table 4: Stakeholders that have agreed to participate in the research study**

<b>Participant</b>	<b>Agreed to participate in research?</b>
Discovery Health Medical Scheme (principal)	Yes
Three hospital groups (agent)	No
Medical device company (agent)	Yes
Orthopaedic surgeon (agent)	Yes
Anaesthetist (agent)	Yes
Physiotherapist (agent)	Yes

Physician (potential agent)	Removed from the research (not involved)
Other agents	Not recommended by clinical agents

### 5.3 Presentation of results

The results are presented as per the research questions in Chapter 3, and are mapped as per the table presented in Chapter 4. The results are first be presented from the perspective of the agents and then, later in the chapter, from the perspective of the principal.

### 5.4 Results for the agents

It is important to note that the hospital groups did not participate in the research study, for the reasons described above. The following is the agents' perspective on their involvement, as captured in the respective interviews. The interviews were thoroughly reviewed using thematic analysis. The main themes are displayed below. All quotes from the various agents have been allocated, as per the table below.

**Table 5: Agents interviewed, and their coding**

<b>Agents</b>	<b>Code</b>
Medical Device Company 1	MD1
Medical Device Company 2	MD2
Orthopaedic Surgeon 1	O1
Orthopaedic Surgeon 2	O2
Orthopaedic Surgeon 3	O3
Orthopaedic Surgeon 4	O4
Anaesthetist 1	A1
Anaesthetist 2	A2
Anaesthetist 3	A3
Physiotherapist 1	P1
Physiotherapist 2	P2
Physiotherapist 3	P3

## 5.5 Results for Research Question 1

**RESEARCH QUESTION 1:** The first set of research questions addressed the issue of whether or not an agency relationship, in the form of a bundled payment arrangement, is the most ideal contract between the principal and the agents (Jensen & Meckling, 1976; Eisenhardt, 1989; Waterman & Meier, 1998).

### 5.5.1 “Describe the orthopaedic bundled payment arrangement.”

This question was asked in order to identify how the arrangement was viewed by the various agents. There were 18 responses, in total, with the most common description (in 33.3% of responses [6/18]) being that the orthopaedic bundled payment arrangement is a fixed fee (FF). The payment arrangement was also described as a global fee (GF) in 16.6% of instances (3/18), and as a once-off (OF) fee from the funder in 16.6% of instances (3/18). The fee was even described as a managed care option, in one response (11.11%), and the remaining descriptions accounted for 5.55% of responses, each. The many descriptions of the orthopaedic payment arrangement have been listed in the table below, with their resultant frequencies.

**Table 6: Descriptions of the orthopaedic payment arrangement by the agents**

Themes/codes	Frequency
Fixed fee (FF)	6
Global fee (GF)	3
Once off from funder (OF)	3
Managed care option (MC)	2
Various models (VM)	1
Arthroplasty model (AM)	1
Tiered fee (TF)	1
Evolving model (EM)	1
<b>Total responses</b>	<b>18</b>

It was interesting to note the varied ways in which they described the payment arrangement. The quotes in the table below provide a better sense of what each agent really meant by their answer.

**Table 7: Agents quotes describing the orthopaedic payment arrangement**

<b>Agent</b>	<b>Quote</b>
O1	"Well, there are various models available."
O2	"Two options. One option is that the medical scheme pays a bundle of money to an institution, and that institution pays to the participants in the bundle." The second option is "an effected bundle by the medical scheme where we are submitting in a regular, legal way, the invoices, and we get paid out of the bundle, which is actually managed by the medical scheme."
O3	"We have had to agree on which tier we fall, so they graded a few of the surgeons, many of the surgeons on a few tiers, and it has been up to the medical insurance companies to accept which tier we are on, to reimburse us for the joint replacements..." "Certainly, many found it unfair."
O4	"Basically involves a single code for the orthopaedic surgeon for hip and knee arthroplasty, but, as a fixed fee, decided by no one else other than the medical aid." "So it is a fixed fee for the orthopaedic surgeon. Single code. Take it or leave it. If you don't sign up, you will lose all your arthroplasty business. That is how I see the single fee structure."
A1	"One of the first reimbursement models came onto the market, and they were called X, and the way they work is, basically, they pay you a fixed fee, and it is tiered according to the medical aid plan..." "The second one is run by another major hospital group."
A2	"An arranged fee where the people, the outcome, or the result or the specific event will be described, rather than the fee-for-service model that we have been using to this point."
A3	"So, what we've designed is a contract where a clinician contracts with the administrator for their particular fee. And they can negotiate that fee with the administrator." "When you look at that, so this contract then says the society will have a responsibility to the administrator in terms of peer review; and the administrator will have a responsibility to the society to share data, because that's where the key is. You want to get rid of the information asymmetry."
MD1	"At this stage, the arrangement is a fixed fee." "That is why a lot of focus is on the impact as opposed to looking at the efficiency around the entire continuum of care, because it is the easiest thing to hit."
MD2	"In one shape or the other, the groups are trying to push a global fee kind of arrangement with the companies, and then, of course they must have, and I'm sure they have, an agreement with the medical aids."
P1	"Our practice is paid for the work that we have, regardless of how many sessions we see the patient. We are just paid a once-off fee from the medical aid."
P2	"Can be described that the patients are limited to a certain amount of money, which will entail a certain amount of treatments within that specific time frame that they are hospitalised for." "So X is just trying to oversee and reign the whole in-hospital procedure."
P3	"We are currently following the second model, which is a fixed fee per team." "Each role player has an agreed fixed amount which they will be remunerated per patient".

### 5.5.2 “Were you invited to participate, or did you ask to be involved?”

The intention behind this question was to clarify how participants got involved in the payment arrangement, and whether they found it to be ideal after they were involved. The responses varied from “instigator” (I1), “invited” (I2), “negotiated” (N), “forced” (F), “assumed in” (AI), and “never asked” (NA).

The majority of the agents (45% of respondents [9/20]) reported that they were forced (F) to be involved in the bundled payment arrangement. The second most frequent response to this question was that they had been invited. This made up 30% (6/20) of the responses. The remaining agents described their involvement as “never asked” (10% of responses [2/20]); the “instigator” (5% of responses [1/20]); “negotiating” (5% of responses [1/20]); and “assumed in” (5% of responses [1/20]).



**Figure 1: Were you invited to participate or ask to be involved?**

Some of the quotes from the respective agents have been included in the table below, to add context.

**Table 8: Agents' quotes describing their involvement**

Agent	Quote
O1	"I was the instigator."
O2	"I was asked, I was negotiating for months, and eventually I was forced into it."
O3	"I have agreed to participate in the model, out of concern, because if I didn't agree I would lose all my work to other providers and other orthopaedic surgeons who have agreed to this model."
O4	"I don't recall being invited to participate. I am not heavily involved in the process at all; it has basically just been pushed on us, on me."
A1	"I never asked to participate." "Because of the way that relationships work between surgeons and anaesthetists, basically the surgeons call the shots, and if you want to work with that specific surgeon, you either comply or you don't."
A2	"I am really involved out of necessity. The joint replacement surgeon that I work with has been doing, or invited, or requested to be participating in these arrangements and, therefore, I have been dragged along with that."
A3	"The facility would come and say: if you don't do this, we, you, and I lose work. That's already a perversity, isn't it?" "The surgeon then goes to the anaesthetist and says: if you don't sign, we don't get the work. So you have to sign." "Many people were told either by facilities or third parties, if you don't tell us that you don't want to participate, you're in. Now there's nothing legal about that." "So, the fact is, this is how people were sort of converted into global fees without knowing what they were getting into."
MD1	"So, I was invited to, but at the end of the day, we didn't have a choice, because either you are in and you provide the price required, or you are out and there is a 20% co-payment, if your surgeon uses your product."
MD2	"We were invited."
P1	"No, we weren't".
P2	"I was invited, as one of my orthopaedic surgeons is involved in this scheme."
P3	"We were asked to participate; we didn't ask to be involved." "X put a proposed model through the surgeons and strong-armed the surgeons into signing. So, if they didn't sign the proposed model, they couldn't treat X patients....We really had no choice, should we wish to continue servicing both the patient and the surgeon."

### 5.5.3 "Why are you involved?"

When the agents were questioned as to why they were involved, half of them explained that they were forced into the arrangement: in 6 of the 12 responses (50%). In 16.6% (2/12) of instances, the agents indicated that they were involved out of necessity. Whether they were forced or involved out of necessity, 8 of the 12 above (6+2), which is the majority, did not really have a choice. Others responded that they participated purely to support their medical team. This was the case for 16.6% of respondents (2/12). The rest either stated that they believed in the model (B) or that they were involved because of affordability, with each of these representing 8.3% of responses (1/12).

**Table 9: Agents' explanations of their involvement**

Why are you involved?	Frequency
Forced (F)	6
Necessity (N)	2
Support the medical team (MT)	2
Affordability (A)	1
Believed in the model (B)	1
<b>Total responses</b>	<b>12</b>

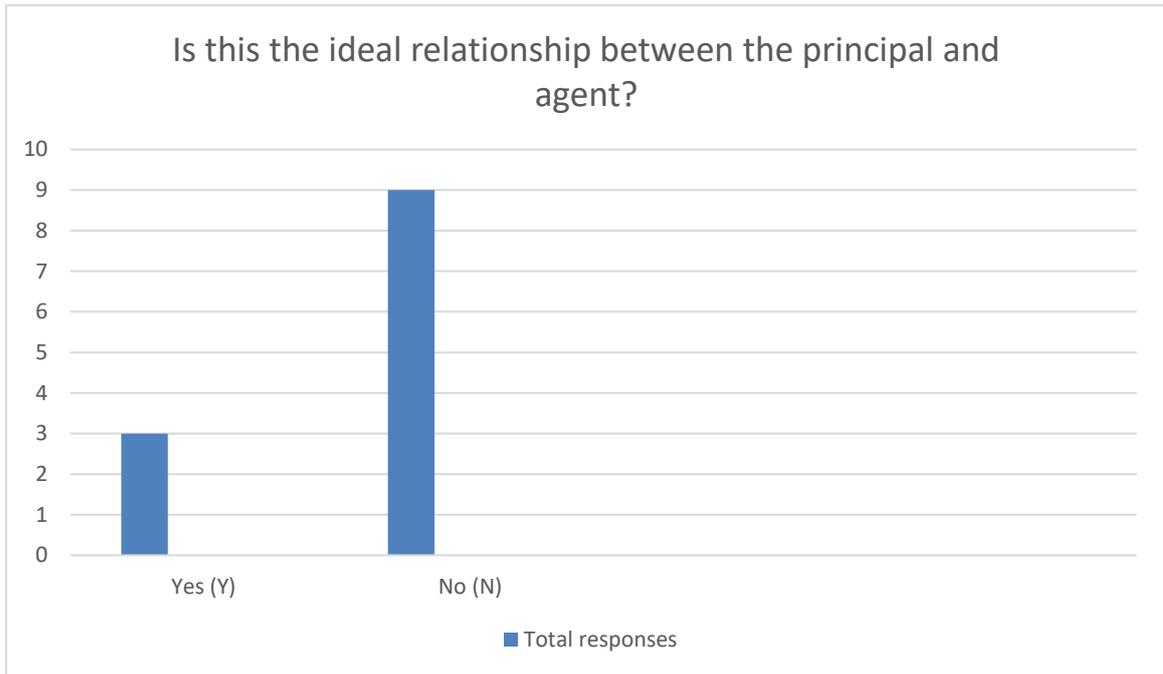
In order to elaborate on the respective themes, the relevant quotes have been listed in the table below.

**Table 10: Agents' quotes related to their involvement in the model**

Agents	Quote
O1	"Because this is the way to go."
O2	"I was forced into it."
O3	"So, in a way...we have been forced into this decision, whether we agreed to or not."
O4	"It has just been pushed on us, on me."
A1	"I never signed a contract, but despite the absence of me ever signing a contract, just by your association with a surgeon you are automatically involved."
A2	"I am really involved out of necessity."
A3	"Because I'm passionate about patient care coming first in the ethics."
MD1	"So, was I forced to? Most probably, yes."
P1	"Because if I wasn't, I would lose all the work that I am currently being referred, and I have three busy orthopods. I can't afford to not be."
P2	"For the same that one of my orthopaedic surgeons is involved in this scheme."
P3	"So, if we were to continue our hospital-based care, we have no choice but to settle on a fixed fee, at this stage."

#### **5.5.4 "Is this the ideal relationship between principal (funder) and agents (all those involved in delivering healthcare for the joint replacement)?"**

The agents were then asked if this was the ideal relationship in the principal-agent contract, and their answer was overwhelmingly "no", with 75% (9/12) of respondents agreeing on this (as indicated in the chart below). There were two different answers from the medical device companies. MD1 thought that it was ideal, from the patient's perspective. MD2 was of the opinion that it was a good concept but was "too much driven by the bottom line".



**Figure 2: Is this the ideal relationship?**

The following quotes by the interviewees explain why their answers were overwhelmingly “no”.

**Table 11: Agents elaborating on the relationship dynamics in the model**

Agents	Quote
O1	“It is dependent on volumes and efficiency; otherwise it doesn’t work.”
O2	“On this model which I am involved in, the X hospital group model, I was thoroughly confused by it.”
O3	“At present, as I said, I feel it is.” “We have to then see, in future, is it worth being on the same tier, being paid the same rate to what we are being covered for litigation at the moment.”
O4	“I don’t think so.” “The funder has decided who is going to be on their network. You have to agree to their terms, and if you don’t agree to their terms, your practice is significantly affected.”
A1	“No, it depends on who you look at. For the provider, obviously it is ideal, because their administrative costs are less. They have predictability in financial outcomes; with clinical outcomes, they can potentially collect data for future peer review, and they are obviously limiting the outliers.” “The person delivering the healthcare, it is a disaster in my opinion, because ultimately our responsibility lies first and foremost with the patient.”
A2	“I think the funding model, as it stands at the moment, is not entirely correct.”
A3	“No, it can’t be, because it can be done in so many different ways.” “One of the arthroplasty products, for example, pays the surgeon more, but if the patient stays one extra day, the surgeon pays the clinic more. Well, isn’t that

	a problem? So, is it now the ideal relationship – no, you can't say for every product."
MD1	"I still think that we are heading in the right direction. Is it the ideal relationship? Ja, I would say so."
MD2	"No, I don't think so."
P1	"I personally don't think it is the best arrangement."
P2	"I don't think it's ideal because the way it was done and the way it was worked out, I think more people should have been considered, and other people's advice should have been taken into consideration."
P3	"No, I don't think that at all. I don't believe that any medical scheme should dictate healthcare."

### 5.5.5 "Who benefits most from the payment arrangement?"

This question was asked in order to understand who the major beneficiary was in the principal-agent relationship. Many (36.8% or 7/19) answered in favour of the hospital groups, as illustrated below. The beneficiaries listed were the hospital groups (HG), clinicians (C), funder (F), patient (Pt), and third-party administrators (TPA). The funders and clinicians were identified as beneficiaries by 21.1% (or 4/19) agents. The patient was thought by 15.8% of (or 3/19) respondents to have benefited.

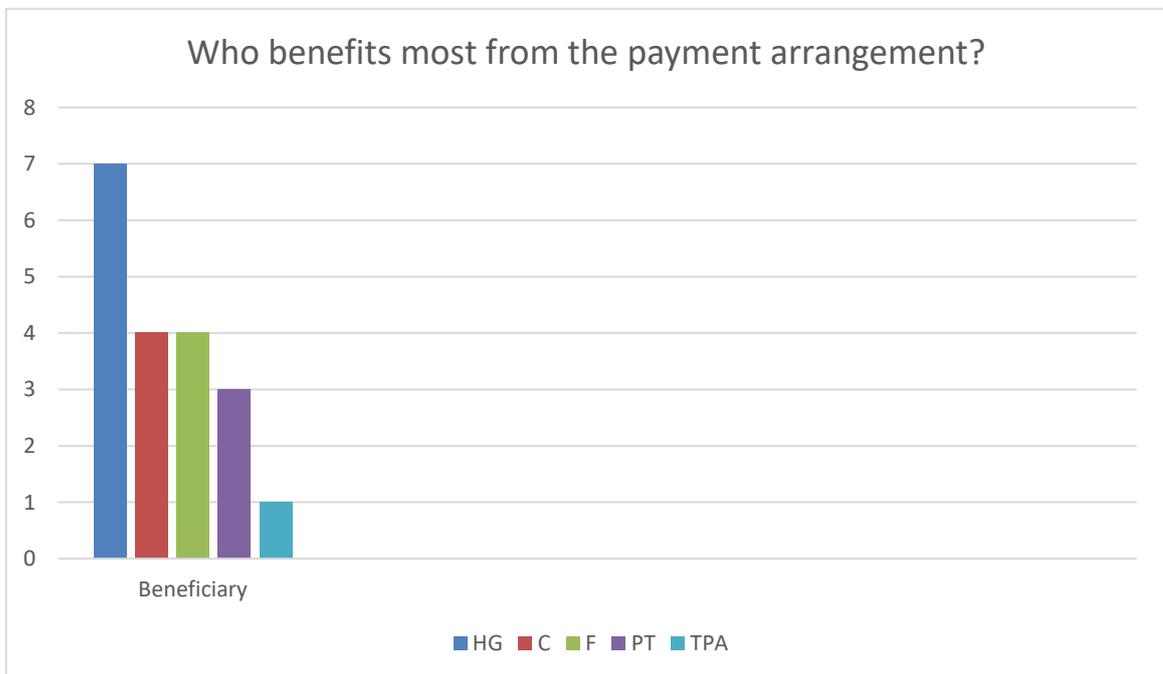


Figure 3: Who benefits most from the bundled payment?

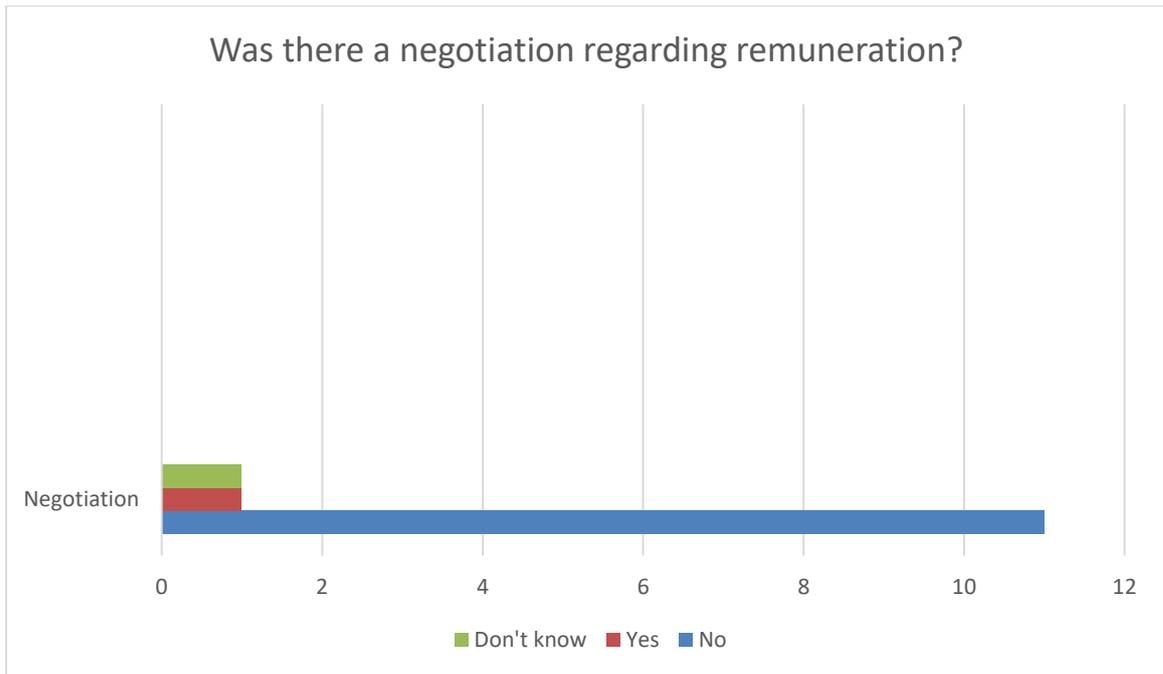
What was highlighted by A3 was that the previous models were in favour of the TPA and HG, but as we moved toward an event-based contract (EBC), the major benefit would shift towards the patient and clinicians. O4, who also mentioned the patient as the major beneficiary, said that there “might be some lower-classed plans that didn’t have an arthroplasty option that now might have an arthroplasty option”. More of the relevant quotes from the interviews have been incorporated in the table below.

**Table 12: Quotes from the agents describing the major beneficiaries of the model**

Agent	Quote
O1	“Probably the surgeons.”
O2	“I think it is equally spread between the medical scheme and the agency. Definitely not to the staff, not us as clinicians...” “Potentially patient benefits, because the system does not allow a co-payment.”
O3	“As a surgeon, I have had no problem with the payment arrangements. Some of my anaesthetists have not been paid as yet.” “With regards to the hospital, I have heard nothing from them, but I am sure they are benefitting from it.”
O4	“I think, without a doubt, the funder benefits the most.”
A1	“So I am benefitting financially.”
A2	“I would say the funders.”
A3	“In the early days, I think the people who would benefit most were the people who had the most power in the arrangement...third-party administrator. In our event-based contract, I think the clinicians will benefit for delivering good service... And that means who benefits most? The patient. There will be cost containment, cost certainty; the patient then gets a better value service from a team.”
MD1	“I got to go and say the patient.”
MD2	“As is now, the groups.”
P1	“I think the funder.”
P2	“I think the hospital.”
P3	“I believe the hospital benefits foremost.”

### 5.5.6 “Was there a negotiation with regard to remuneration in any way or form?”

With this question, the researcher sought to clarify whether there was a negotiation with regard to setting up a contract that is ideally suited to all stakeholders. The answers were either “yes” (Y), “no” (N) or “do not know” (DK). The majority of the agents answered “no” – in 84.6% (9/11) of responses.



**Figure 4: Was there a negotiation regarding your remuneration?**

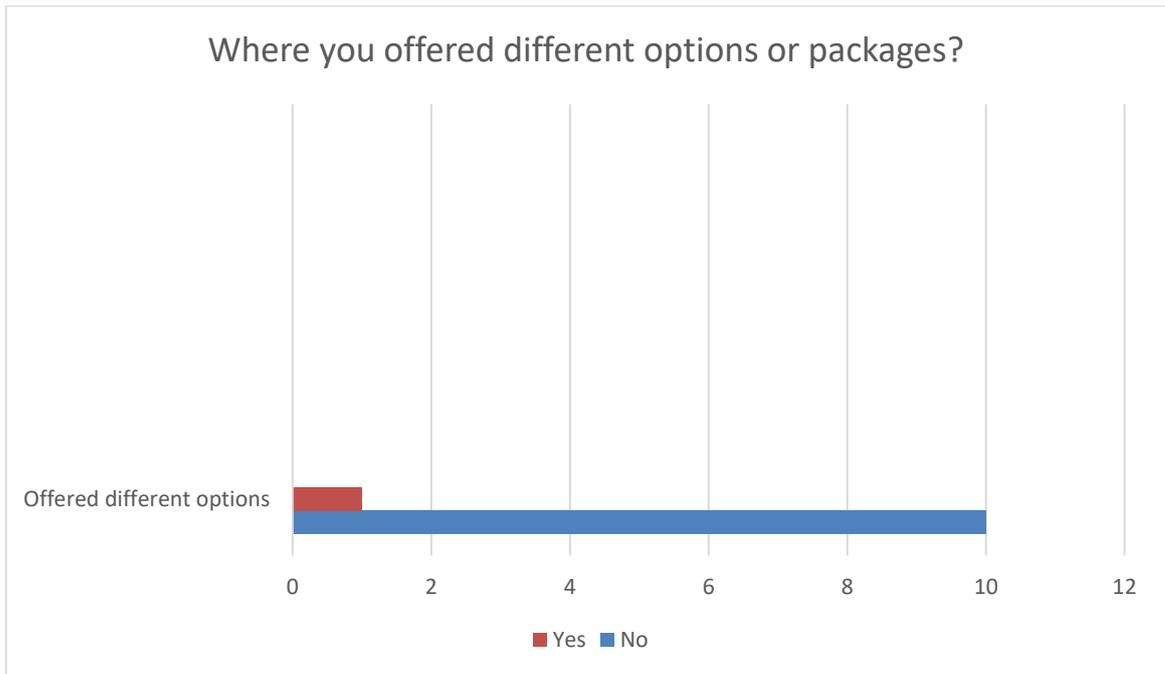
**Table 13: Agents describing whether or not they negotiated a fee**

<b>Quotes describing whether there was a negotiation or not:</b>
"You either take it or leave it"...
Negotiating with the "funder is not even a negotiation"...
"Absolutely not"...
"Not at all, and that is where I think we have lost our clinical autonomy"...
"We were told these are the rates; these are the tiers"...
"So, I have never been asked by a funder or anybody else about my fees."
"No, not at all"...

### 5.5.7 "Were you offered different options or packages?"

The intention behind this question was to probe for more information about the negotiation process, in order to understand what choices the agents had during the process, and how their remuneration could influence the resultant relationship between the principal and the agents.

The agents either responded "yes" (Y) or "no" (N), with 90.9 % (10/11) saying that they were not offered different packages. Agents MD1 and MD2 were not asked this question.



**Figure 5: Were there different options?**

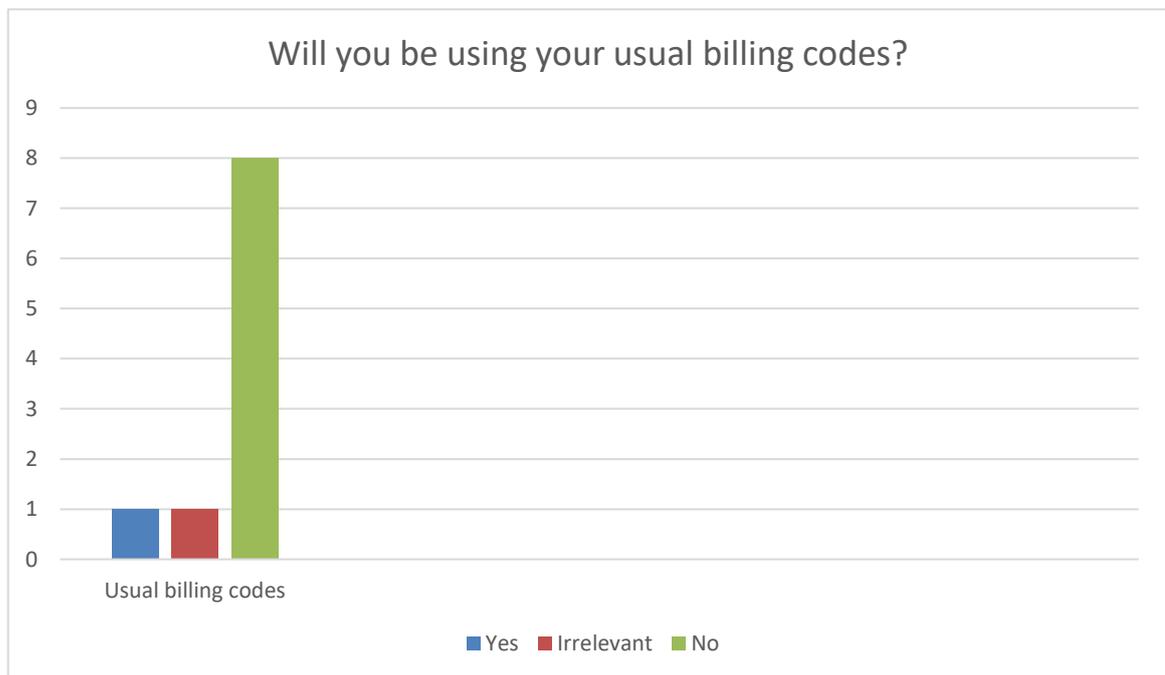
Some of the interviewees had the following to say about this question:

- “We were offered a single fee and the way we could obtain the single fee was offered in different formats.” The interviewee went on to say that it was “one with a hospital group, one with another third-party healthcare management company”...
- “I was told that, that code equalled that”...
- “Absolutely not. We were just told that this is the fee that will be given.”
- The fee was probably determined “somewhere between agency and scheme”...
- “That is an uncertainty.”

One of the interviewees, A3, mentioned that with the new EBC, this scenario could potentially be different. A3 then said, “We’re not telling you what the right fee is, because we don’t know. That’s between you and each clinicians. What we will tell you is, these are the ethics, and this is the way things need to work to make sure that this system can cater for good patient care and value-based outcomes.”

### 5.5.8 “Will you be using your usual billing codes for the joint replacement?”

This question was asked in order to understand if the usual process of billing has changed within this new contract. One would have expected correspondence in an ideal principal – agent relationship and this was explored in this context. The agents responded with a “yes” (Y) or “no” (N), and one interviewee mentioned that it was “irrelevant” (I) with the new model. The majority (80% of respondents [8/10]) said “no”.



**Figure 6: Are your usual billing codes applicable with the model?**

It was interesting to see what the agents said regarding their usual codes. O2 reported that their codes had completely changed. “We have one code; there is nothing to do with South African Medical Association [SAMA] rates, or SAMA coding system or tariff codes, that we are used to.” O2 went on to say that “there is one code which is designed by X hospital group, and that’s it. That’s for me, and I have to pay my assistant out of that.”

O3 said that “we don’t give the procedure codes to the medical aids; we just tell them they are on the pathway, and we just give the one code, which is *JB Surg1*, which makes it easier.” O4 replied that apparently, they did not use their usual codes anymore. “Apparently, there is a single fee, and out of that fee, I have to pay my assistant as well.”

A1 also mentioned that they do not use their usual billing codes. A2 added that with the new EBC, there was now a specific code. A3 reflected on the EBC. “What we’ve stipulated in the event-based contract is that you will have line items that will enable the administrator to identify you as a participant on a systems level. You will have signed a contract with them for that to have happened, and an agreement as to cost, but you will report all the services that you deliver.” The advantage was that one could now evaluate services rendered, because if they are not recorded, one cannot perform a peer review.

P1 explained that they have been told to use a specific code, *JBPHYS1*, which suggests that they will be paid a fixed amount for the whole hospital stay. P2 said that they have to “fit in with the amount they have given us.” P3 explained that “from a coding point of view, we have to use the unique coding system.”

### 5.5.9 “Who determined your professional fee?”

This question was asked to try identify who determined the agents’ professional fees and how they could potentially impact on their relationship within the contract. The agents believed that the funder had determined their fee (this was according to 35.7% of responses [or 5/14 respondents]). The second most common answer was that they were uncertain. This was the case for 21.4% (or 3/14) of respondents, with the remainder giving different answers to their colleagues.

A table of responses to the question of who determined their professional fee is illustrated below.

**Table 14: Who determined your professional fee?**

Rank	Theme	Frequency	Percentage
1	Funder (F)	5	35.7%
2	Uncertain (U)	3	21.4%
3	Funder and Hospital group (F & HG)	1	7.15%
3	Hospital group (HG)	1	7.15%
3	Managed care (MC)	1	7.15%
3	Surgeon	1	7.15%

3	Market	1	7.15%
3	Anaesthetic association (AA)	1	7.15%
<b>Total participants</b>	<b>12</b>	<b>14</b>	<b>100%</b>

In order to dissect this further, the following quotes have been added for review:

**Table 15: Agents' quotes explaining who determined their professional fee**

Agent	Quote
O1	"We said we are prepared to do the joint replacement at such and such a fee..."
O2	"Someone between agency and scheme."
O3	"Well, that is an uncertainty." "We still, to date, don't know who decided on that remuneration package." "So, unfortunately, the Orthopaedic Association initially did not agree to that fee, and that was a dispute..."
O4	"I have no idea."
A1	"At no point was I asked what my fee should be, and at no point was I given an option to negotiate."
A2	"That was done through a negotiation between the Anaesthetic Society and the funder."
A3	"So, it hasn't been societal. It's really been what the market will tolerate." "It's not determined by professionals. We think that, with time, hopefully we'll get to a point that societies can objectively, through practice cost analysis, determine professional fees on that basis..." "So, most professionals will write off significant amounts per annum just to treat patients, because they're sitting across the table and they need treatment."
P1	"I was told it. I was told that, that code equalled that."
P2	"I'm not too sure who did."
P3	"Well, we can determine our own fees, be it a private or a funder rate."

## 5.6 Results for Research Question 2

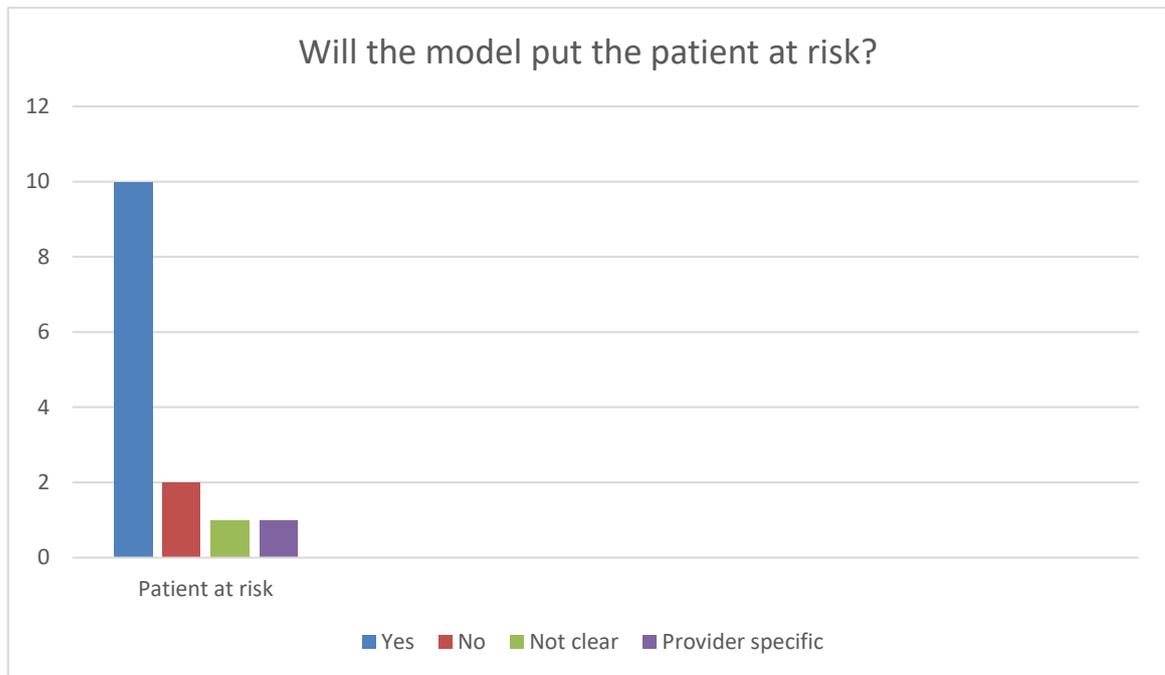
**RESEARCH QUESTION 2:** These questions address the issue of whether true value is created when a principal and agent enter a bundled payment arrangement relationship (Bosse & Phillips, 2016; Shapiro, 2005).

### 5.6.1 "Will this model put patient care at risk in any way, whatsoever?"

True value is created when the patient is at the centre of what clinicians and funders do. The intention behind this question was to explore whether true value was really created within this bundled payment arrangement. The answers, as displayed below, were "Yes" (Y), "No" (N), "Not clear" (NC), and provider-specific. There were 14 different responses. Ten colleagues thought that the model could put the patient at risk (71.4% of responses),

with 14.3% (2/14) of colleagues feeling that it would not. One colleague thought it was not clear and that it was provider-specific.

One of the surgeons stated that “I am under a lot of pressure to get my patient out early”. Another surgeon said that it could put the patient at risk if individuals or teams would cut corners, and it would not if “sanity prevailed”.



**Figure 7: Is the patient potentially at risk with the model?**

The following are some important quotes related to patient safety:

**Table 16: Agents’ quotes relating to whether the model puts the patient at risk**

<b>Will the model put the patient at risk?</b>
“The answer is yes. I do believe that we will be trying to push the patient out quicker, as financially, we will make a loss should the patient have to stay in hospital for longer.”...“Yes, anything that we have seen in the past where it is financially driven does inevitably put healthcare at risk.”
“Well, I think yes.” “We are under high pressure to have our patients out on Day 4, whether they are ready or not.” “If they stay an extra day, there is a financial penalty, because there is a fixed fee.”
“Ethically, from my side, no because I wouldn’t want to change my care towards a patient purely because of monetary value.”... “but it, in the long run, affect other practices.”
“Yes it will. There has got to be peer review.”
“In a way, yes. Because we are under pressure to have the patient out of hospital within 3 or 5 days. Many of these patients are elderly; they live alone and have no

backup.”
“Massively, because of underservicing.”
“There is going to be risk with that. Because we are all getting a fixed fee, there is no financial incentive to deliver best care.” “So, you are more reliant on people’s ethics around this.”
“So, absolutely the patient is at risk if you don’t check for it....poor regulatory policing, all these models put patients at risk. So built-in incentives, unless they are quality managed with peer review and oversight, are actually perverse incentives.”

### 5.6.2 “Who has the power in the relationship? You, the medical aid, the hospital, the surgeon?”

Participants were asked who, in their opinion, had the power in the relationship. This question was answered by all the agents, with some of the agents often giving two or three answers to the question.

**Table 17: Who has the power in the relationship?**

Rank	Theme	Frequency	Percentage
1	Funder (F)	10	40%
2	Hospital group (HG)	9	36%
3	Surgeon (S)	6	24%
<b>Total</b>		<b>25</b>	<b>100%</b>

In 40% of responses, the agents indicated that they believed the funder had the power. In 36% of responses, the hospital group was believed to have the power, and in the remaining 24% of responses, the surgeon was indicated as having the power. Some of their quotes have been captured in the table below.

**Table 18: Agents’ quotes as to who has the dominant power in the relationship**

Agent	Quote
O1	“The surgeon...”
O3	“I feel that it is still medical aid and the hospitals that have the power, because they can decide first of all on the tier and whether the patient is on the pathway or not.”
O4	“I think as doctors, if we stand united, we have power. Unfortunately, I don’t think we have stood united on the issue. I think, at the moment, the power rests with the funder as the market leader in medical aids.”
A1	“The anaesthetist is definitely at the bottom.” “It is the anaesthetist, then surgeon, then hospital group, or funder.”
A2	“Certainly, previously it was not us. However, as an anaesthetic group or as a society, I feel that there has been great progress in how they have taken control of that and negotiated with the other parties concerned.”
A3	“Depending on how the global fee product is designed, there’s always a

	power problem and it's not equalised. And that creates problems, no one should have more power than another party.”
MD1	“It depends. In a hospital group environment, I do believe that the purchasing power lies between the hospital and medical insurance.” “The purchasing power shifts depending on which group.”
MD2	“Generally speaking, the orthopaedic surgeon is still very powerful. If the hospitals puts in place measurements and global fee kind-of-arrangements with surgeons, that is limiting power.”
P1	“The medical aid. In this situation.”
P2	“It would most likely be the medical aid or the hospital.”
P3	“As it stands, the medical aid is the chief power and then followed by the hospital and the medical team.”

### 5.6.3 “Does this model create value?”

This direct question asked whether value was created with the payment arrangement bundle for each agent that was interviewed. Forty-two percent of the agents (5/12) were of the opinion that it did create value (“yes” (Y)), with the remainder split between “no” (N), “depends on your definition of value” (DoDV), and that it was “design-dependent” (DD).

**Table 19: Does the model create value?**

Rank	Theme	Frequency	Percentage
1	Yes (Y)	5	42%
2	No (N)	3	25%
2	Depends on your definition of value (DoDV)	3	25%
3	Design-dependent (DD)	1	8%
<b>Total</b>		<b>12</b>	<b>100%</b>

### 5.6.4 “If value was created, for whom?”

The intention behind the question was to determine who the model created value for, if it did create value. This question was important, as their definition of value was critical in assessing the bundled payment model.

The majority of the agents indicated that value was mostly created for the funder (33.3% [or 7/21] of responses). The next two most nominated beneficiaries of value were both at 19% each and included the hospital groups (HG) and patients (Pt). The rest of the agents’ views on for whom value was created are outlined in the table below. MD2 believed that the value was in simplifying “a very complex reimbursement system”.

**Table 20: For whom is value created?**

Rank	Theme	Frequency	Percentage
1	Funder (F)	7	33.3%
2	Hospital group (HG)	4	19%
2	Patient (Pt)	4	19%
3	System (Sy)	2	9,5%
4	Surgeon (Su)	1	4.8%
4	All participants (AP)	1	4.8%
4	Profit-driven entities (PDE)	1	4.8%
4	Quality (Q)	1	4.8%
<b>Total</b>		<b>21</b>	<b>100%</b>

To further appreciate how value was created, the following quotes elaborated on their explanations in deriving the themes above.

**Table 21: Agents' perspectives and quotes on/about how value is created**

Agent	Quotes
O1	"Any model you make has got to be a win-win for all participants. Create value to the doctor, value to the patients, value to the funders, value to the hospital..." and "Predominantly the patient has to be the winner."
O2	"Essentially, the only benefits that I see are the medical schemes. Second on the benefit list would be the healthcare groups. As long as the surgeon is in the parameters of the bundle, they make a profit."
O3	"It does create value...now the implant is fully covered, so that is a bonus for the patient. From a financial point of view, for the patient is far better and also for surgeons who in the past have been charging a certain rate for these, they are actually ending up being paid more despite being on this model." "The only concern is that there is no backup once they are discharged from the hospital."
O4	"It certainly creates value for the medical aid, because they are controlling costs and dictating to surgeons what they should be earning. For the patient, I think it has pros and cons." "It adds value but also takes away a lot of patient autonomy, patient rights, and also interferes with the surgeon's billing practices, which should be surgeon-determined, not funder-determined."
A1	"It depends what your definition of value is. Financial value, yes, because of cost containment and cost limitations. So it will definitely provide value to the big funders and the hospital groups. Does it create value to the patient? Yes and no."
A2	"Ultimately, the value will be to the system and funding avenues." "A sustainable model that will ultimately be good. But for the doctors involved, I believe that it will ultimately decrease our earnings long term."
A3	"The intention of value-based care is that patients get a better service. The problem with the way that it is driven, particularly in South Africa, is that the patient was not central to the theme of delivery." "It depends on the design of the model, so in some models it would create value or maintain value for profit-driven entities. It should unlock value for the patient, both in the service that's delivered and then hopefully savings."

MD1	"The actual model should drive down overall costs. It helps the patient from a clinical perspective."
MD2	"It can create value in the way of simplifying a very complex reimbursement system."
P1	"I don't think that it creates value for us or the patient. I can only see, to be honest, that it benefits the medical aid, not us or the patient."
P2	"I definitely think that it's creating value for the funder."
P3	"So the most value, in my opinion, is for the hospital and for the funder."

### 5.6.5 "Are you better or worse off because of the model?"

The question was whether the respective agents were better or worse off with the new bundled payment model in place. The results here were fairly close, with most (46% or 6/13 respondents) indicating that they were worse off; 31% (or 4/13) indicating neutral or break-even; and 23% or 3/13 indicating better off. The results are illustrated below.

O1 said that they were better off, the model was massively proven, and that it would not work for everybody. A3 mentioned that there were instances where patients and professionals were worse off in other models, in other clinical disciplines. Examples are where colleagues were offered well below market rates for services, and use of inferior products, in certain instances, in order to maximise profits. P2 said that "there is a lot of pressure on us to have the patient to a certain mobility status before they get discharged, and I don't think that it's fair".

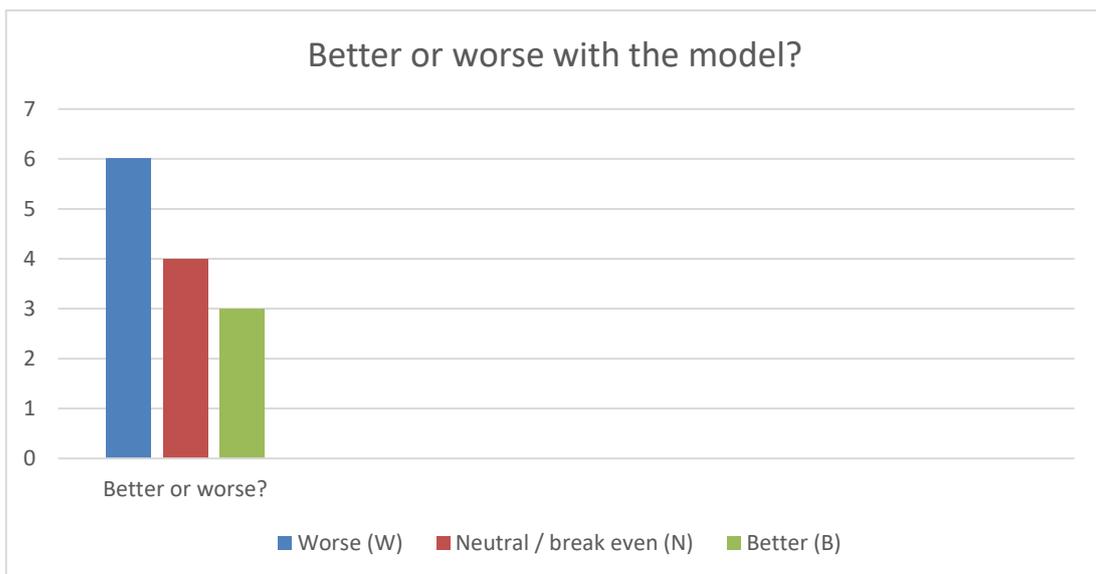


Figure 8: Are you better or worse off with the model?

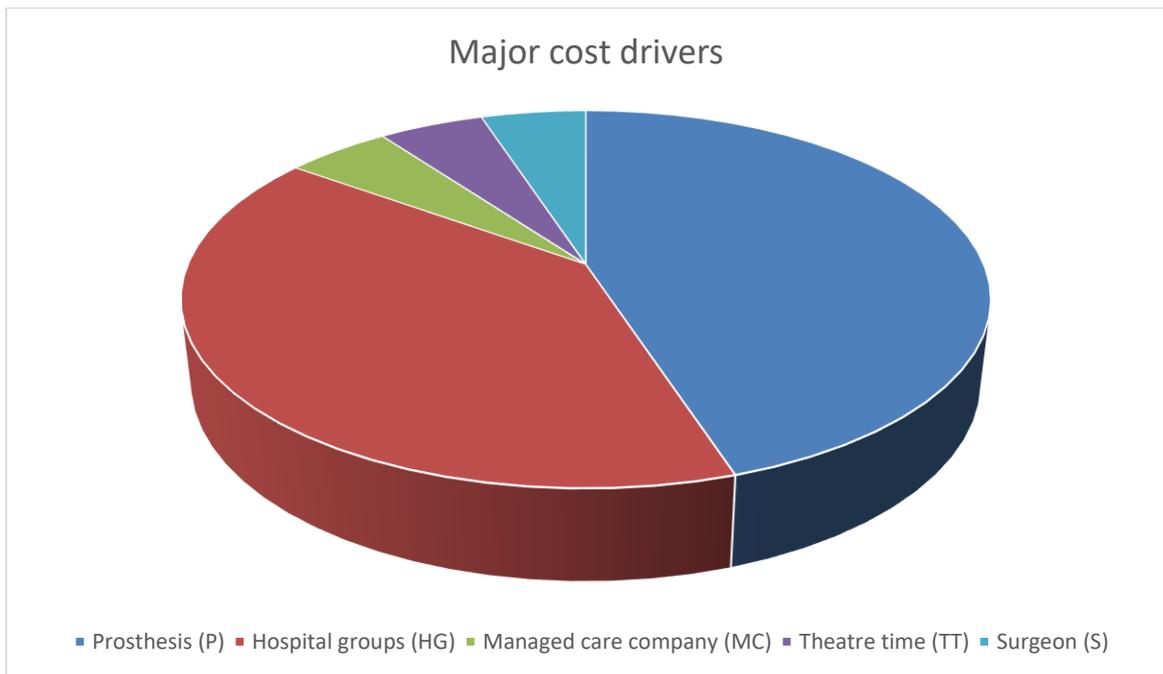
It is important to review some of the quotes in the table below, in order to appreciate how the respective agents arrived at their answer.

**Table 22: Agents’ explanations about whether they were better or worse off with the model**

<b>Agents</b>	<b>Quote</b>
O1	“It works for more efficient high-volume surgeons.”
O2	“At the moment, I am worse. I don’t want to change the principle of how I see and deal with patients.”
O3	“At the moment, I can say that I am better off.”
O4	“The model remunerates me very similarly to how I was earning beforehand, and unfortunately, I think all the decisions regarding remuneration is now in the hands of the funder.”
A1	“I am worse off. Far worse off.”
A2	“It is still early days...but we will see how it goes going forward, whether the rate of reimbursement will track inflation and other economics.”
A3	“I think if it’s unchecked, the patient will be first worst off and then the professional. The nature of the way the contract’s designed is that it will at least make sure that the funder offers a fair value for the services delivered. So, I think that in an event-based contract, members shouldn’t be worse off. So, I think we are better off in terms of delivering better patient care.”
MD1	“As a supplier, we have probably eroded the price by 35%. Yes, definitely worse off.”
MD2	“As it is now, it’s kind of neutral.”
P1	“So, it is still quite new, so, I would say I am pretty neutral.”
P2	“We are most definitely worse off, because we only have a certain time frame to do the treatment.
P3	“We are neither better nor worse off in this regard.” This comment was referring to the discharging of a patient on Day 3 or Day 4.

### **5.6.6 “In your opinion, what is the biggest driver of cost in joint surgery?”**

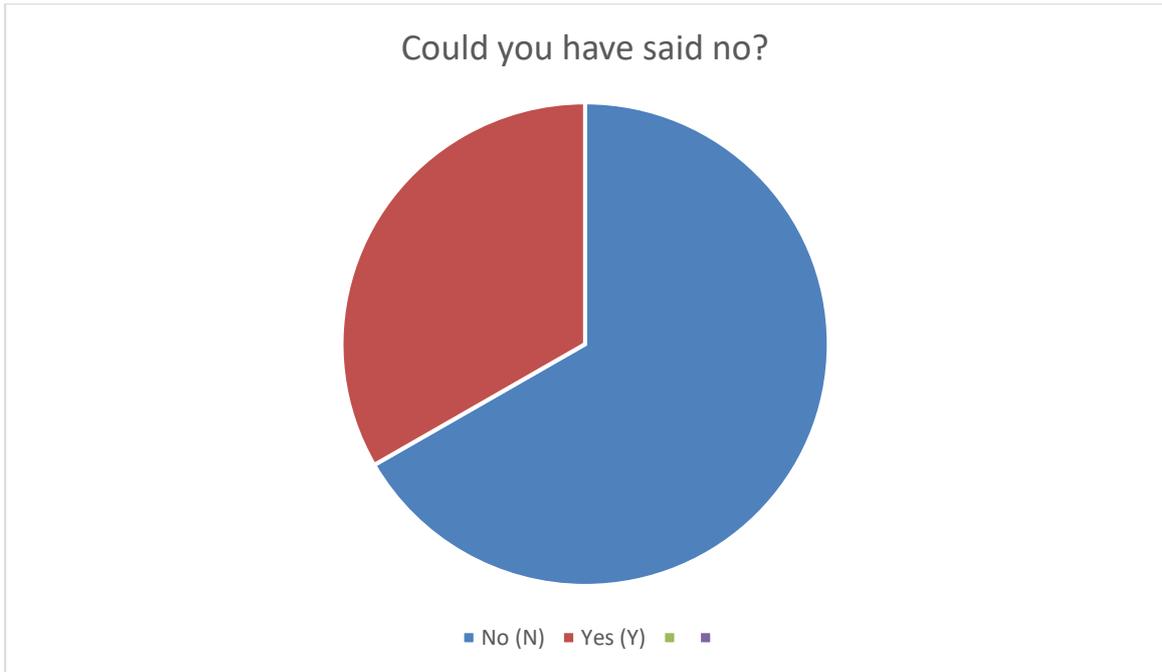
The agents were asked about the major cost drivers in the arthroplasty model in order to determine whether all the agents understood the major cost components of the bundle. The majority thought that the prosthesis (P) was the major cost driver (45% of the responses [9/20]), closely followed by the hospital groups (HG) (indicating 40% [8/20]). The other three cost drivers identified were all listed at 5% (1/20), which is illustrated in the pie chart below.



**Figure 9: What are the major cost drivers in arthroplasty?**

### 5.6.7 “Could you have said no?”

True value is created when all participants truly believe and participate freely in the bundled payment arrangement. This question was asked in order to gauge their willingness to participate, to determine whether or not they truly had a choice, and to assess if they joined because they believed in the value of the model. Two-thirds (8/12) of the agents said “no” and one-third (4/12) said “yes”, as illustrated in the pie chart below.



**Figure 10: Could you had said no to the orthopaedic bundled payment arrangement?**

Some of their comments have been included in the table below.

**Table 23: Agents’ responses to whether they could have said no to the bundled payment**

<b>Comments: Could you have said no?</b>
“We were put under pressure to agree to do this”...
“So, it was a financial decision that I absolutely could not say no. The consequences of saying no would have seen all my Discovery arthroplasty patients disappear out of my practice”...
“Because I wanted to be part of the mix and I am trying to drive outcomes-based medicine”...”to benefit the patient”...
“Yeah, it was a choice..”
“If I had said no, I would have been taken off the list. Which patient would have the freedom to choose me, but because I am not on the list, then they have to pay 20% co-payment for the surgery.”
“My concern is that if I had said no to involving myself in this model, I would have lost many of my patients to those that have agreed to. We were told by the management of the hospital that we have to agree to do this; otherwise the hospital will not be recognised as an arthroplasty centre, and a lot of patients will be sent to other facilities...”
“To say no would have been an option,...I would have lost probably 50% of my income, which is really difficult to replace.
“It would have been very difficult for me not to proceed with some arrangement as my surgeons who is one of my primary sources of income is involved in them.”
“In the arthroplasty space, in a year or two, there will be no fee for service. I don’t think

that, going forward, it would be an option for people to opt out. At some point, they're going to have to opt in. And if they opt in, they have to choose how to opt in. And I think that the guys that opt out and stay in a fee for service over time will lose the work..."
"So I could have said no, but then I basically got told by the referrer, 'we would love you to be with us and if you are not, I will basically find somebody else', because they have to work with somebody on the pathway."
"I could have, but it would have been to my detriment, because I would have lost work."
"If we had said no, we would lose those patients in the hospital setting, and we would no longer be treating arthroplasty patients from the surgeons. So, financially, we would make a loss. Something is always better than nothing in this regard."

### 5.6.8 "What would have been the implications? Why did you say yes?"

The agents were questioned about the implications if they had said "no", and about why they said "yes" to the model. The most significant reason for them saying "yes" was due to finances, as 39% (9/12) were concerned about a loss in their income (LI). The second most common reason was because they were concerned that they would lose patients or that their patients would not be allowed to choose them as their healthcare provider. This was the case for 13% (3/23) of the respondents. Thirteen per cent of the agents gave the reason that they had a good relationship with their surgeons and wished to maintain that. There were many other reasons listed; these have been captured in the table below.

**Table 24: Agents' explanation of why they said yes to the bundled payment model**

Rank	Theme	Frequency	Percentage
1	Loss of income (LI)	9	39%
2	Loss of patient/patient not allowed to choose me (LP)	3	13%
2	Relationship with surgeon (RS)	3	13%
3	Relationship with hospital group (RHG)	1	4.375%
3	Relationship with funder (RF)	1	4.375%
3	Moral incentive (MI)	1	4.375%
3	Social incentive (SI)	1	4.375%
3	Designed it (DI)	1	4.375%
3	Hospital recognition for arthroplasty (HRA)	1	4.375%
3	Legal concerns (LC)	1	4.375%
3	Drive outcome-based medicine (DOBMM)	1	4.375%
<b>Total</b>		<b>23</b>	<b>100%</b>

## 5.7 Results for Research Question 3

**RESEARCH QUESTION 3:** The next set of questions were designed to determine whether information asymmetry could be a problem in the principal-agent relationship (Shapiro, 2005; Sharma, 1997).

### 5.7.1 “Do you think that there could be some information asymmetry in the arrangement? For example, either you are not sure what the funder, the hospital or any clinician in the medical team is doing, and vice versa?”

Here, the researcher wished to determine whether information asymmetry was prevalent within the bundled payment arrangement. The majority of the agents (55.55% [10/18]) were of the opinion that information asymmetry was present. The second theme to arise (in 16.66% or 3/18 respondents) was that of confusion. The other responses are captured below for review.

**Table 25: Was information asymmetry present in the bundled payment arrangement?**

Rank	Theme	Frequency	Percentage
1	Yes (Y)	10	55.55%
2	Confusion (C)	3	16.66%
3	No (N)	2	11.11%
3	Improving (I)	2	11.11%
4	Poor design (PD)	1	5.57%
<b>Total</b>		<b>18</b>	<b>100%</b>

The quotes below aim to explore the agent’s impressions of information asymmetry and reflect on their perspective, as captured in the interviews.

**Table 26: Agents’ quotes related to the presence/absence of information asymmetry?**

Agent	Quote
O1	“The actual remuneration with the global fee is transparent to everybody. So, transparency is the most important part.”
O2	“So, definitely somewhere someone is not doing their job. I can tell you exactly from our hospital here that how the system is implemented is that it is designed for people that have never been in an operating room.”

O3	"There is still a bit of confusion going with regards to the pathways. So we are still having that where patients who we think fit the criteria of a pathway patient or global fee patient, they decide they are not going to pay that."
O4	"I think the asymmetry of information is on the side of the patient because me as a member of the funder, no effort has been made to communicate to me that I have had a reduction in my benefits in terms of arthroplasty option. As a provider, I think the information is straight forward. It is a single fee and I haven't had a choice in determining my own fee."
A1	"So it has created an environment of suspicion where I think for me the biggest issue is that I as an anaesthetist have never been interested in what a surgeon earns because I feel that a surgeon is an autonomous entity who is running a clinic business that is not my business and I feel that all of a sudden there's an aura of suspicion and distrust or mistrust and you almost feel like everyone is out to just take advantage of each other...as soon as the team loses cohesion that opens you up to further medical legal risk that is definitely something I am very, very conscious of."
A2	"...up to now has been the biggest problem is a lack of information. I must say, the Anaesthetic Society has taken a lot of control of that and is doing a lot of work to educate the doctors that are going to be entering into the arrangement."
A3	"Informational asymmetry will sit with the administrators – and that administrator means whoever administers the global fee product – and they then get to share with, so if it's a third party they will not necessarily share data that doesn't suit them with a funder. They want to show good data and the funder will see some of it, not all of it. Again, going back to the EBC, the clinician agrees to share the data in hi contract or her contract. So it's inherent in the design. So everyone is kept honest so that takes away the information asymmetry. And that's again massively important in principle that transparency is maintained at all levels, including cost."
MD1	"One doesn't know what you don't know. There would be definite asymmetry because in the bigger scheme of things, we don't know what the funder is doing long term. We know everybody is aligning to try and get as much of their NHI business as possible...each stakeholder is trying to look after themselves because that's the way business works...we all have a vested interest in our own product. I don't believe that the central core, which is the patient is actually being looked after as the primary objective and that is where I think we should be heading."
MD2	"We ask of course, but certain information is not given to us, so there is asymmetry. We don't really know, you know, the tiering, how the tiering works because they don't tell us. We don't really know what the agreements between the medical aid and the hospital groups are, for sure there's an agreement but we don't know. It's not transparent."
P1	"So, there is quite a lot of confusion. For example, we just have to look on the file and see a sticker that says on pathway or off pathway. No one communicates that or if we would like to not have the patient on pathway...and there is no clarity at all about who does that, who has the power."
P2	"Absolutely and I'm not aware of anybody else's fuds and I am not too sure if other hospitals have been given other amounts, so on so forth."
P3	"No, I don't think there us any asymmetry in the information. So, we continue to give our upmost to the patient first and then we regard our billings second."

## 5.8 Results for Research Question 4

**RESEARCH QUESTION 4:** The next set of questions was proposed to identify whether incentives are critical in influencing the behaviour of the agent (Conrad, 2005; Porter & Kaplan, 2014; Porter, 2009).

### 5.8.1 “Does the bundled payment arrangement have built-in incentives?”

The aim of the question was to identify whether the agents believed that incentives were built into the model or not. Most of the agents mentioned that there were no incentives built into the model, as reflected in 8 of the 12 responses (66.66%). The other answers given were “perverse incentives” (PI) at 16.66% (2/12), and both an “efficiency incentive” (EI) and “incentive to save” (IS), each at 8.34% (1/12).

**Table 27: Does the bundled payment arrangement have built-in incentives?**

Rank	Theme	Frequency	Percentage
1	No (N)	8	66.66%
2	Perverse incentive (PI)	2	16.66%
3	Efficiency incentive (EI)	1	8.34%
4	Incentive to save (IS)	1	8.34%
<b>Total</b>		<b>12</b>	<b>100%</b>

Some of the highlights from the interviews have been tabulated below.

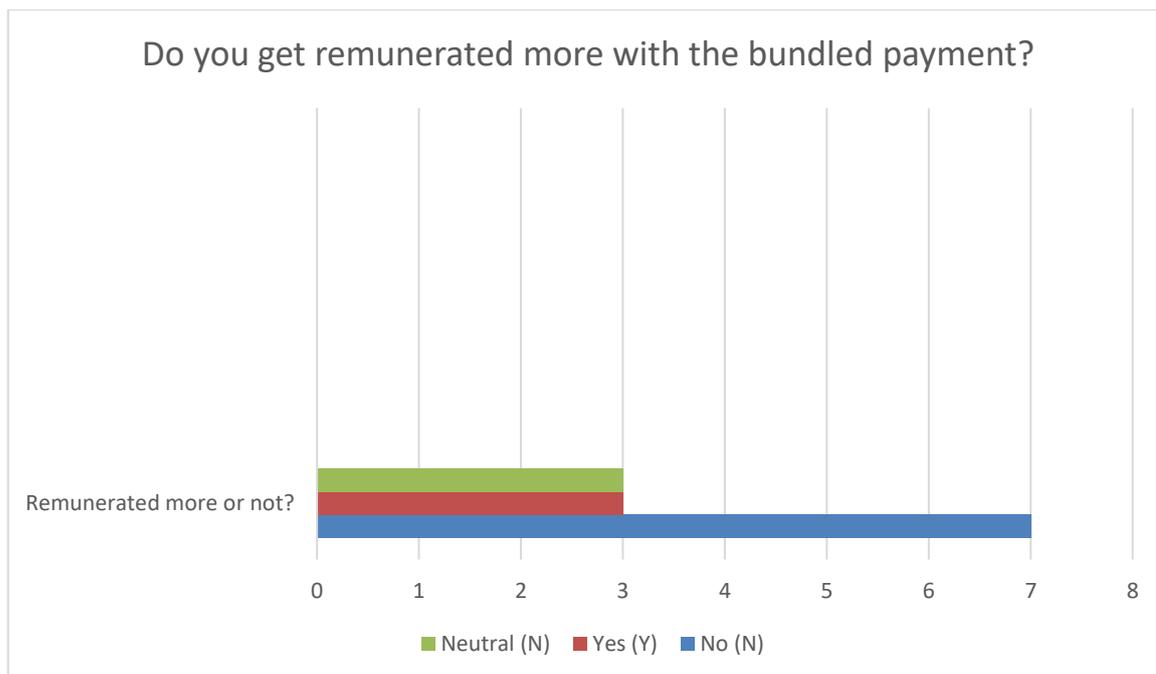
**Table 28: Agents’ quotes in response to whether or not there are built-in incentives with the model**

Agent	Quote
O1	“You don’t want to incentivize people to make more money. What you would like to do is incentivize them to save money...but it is dependent on peer review to make sure that there are no shortcuts...”
O2	“No.”
O3	“No.”
O4	“For what? The main thing is that you must do a good job for the patient. But, I don’t see that there is any kind of incentives in your fee. So whether you do a rubbish job or a good job you are going to get paid the same. Whether you do a difficult joint or an easy joint, you are going to get the same. Whether you spend 4 hours or 2 hours, or an hour and a half you are going to get paid the same. So, I don’t see that it provides an incentive at all.”
A1	“Our patients are now no longer allowed high care stay or an intensive care

	unit stay which in most instances is evidence based medicine. But there are scenarios where patients are unsafe in these environments,... and they should go to high care or ICU, but then you are incentivized to send the patient to the ward otherwise you lose your bundled fee, which in certain instances would be to your financial detriment. That to me is a perverse incentive.”
A2	“Efficiency is rewarded. So, I like to view myself as quite an efficient anaesthetist and I am able to be well remunerated at a fixed fee if I am efficient. So. It is an indirect benefit. But no, there is no financial incentivisation.”
A3	“So built-in incentives, unless they are quality managed with peer review and oversight, are actually perverse incentives. There’s a moral incentive that should be with us but if you don’t have that, the contract (EBC) has clear objectives at the start: best patient care, what the administrator needs to deliver, what the society needs to deliver, what the clinician needs to deliver. The built-in incentive turns towards a social incentive.”
MD1	“No, definitely not. There is no incentive for me whatsoever. If one is going to have a fixed fee, and reduce price one has to have a benefit in volume, and there is no benefit in volume.”
MD2	“No, not for the suppliers I hear and I understand that that’s the case for the surgeons.”
P1	“So, the way it was described to me was that possibly if we got the patient out sooner, we would have scored. But, that is not the way we work, it’s not ethical for us to take X amount of days for us to reach stairs etc...So, there is very little incentive for me.”
P2	“No.”
P3	“No.”

### 5.8.2 “Do you get remunerated more with the bundle or not?”

This question was aimed at determining whether the agents were now remunerated more or less with the bundled payment arrangement. Fifty-three percent (53.85% or 7/13) of agents were not remunerated more with the bundled arrangement. The other two responses, which were “yes” (Y) and “neutral” (N), both reflected at 23.075% (3/13). These results are reflected in the chart below.



**Figure 11: Are you remunerated more with the bundle?**

## 5.9 General insight questions

This general section was opened up by asking the respective clinicians what their own associations had said with regard to the bundled payment arrangement. It is important to note that this question was not posed to the medical device companies. The anaesthetists all had the same answer, whereas all the other disciplines gave different responses. The following themes arose from the data, as listed in the table below.

**Table 29: What did your own association say about the bundled payment arrangement?**

Rank	Theme	Frequency	Percentage
1	Event-based contract (EBC)	3	21.40%
2	No guidance (NG)	2	14.3%
2	Warnings (W)	2	14.3%
2	Driven by funder (DF)	2	14.3%
3	Not their role (NTR)	1	7.14%
3	No consensus (NC)	1	7.14%
3	Refer to other association (RTOA)	1	7.14%
3	Not taking their advice (NTTA)	1	7.14%

3	Limited communication (LC)	1	7.14%
<b>Total</b>		<b>14</b>	<b>100%</b>

The anaesthetists all referred to the EBC (21.40%), which was the most frequently quoted theme, with one of the surgeons even referring to the anaesthetic association as well (RTOA). The next most common response was three responses all at 14.3%, and these clinicians mentioned that there was “no guidance” (NG), “warning issued” (W) and that it was “driven by the funder” through the association (DF). Other single responses were noted, with one of the surgeons indicating that it was not the association’s role but that of the Health Professions Council of South Africa (NTR).

The second question in this series was: if respondents could change anything about the bundle, what would it be? The aim of this question was to determine if there were any deficiencies in the bundle that the agents thought needed to be addressed in any way or form. There were 14 responses that did not include the principal (funder).

The most prevalent answer was to “change the model” (in 28.6% of responses, which is almost one-third of the responses). The agents in this theme referred to ensuring that the model monitored outcomes for patients, clarity on which patient was on/off the model and who had a co-payment, the ability to negotiate one’s own fee, and increased remuneration.

The second most common response was improved communication (in 21.41% of responses). The concerns raised related to the way in which the model was initially rolled out, the lack of meetings to discuss various options for all the participants involved, and improved communication amongst all the agents.

The third-ranking theme (at 14.3%) referred to association intervention, which spoke to a request for improved leadership within the orthopaedic association as well as a request for them to lead the negotiation process for their members. Another theme that was also ranked third (at 14.3%) had to do with regulation. The agents spoke of a need for regulatory policing as well as the introduction of medicolegal expertise to assist the clinicians with interpretation of their contract with the funder. The last three themes listed (at one response each/7.13%) requested improved transparency or suggested scrapping the model, with one agent content with the model in its current format.

**Table 30: What would you change about the model?**

Rank	Theme	Frequency	Percentage
1	Change the model (CM)	4	28.6%
2	Communication (C)	3	21.41%
3	Association intervention (AI)	2	14.3%
3	Regulation (R)	2	14.3%
4	Transparency (T)	1	7.13%
4	Scrap the model (SM)	1	7.13%
4	Nothing (N)	1	7.13%
<b>Total</b>		<b>14</b>	<b>100%</b>

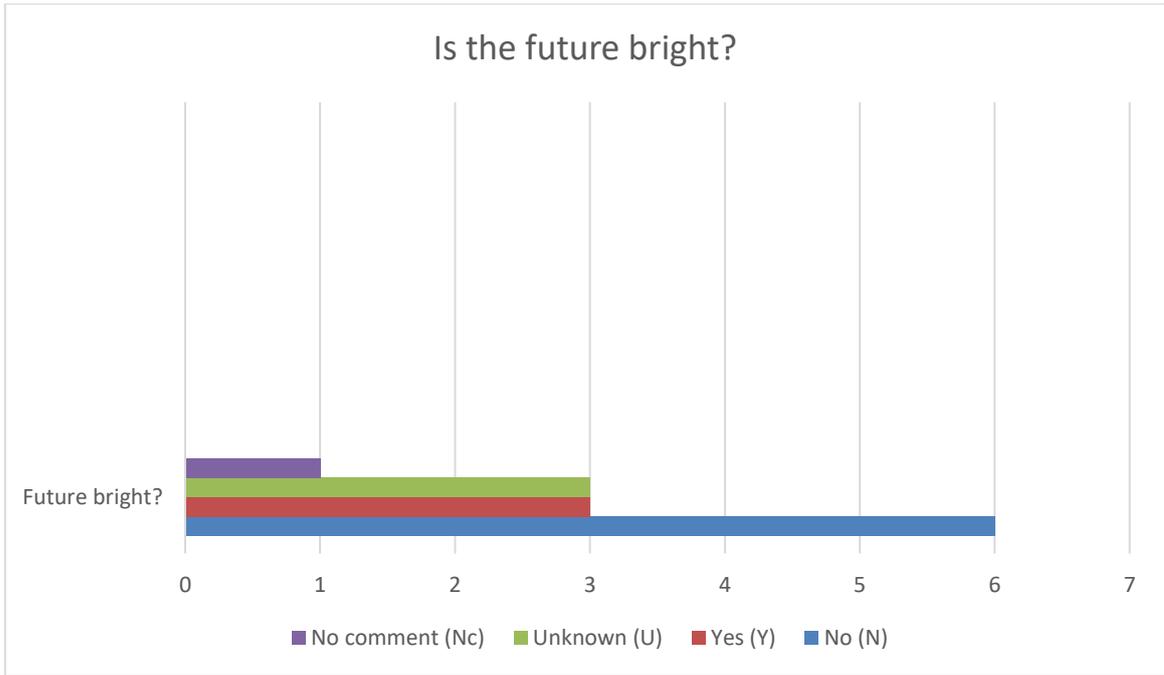
The third question in this series asked all the participants where they saw private healthcare in five years' time. The second part of the question asked if they thought the future was bright. All respondents answered, and the comments are represented in the table below.

**Table 31: Where do you see private healthcare in five years' time?**

Rank	Theme	Frequency	Percentage
1	National Health Insurance (NHI)	8	44.44%
2	More expensive private healthcare (MEP)	5	27.77%
3	Total bundled fees (TBF)	1	5.558%
3	Unsustainable (Us)	1	5.558%
3	Salaried (Sd)	1	5.558%
3	More bundled fees (MBF)	1	5.558%
3	Not sure (Ns)	1	5.558%
<b>Total</b>		<b>18</b>	<b>100%</b>

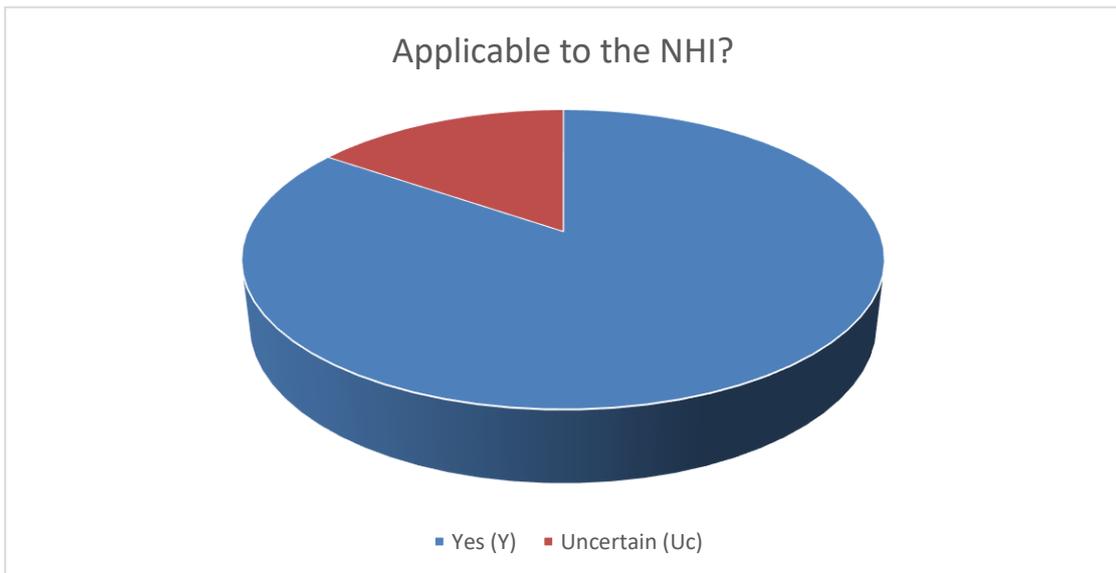
On reflection, it is interesting to note that one participant was not sure, yet all the other interviewees had an opinion about the future. The majority thought that the country is moving toward a National Health Insurance (44.44%). The second most common response (27.77%) alluded to an even more expensive private healthcare system. The rest spoke of more bundled fees, unsustainable medical practices, and salaried healthcare professionals.

The second part of the question asked if the future was bright, with the overwhelming majority saying "no" (in 46.1% of instances). The other responses were "yes" (23.1%), "uncertain" (23.1%), and "no comment" (7.7%). These are illustrated in the chart below.



**Figure 12: Is the future of private healthcare bright?**

The final question asked the principal and agents whether this model could be applied to our future NHI, once implemented. The majority of the agents and the principal responded “yes” (Y) to the question (in 84.6% or 11/13 of the responses). The remaining responses from agents were uncertain about the model and its role in the NHI in two of the thirteen replies (15.4%).



**Figure 13: Is this model applicable to the NHI?**

## **5.10 Results for the principal**

### **5.10.1 Discovery (principal)**

Discovery Health Medical Scheme was contacted and agreed to participate in the research into the orthopaedic bundled payment arrangement. The interview took place at Discovery Health's offices in Sandton, and the interview was 51 minutes and 31 seconds in length. The interview was conducted by the researcher, with two interviewees in attendance who were responsible for the bundled payment.

The orthopaedic payment arrangement model was explained as a virtual bundled fee that was an agreed fee that included a fixed fee for each participant in the arrangement. It was primarily for a primary, non-complicated, unilateral hip or knee arthroplasty. The model sought to cover the hospital fee (including the prosthesis), orthopaedic surgeon (and their assistant fee), anaesthetic fee and in-patient physio.

Multiple other models are available. They all add up to the same rand value and have been designed by some of the hospital groups. There are also global fee operators in the market. In this case, the payment goes to them, and they pay out the individual participants. With regard to the Discovery model, it is a direct arrangement between the participants and Discovery. Discovery has two options. In the first instance, each participant gets their fee as per the model. In the second, the team can sit around the table and discuss who gets what in terms of the fixed fee.

The concept of fixed fees is deemed acceptable with the HPCSA. With regard to the global fee concept, the HPCSA has not mentioned in their guidelines that you can/cannot participate in global fee payment arrangements.

It is difficult to define the ideal relationship between the funder and all the respective agents involved in the bundled payment. There was a move from the volume-driven, transactional fee-for-service (FFS) model towards a value-driven model. This model will certainly move participants in a direction that should encourage team participation. The funder had to be sensitive to the relationships amongst all the stakeholders, especially when bringing them all together.

It was difficult to define the ideal model, but they were of the opinion that the relevant all stakeholders were making progress. One of the drivers was the fact that there were significant variations in the cost of services and the outcomes of the quality of care that were not accounted for in the FFS model. This model started incorporating accountability for everyone involved in terms of getting value for money. One of the interviewees mentioned that it came down to “the best quality at the best price, the best value”.

The funder mentioned that the same cost containment issues were prevalent everywhere in the world, not just in South Africa. The best way, in their opinion, to address that was in a value-based way rather than a “cutting corners” way. It would certainly be beneficial if these concerns were pushed from the relevant societies and those delivering the care as opposed to the funder. The positive aspect was that the societies and their members who are directly involved in delivering care are coming together and starting to proactively engage stakeholders, to ensure that all the providers are on the value path for their patients. The funders were the ones to drive the process rather than the bundled payments being driven by the professionals, themselves.

The factors that initiated these bundled payments was related to variation in outcomes. There was significant variation with regard to outcomes, cost and quality of services rendered. They identified a need to define precisely what a successful procedure was, as an expensive procedure did not equate to a quality procedure, and vice versa. The cost and quality disparity was a significant concern for the funder and their members, and the bundled payment could assist them with recordable, standardised outcomes.

The bundled payment was not a diagnosis related group (DRG) payment arrangement, as the DRGs included radiology and pathology costs, and is a cost per event product. The bundled fee assimilates the principal components and costs into a virtual bundle and is tighter than a DRG.

The cost drivers identified in the arthroplasty procedure were the hospital costs, prosthesis cost and the orthopaedic surgeons’ fee. There was limited transparency with the hospital group and prosthesis manufacturing costs, which made costing rather difficult to estimate.

A pilot study informed their bundled payment, which was carried out by a provider who ran their own programme. This pilot study informed them about the true costs of the procedure as well as complications and levels of carve-outs from the deal. They now

have full fixed fees for all willing participants. They also had prior experience with bundled payments relating to cataract surgery and robotic assisted radical prostatectomies (Da Vinci).

With regard to the power dynamics, it was interesting that the dynamics could differ between the same stakeholders, depending on who it was and which environment it was in. Once the core team was identified, it was easier to finalise the bundle.

The total cost of the bundled payment is R134 431. The bundle, as it stands, does not necessarily amount to savings in the short term. This initial phase was primarily aimed at “affecting a structural change”, even if the funder received a financial hit in Year 1. One would expect savings in the long term as the curve for complications and outcomes for patients tighten. The funder would also be able to review data such as pulmonary embolism, deep venous thrombosis or even thirty-day re-admission rate. The bundled payment is seen as a long-term initiative and would be due for a suitable increase in line with the policies of Discovery Health.

The funder suggested a price to the market for participants to accept or decline, but there was also an option whereby the teams could decide this for themselves. As Interviewee 2 mentioned, “This comes out as a cost certainly for the first few years to Discovery but you are paying for a behavioural and structural change in the system that would otherwise not be possible to affect”.

The claims system for healthcare professionals was a system based upon trust, and Interviewee 1 stated that “claims always have been paved on trust”. The bundled payment was open to all orthopaedic surgeons. The bundled payment was not open to all hospitals. The reported volume load to get provider status internationally is between 25 and 100 cases. The funder excluded all cases where less than ten were done in one year. The funder was sensitive to the concern regarding access to healthcare within South Africa, so in terms of the Medical Schemes Act, they created a network that did not compromise access to care, ideally within a 50km radius. Higher volume centres were preferable, but the funder was aware of the fact that volume did not always equate to quality outcomes.

The centre of excellence model would be ideal, with the idea of concentrating cases where the teams and facilities were better organised. This could be identified once true outcomes data becomes available.

The participants confirm commitment when all of the team members sign the contractual agreement, which includes the hospital, surgeon, anaesthetist and physiotherapist. All the relevant stakeholders must agree to and sign one, model as there are different models available in the market.

The bundled payment has built-in incentives, which go along with the fixed fee. There is an incentive for the hospital, especially, to understand its efficiencies and identify where it can eradicate waste. There may be longer term savings for the funder, which may be ploughed back into the programme in order to incentivise teams that are performing well. There is a built-in incentive with regard to efficiencies as well as an implicit incentive with regard to rewards for outcomes.

Defining success with the model is important, and outcomes are monitored from claims data as well as patient-reported outcomes. Claims data can be enhanced with collection from re-admissions or complications like pulmonary embolism and deep venous thrombosis. The funder is also working with the South African National Joint Registry in order to enhance collection of data relating to prosthesis used, longevity of the prosthesis, clinical information, theatre time, length of stay, and other data sets.

The power dynamic is variable amongst the various stakeholders. The funder's role was not to hold the power but "to pay what they believed was a fair price for a service to get the right outcome". The large hospital groups had many sites and were large corporates, so the surgeons may feel that they are on the backfoot. Smaller, independent hospitals may have close relationships with surgeons and/or anaesthetists, and there the dynamics may be completely different. So, depending on which doctor or hospital one spoke to and their context, you may a very different opinion may emerge. This was further complicated by the situation whereby a doctor who is important to the hospital might wield significantly more power in terms of what they are able to achieve compared to a younger doctor who is a new entrant to practice and the hospital. The funder acknowledged that people may be of the opinion that the funder holds the power because they hold the money. Interviewee 1 stated that "that's not necessarily true, our job is to spend the money wisely".

Interviewee 2 mentioned that the arthroplasty fixed fee was a product with no penalties for signing and not signing. It was a voluntary decision for stakeholders to participate, and, due to a significant uptake in the model, it became part of the network, with national coverage. The overall feeling of the interviewee was the fact that participants signed up

was significantly telling.

It was not an unusual move in healthcare to levy a co-payment on a case done outside of the network. The funder's approach to the bundled payment and the way it was launched is reflected in the buy-in that it received from the stakeholders. One of the key learnings was to consult the various stakeholders before pulling the trigger and putting the benefits in place.

With regard to the medical team only (excluding the hospital), the orthopaedic surgeon is the participant with the most power, according to the funder. This is because the surgeon triggers the pathway for the "procedure-based event" in terms of the steps to follow, and they pull their colleagues in as they need them.

Discovery Health has always been honest with the clinical teams in terms of not advising them of which is best practice, as they are funders, not clinicians. They do, however, expect that the teams align themselves with arthroplasty best practice guidelines. The clinician is free to choose which practice guidelines they wish to follow, whether it is the South African guidelines or those of the United States, Europe, etcetera. With regard to information asymmetry, the funder encourages transparency in terms of outcomes and is comfortable sharing data relevant to patient outcomes, for example: that one's patient was perhaps admitted at another facility with a complication that the orthopaedic surgeon was perhaps not made aware of and which would be important to know about.

The funder is not privy to many aspects of the bundled payment. This would relate to the breakdown of what happens in the hospital, true efficiency on the ground, what the standard operating procedures are, and what would go into the lump sum for the hospital payment.

There is a definite shift from FFS to value-based reimbursement or different alternative reimbursement models, not just in South Africa but worldwide. The funder is faced with a finite amount of funds in an environment where the costs of healthcare exceed the costs of inflation. It is important to contain the costs while, at the same time, ensuring quality healthcare delivery.

Interviewee 2 mentioned that “the fact that other funders in the market and other organisations follow suit is telling”. It has been positively received by the market, if their reaction is anything to go by. The change of mechanism of payment can range from a spectrum of FFS to capitation. There is no one model that fits all. Chronic conditions, like diabetes and hypertension, require their own model, as do other medical problems that may require emergency or elective surgery.

There is immense value in the model, especially during tougher financial times. For the member, there is certainty of cover, certainty of payment, and no out-of-pocket payments. For the providers, there is guaranteed payment as well as an opportunity to review one’s own internal processes and procurements, and to address one’s own inefficiencies. If participants sign and join the programme, there is less admin and less debt collection, and payment is guaranteed. The funder has managed to save money, ensure quality care, and extract value from the system.

All relevant stakeholders should be in the game to create value for their patients. Whether it is the funder, the hospital group or the physician, value is created when the patient is in the centre of the model. Interviewee 1 stressed that “as long as the focus is the patient, then we’re doing the right thing”.

The model will certainly not put the patient at risk. If the model was imposed without underpinning it with a quality outcomes-based measurement, then it could be a risk. If there was no quality outcome measurement, it could allow for maximising revenue opportunity by participants, thus putting patients at risk. Funding models like these should never be implemented without the counter-balancing of outcomes and quality to measure performance and whether the situation is improving. This point was stressed by the relevant societies, too.

In the early days of the development of the model, it was necessary to identify which patients were not ideal for the programme. This was important, as the funder did not want “a doctor to feel that they needed to do something more that they couldn’t because the cost was a certain limit”. It was also important that unexpected complications, for example: a myocardial infarction, were covered without any hassle. The FFS model would then kick in to cover treatment for that condition.

South Africa has an asymmetrical distribution of healthcare services which provides the private healthcare with a massive opportunity and obligation to assist those who do not have access to basic and adequate levels of healthcare. There is a lot of opportunity for the private healthcare sector to get involved and make a difference.

Impressive leadership has emerged from many of the medical societies in the last few years. The focus in said leadership has been on making the private sector sustainable and on allowing for quality-based, value-based healthcare. There could be a movement toward bigger practice formation, both at primary and secondary care level. There will be more transparency from both hospitals and clinicians in terms of patient experience. Patients will be more educated and take more charge in the management of their own care.

With regard to the NHS, there will be a definite move to defragmenting the delivery of healthcare and ensuring that we focus on outcomes. Many entities, whether they are public or private, could potentially tender for delivering work in the NHS. This could help reduce the inefficiencies of both the public and private sector. This should allow both sectors to come closer together and start sharing valuable information in order to deliver quality healthcare to all.

## **CHAPTER 6: DISCUSSION OF RESULTS**

### **6.1 Introduction**

These research interviews will be critically reviewed using the theory from the literature review, presented earlier. It is interesting to note that all stakeholders, except the relevant hospital groups, were eager to participate and contribute to the understanding of the bundled payment arrangement. The research questions will now be reviewed, together with the funder's input.

### **6.2 Discussion of results for Question 1**

This set of questions reviewed whether an agency relationship in the form of a bundled payment arrangement is the ideal contract between the principal and the agents (Jensen & Meckling, 1976) (Eisenhardt, 1989) (Waterman & Meier, 1998).

The crucial first step when one has rolled out a bundled payment arrangement is to explain what it means, in practical terms, for the relevant stakeholders. How do the various participants of the model define it, for themselves, and explain it to an interviewer? How would the participants explain it to their colleagues or to their patients? The fee-for-service (FFS) model is the current reimbursement model that most clinicians and patients are familiar with, so when one has implemented a new payment initiative, one would expect all the participants to be on the same page.

In the first set of answers, there are eight different responses, and even if an answer is the same (for example, "fixed fee"), it may not have the same connotation in their own mind, as clinicians may not be familiar with financial terminology. One-third of respondents identified the model as a fixed fee; the rest explained it as a global fee, once-off fee, managed care option, various models, arthroplasty model, tiered fee, and even an evolving model. Who would this reply reflect on if the answers are not all the same? Can we say it is the funder, the hospital groups or the clinicians that are to blame? Why is there no clarity on the matter, with a single answer from all agents that means the same thing to all?

The funder described the model as a virtual bundled fee that was a fee agreed upon by X and which included a fixed fee for each participant in the arrangement. This may seem simple enough, but one would expect all parties to have the same definition of a bundled payment arrangement, especially if this relationship were an ideal contract. What clouds the issue further is the lack of hospital groups' involvement in this study, which can be interpreted in many ways. One would have expected the hospital groups to engage in this study in order to improve or change any parameters in the contract, should it be necessary at all. One would expect all parties that are privy to the contract to be fully aware of all the implications, and the definition of the payment arrangement. The funder's definition of the arrangement has simplified its meaning, but the meaning does not seem to be apparent to the medical team. This is consistent with the literature, meaning that the principal-agent contracts can be difficult to understand.

To further explore the relationship and determine whether they entered into an ideal contract (for both parties), the researcher had to enquire as to whether or not they were invited to participate or not. Of concern was the fact that most reported that they were forced (F) to be involved. This was the case for 45% of respondents. How can this relationship be ideal if almost half of the participants feel that they were forced to get involved? Thirty per cent indicated that they had been invited, with the remainder describing their involvement as "never asked" (10%), "instigator" (5%), "negotiating" (5%), and "assumed in" (5%).

One has to question how this initial relationship came about and in what way the clinicians might feel that they were forced? One would want the ideal contract to ensure that all parties are relatively well protected and informed. A3, as quoted above, explains how the facility pressurises the surgeon, who pressurises the anaesthetist and the rest of the medical team.

This relationship amongst the stakeholders is complex and unbalanced as the "equilibrium behavior of a complex contractual system made up of maximizing agents with diverse and conflicting objectives" (Jensen, 1983, p. 15). In essence, the fact that all of the stakeholders are involved for the benefit of the patient is what keeps them together in the relationship. The relationship appears to be a complex contractual system, and it appears that the clinicians had little choice about whether to enter into it or not.

The researcher further enquired as to why the agents (clinicians) were involved, and, yet again, the leading explanation in 50% of respondents was that they were forced into it. Some of the other responses included that they were involved out of necessity, and, furthermore, to support their medical team and colleagues. Their allegiance seems to be to their colleagues and to the funder; in addition to this, their priority is to sustain their income. Other explanations included the fact that affordability was an issue for them, and also that they believed in the model (which was a positive reflection).

The agents were seemingly concerned about a loss of income with the bundled payment arrangement, especially if they lose access to manage their patient if they are not signed up with the funder, thus allowing them to participate. This links up with the shift from volume to value, and a move from FFS healthcare to bundled payment healthcare. It is a new territory for many clinicians.

The weak trending signal was that perhaps this was not the ideal relationship. Therefore, the agents had to be asked directly whether this is the ideal relationship between the principal (funder) and the respective agents?

Their answer was concerning and was overwhelmingly “no” (by 75% of the agents). This information from the agents was significant, as clearly the relationship was not ideal; yet many of the participants had signed up. O2 said, “At present, as I said, I feel it is [the ideal relationship]”, whereas O4 indicated, “I don’t think so, the funder has decided who is going to be on their network.” O4 explained that “you have to agree to their terms and if you don’t agree to their terms, your practice is significantly affected.” Here we have two orthopaedic surgeons who have two distinctly different opinions about the relationship. This was not reflected in the literature.

Perhaps they were benefiting from the model, so one would need to ask, “If this was not an ideal relationship, then who actually benefits most from the payment arrangement?” The hospital groups were the most prevalent answer (36.8% of responses), which raises an interesting point. If the hospital groups are the major beneficiaries of the arrangement, is it a coincidence that they did not participate in the research study? Other listed beneficiaries include clinicians, funder, patient and third-party administrators.

It was also interesting to note that the clinicians did not see themselves as the major beneficiaries of the model, but it appears that they still wanted to be able to (allowed to) treat their patients. The patient was thought to have benefited (according to 15.8% of

the responses). Ultimately, all stakeholders should be in the relationship to prioritise value for the patient, so this is seen in a positive light.

The introduction of the event-based contract (EBC) by the Anaesthetic Association of South Africa (SASA) was positive. It appears to have the potential to strengthen the existing relationship between the funder and the clinician, as it certainly creates value for, and protects, both parties.

If the relationship was ideal, and the contract was fair, one would expect a reasonable negotiation process with regard to remuneration. The majority of agents (84.6%) answered “no” when asked if a reasonable negotiation had taken place to determine their fee. This is significant, as one would expect that all stakeholders would feel that, at least, a reasonable negotiation had occurred. It must be acknowledged, though, that this is a relatively tricky process to manage, as there are codes with set prices for fees (using the FFS model), and one has to be careful to set prices in order to avoid collusion.

One of the medical device companies (MD2) thought that the global fee concept was a good one, but that the current relationship was not ideal. MD2 thought that it should be managed by the funders, with the hospital groups being on the receiving end as they were very driven by the bottom line. The funders had access to data to allow for meaningful decisions. The global fee concept “should be managed with the assistance of government or with some guidelines from the government”. One can turn to Europe for examples of managing this effectively.

Perhaps the agents were offered different packages. Did the agents have a choice, and how were the figures calculated with regard to remuneration? Once again, 90.9% of the agents said that they were not offered different packages.

This confirms the point above that, although it can be rather challenging to discuss fees, even with and under guidance from the respective associations, different packages/options were not discussed. If different options were not available, and there was no reasonable negotiation, as expressed by the agents, one has to consider whether the relationship is ideal. One could also question the validity of the contract if remuneration has not been negotiated.

The research findings seem to support the literature in this regard (Robinson, 2001). Payment of an individual agent based on their own individual effort can undermine cooperation (Robinson, 2001, p. 154), especially if certain members within the team feel that they have not been consulted. To further complicate the matter, physician behaviour is complex. It can be difficult to monitor, and patient outcomes are not always predictable, which can make simple payment methods difficult to enforce.

When clinicians bill for services, they would use a billing code so that the funder knows what procedure/service was performed. They would then be reimbursed depending on the rates charged and the rate at which the scheme will reimburse. Were clinicians using their usual billing codes for the joint replacement? How was this decision informed in view of a new contractual relationship? The majority (80%) said “no” when asked if they would use their usual billing codes.

The agents would not be using their usual billing codes, but would be using new codes. The agents did not discuss where the codes came from, but in one interview, a physiotherapist described a feeling of powerlessness, with no guidance from their association. Fees were not negotiated at all. P1 was asked to give an approximate figure, while P2 was told what to bill for their work. There was no negotiation, whatsoever, with regard to fees, and the model it appeared to be driven by the funder. The coding seemed to be different, now, and the traditional FFS model was preferred by P1 and P2.

Two orthopaedic surgeons mentioned that there was no negotiation with regard to participation in one of the models, and that they were “forced to participate”. There appeared to be no discussion with regard to their remuneration or fee determination, and there was uncertainty as to how the figures and the hospital’s tier system were calculated. Some of their reasons for participating in the model were fear of losing work, loss of income, and pressure from the hospital that the hospital may lose its “license” to perform arthroplasty procedures. This is rather interesting, but considering the hospital groups did not participate in the research, one would have to leave this up to the reader to interpret.

The circumstances discussed above do not bode well for a mutually beneficial relationship, especially when the hospital group is also a participant in the model. Given the above considerations, the researcher had to enquire who, then, determined the appropriate fee for the agents.

Thirty-five per cent of respondents identified the funder as the main decision maker with regard to setting of fees. Some agents (21.4%) were also uncertain, while there were another six different answers that were given by the agents, indicating that they were possibly not informed or misinformed. Nobody was certain as to who determined their actual fee, and this places strain on the relationship between the various stakeholders.

The research explored whether an agency relationship in the form of a bundled payment arrangement is the ideal contract between the principal and the agents. It is apparent, from the responses, that the current contract was not ideal. The hospital groups are significant players in the arrangement, and their hesitancy to participate in the study is a missed opportunity to get involved in assessing the model.

Jacobs et al. (2015) stressed that continuous reassessment of all aspects of the bundled payment should be discussed in open, transparent forums that are attended by all the stakeholders involved. This is critical to ensure continuing physician engagement through a number of mechanisms. Continuous reassessment of the bundled payment arrangement should be a priority for all, and take place frequently in an open forum with every participant invited so that we can reduce the number of small and ineffective private meetings where all the stakeholders are not in attendance.

There is mention of a contract called the “event-based contract (EBC)”, which has been launched by SASA and which seemed to be more suitable for managing the relationship. It ensured that all participants in the bundled payment arrangement were equally protected and cared for. It also ensured that the quality of patient care was never compromised, and allowed for review of outcomes in order to assess quality of care.

### **6.2.1 Relevance of findings for Question 1**

The research has confirmed that the agency relationship in the form of the principal-agent contract can be challenging in the current bundled payment arrangement setting. Although it may not be the ideal relationship, it offers a working framework for the principal and agents to initiate working together toward a common goal, and to ensure the delivery of affordable, quality healthcare to their patients. The principal-agent lens was an appropriate tool to immerse the researcher into the middle of the payment arrangement and to infer intricate details on the various dynamics amongst the various stakeholders.

The principal-agent contracts can be complex for the healthcare provider to understand, as the principal (funder) comes from a position of strength in terms of understanding the legal and contractual jargon (Jensen & Meckling, 1976). At the same time, the agent (clinician) is well positioned to understand the needs of the patient and the clinical pathway to follow. How do the two meet and understand each other on equal terms so that the patient ultimately gets the value that they deserve? This can only happen if they are in this together, and transparency, which is a key facet of the principal-agent relationship, is lacking in some relationships.

It was of concern that, despite the fact that the relationship was not ideal, the agents still proceeded to join the bundled fee. This appeared to be out of absolute necessity and concern for not being able to/allowed to treat their own patients, as well as the possibility for the loss of significant amount of income (as much as fifty per cent according to one agent) which would be difficult to recover. This relationship was strained and not the ideal base to build upon to create value for our patients. This cannot be a sustainable model if there are some concerns with the principal-agent relationship. Was this relationship under strain because there was a perceived lack of transparency and no reported open forums which would allow the various stakeholders to continuously reassess progress with the model, as suggested by Jacobs et al. (2015)?

Another factor to consider is the evolving relationship between all the stakeholders as the traditional model of hospital-clinician relationship (Robinson, 1997). It is concerning that most of the agents do not really know how their fees were actually determined. Their responses ranged from uncertainty, to that they were possibly determined by the funder, hospital groups, or even by managed care companies. Porter and Kaplan (2016) believe that IPU allow clinicians to integrate better, to improve on their accountability for their patient outcomes, and be one of the drivers for cost reduction. In the scenario described above, is it really the ideal environment to create IPU as all participating stakeholders look to provide better value for their patients.

It is difficult to precisely define the ideal relationship between the funder and all the respective agents involved in the bundled payment, even within the principal-agent framework. There was a move from the volume-driven, transactional FFS model towards a value-driven model which, in a positive way, has started to encourage team participation. The funder had to be sensitive to the relationships amongst all the stakeholders, especially when bringing them all together, and the research is perhaps alluding to the fact that this process could even be improved on.

To further complicate the relationship dynamics further, there were different models that were not transparent. A certain hospital group tiered its surgeons. The surgeons, themselves, could not explain their own grading within the tiered system. This. The fact that the hospital groups did not participate in the study creates a rather complex conundrum. It would be inappropriate to speculate as to why this is so, and where the hospital groups slot into the relationship dynamics is for the reader to decide.

### **6.3 Discussion of results for Question 2**

These questions were drawn up in order to ascertain whether true value is created when a principal and agent enter a bundled payment arrangement relationship (Bosse & Phillips, 2016) (Shapiro, 2005).

All healthcare stakeholders would like to create true value by ensuring that their patients get the best possible care, which is evidence based, at an affordable and sustainable price. The first question asked whether this model could put patient care at risk in any way, whatsoever?

Any model that could put patient care at risk would certainly not be acceptable to all the stakeholders, regardless of whether it is the principal or agent. It was clear that certain providers were put under unnecessary pressure, with one stating, "I am under a lot of pressure to get my patient out early". Although there were many responses, here, the overwhelming majority (71.4%) thought that it could put patient care at risk. This is certainly not the intent behind the model, and would need to be explored further in future research to ensure that it does not happen and to understand the pressures which the clinicians are under.

Some of the reasons given for putting patient care at risk will be discussed briefly. One agent commented that "anything that we have seen in the past where it is financially driven does inevitably put healthcare at risk." This is a fine line, but there should never be any increased risk for the patient just because of financial incentives. The funder was clear that the model would not put the patient at risk, especially because the model was underpinned by a quality outcome measurement system. Funding models like these should never be implemented without counter-balancing outcomes and quality, to measure performance and to assess whether the situation is improving. This point was stressed by the relevant societies, too. In the initial stages of the model rollout, the funder

identified which patients were not ideal for the programme, as they did not want “a doctor to feel that they needed to do something more that they couldn’t because the cost was a certain limit”. It was also important that any unexpected complication would be covered, without exception, and the FFS model would kick in seamlessly.

The principal and agents are truly aligned with creating value, as highlighted in the literature in Chapter 2 (Bosse & Phillips, 2016). The only group of agents that did not participate were the hospital groups, but one can assume that they would support the notion of value creation, too, despite their non-involvement.

Value, as defined by Conrad (2015), encompasses what all participants are striving towards, which is ultimately the best possible outcome for patients, at the lowest possible cost. There should be no single agent or principle involved in the process that should benefit significantly more than the other, so that the hospital group or medical device company makes more relative profit compared to the orthopaedic surgeon, anaesthetist or physiotherapist. This is difficult to assess in this bundled payment scenario as the researcher did not have the hospital group’s input, so we cannot reach a definitive conclusion without making assumptions. The research data is suggesting that perhaps clinicians have been put under undue pressure with regard to cost containment and that transparency has been lacking making it almost impossible for stakeholders to engage in an open forum?

Some of the risks/concerns identified by surgeons could occur if there is no peer review, and must be carefully considered when defining value. The surgeons were pressured to discharge patients on days 3 to 5 (depending on whether they underwent a knee procedure or hip procedure). This could be problematic, as no stepdown facilities were included in the bundle, and patients could potentially be sent home with little or no support services, which can be particularly problematic for elderly patients.

There was also pressure for medical staff to avoid complications, which could result in delays. Surgeons were also potentially evaluated on their patients’ time in theatre, time in hospital, complication rates and consumable costs, which could affect their rating on the tiered system that existed in one of the hospital group’s model. These are cost containment measures that were raised by the clinicians, and it was evident from the research that they are under pressure to perform and to discharge as soon as possible, for financial considerations.

With the bundled payment, significant emphasis has been placed on outcomes by the funder, so one would hope that by critically reviewing the outcomes, one would ensure that patient care is monitored and that high standards are maintained. This model correlates with the literature with respect to monitoring outcomes. Rewarding an agent based on outcomes is an appropriate incentive mechanism, and will allow the principal to assess the agent (Eisenhardt, 1989). The principal funder can assess the outcomes by reviewing claims and clinical data, as well as from obtaining feedback from the patient directly. The EBC would potentially consolidate this process and protect all relevant stakeholders in the relationship, especially the patient.

One of the anaesthetists wanted to ensure that the model allowed for monitoring so that clinicians could measure outcomes and ensure that their patients were being treated ethically. It was important, as practitioners needed to ensure that what they were doing was truly beneficial to their patients while, at the same time, ensuring that those patients that needed treatment outside of the standard bundled pathway received the treatment they needed without any economic restrictions.

The power dynamics are always important in a relationship, especially when one has rolled out a new funding model that has the potential to transform an industry. This question asked who had the power in the relationship between the agents.

Seventy-six per cent of the power was allocated to the funder and hospital groups. Only twenty-four per cent of the power was attributed to the surgeon. The funder and hospital group were close, at 40% and 36% respectively, but what did they have to say about the power dynamic in the relationship?

O3 commented that “it is still medical aid and the hospitals that have the power because they can decide first of all on the tier and whether the patient is on the pathway or not.” It is critical that surgeons understand the tiering system, and the fact that they have been allocated to categories by the hospital says a lot about the power dynamic. O4 raised an important point that “as doctors, if we stand united, we have power. Unfortunately, I do not think we have stood united on the issue. I think at the moment the power rests with the funder as the market leader in medical aids.” If the clinicians, as the custodians of the patient and the ones that actually activate the pathway, do not stand together for their patients and their profession, they will be on the back foot and run the risk of losing out on an opportunity to co-create the changes they would like to see for their patients.

The funder had an interesting view on the power dynamics: that it was not so simple and not consistent, in their view. The funder was not interested in holding any power but was merely concerned with ensuring that they paid the right price for quality healthcare that ensured value for all. The larger hospital groups were a corporate entity and immensely powerful versus the surgeon or other clinicians. This power dynamic was different in the smaller hospitals, where surgeons were perhaps closer to management. Experienced, high-volume surgeons also had more power than less established surgeons. The surgeon is also responsible for activating the surgical pathway when a patient is identified for an arthroplasty. The fact that there was a significant take-up of the product, seemed to indicate that the market thought that it was an appealing concept; otherwise they would not have signed up.

It would have been beneficial to the study to have access to the views of the large hospital groups. Unfortunately, it would be difficult to determine whether or not their decision not to participate is an indicator of power. Suffice to say, they were the only stakeholders in the bundled payment relationship that declined to be interviewed and missed an opportunity to explore insights into the model in order to improve on it for the benefit of creating value for all the participants (especially the patients).

One of the medical device companies commented that, in general, the orthopaedic surgeons were still very powerful. With the hospitals implementing tools to measure clinicians' relative income contributions to the business as well as introducing global fee arrangements, the surgeon's power is being limited. They commented that there was a significant increase and movement in the power dynamics from what was traditionally held by the funders to now favour the hospital groups who have the majority of the power.

The funder highlighted that the power dynamic was not always consistent, in their view, and that it was not within their interests to hold the power. The power transitioned from the large hospital groups in one setting, to the smaller hospitals, which may have a more intricate relationship with the medical team. The funder spoke of the power of the surgeon that activates the clinical pathway, as well as the power that a successful, established, high-volume surgeon may have over a new entrant surgeon to the market. The funder stressed the fact that the surgeons had signed up to this new product, and that, if there was some power asymmetry, the market would not have responded as positively as it did.

Private healthcare in South Africa is a complex ecosystem. To further complicate the power dynamic, it has created an integrated delivery system (IDS) in which hospitals and physicians have joined to form a vertically integrated organisational structure, which then aligns ownership, authority and profits (Robinson, 1997, p. 6). The resulting spiral of utilisation and increasing costs of healthcare has led to an apparent retaliation from the payers through what is referred to as “managed healthcare”, such as a bundled payment arrangement, capitation and salaried physicians (Robinson, 1997). Some of the agents may have shares within the hospital, too, which makes the system even more complex and difficult to interpret.

All the stakeholders are in healthcare, because they care about their patients and want to offer them the best available care at a sustainable rate. The next question asked the participants whether they believed the model created value.

The response was positive in that 42% of the agents thought that the model created value for themselves and their patients. Twenty-five per cent of the agents thought that this was not the case, and the remaining 33% said that it depends on one’s definition of value and how value was designed for in the model.

In total, 58% of respondents did **not** say yes. This is concerning, as more than half were not convinced. When assessing a model, one would expect the majority of respondents to say that it created value.

From the funder’s perspective, the bundled payment creates value for all stakeholders, as it places the patient in the centre of the model. Every stakeholder would certainly agree that the interests of the patient are key.

The funder further elaborated that it provided the patient with certainty of payment and no out-of-pocket payments. While this is true, if the surgeon and/or clinicians are not on the bundle, the patient has a co-payment of 20%, which is a considerable amount of money, especially in the current economic climate with expensive monthly medical aid premiums. While all clinicians do not want their patients to have costly co-payments, there is an inherent pressure to sign, or patients will not be able to afford to see their chosen medical team. Is this true value: when the clinical team has a choice but does not **really** have a choice, one needs to ask? When the funder is the largest in the industry, too, that creates a different dynamic.

Waterman and Meier (1998) explain the principal-agent theory from a different perspective, where they view the patient as the principal and the physician as the agent. Assuming that both are “rational utility maximisers”, the physician and patient are likely to have different goals (Waterman & Meier, 1998, p. 174). The principal (patient) wishes to extract as much value as possible from the relationship, but at the lowest possible price. The agent (physician) is interested at maximising their income, and the temptation could exist to charge more for a procedure/services rendered or perhaps over service the patient to increase revenue. With the orthopaedic bundled payment arrangement, the agent (clinicians) are limited in what they can charge (as defined by the contract), and the patient has no co-payments, as stipulated by the bundle contract. The intention behind the bundle is to satisfy the demands of the patient, but does it do so for the clinicians? The answer to the latter would be “yes”, if it was a reasonable fee that ensured a sustainable clinical practice that increased appropriately on an annual basis.

The funder also mentions that it allows the various stakeholders to scrutinise their own processes and reduce their inefficiencies. The various clinicians were wary of this and agreed with this. One of the surgeons stated that the model was only suited to efficient and high-volume surgeons, so it would not work for everyone. The hospital groups did not participate, so it would have been interesting to see their contribution to this question, but, certainly, ridding themselves of inefficiencies would be a key strategy of theirs.

So, if value was created, for whom was the value created for? The bundled payment simplified a complex reimbursement system. The research would provide key insights as to who is truly benefitting from the model and its implementation.

The model created value and benefit for arthroplasty patients from a clinical perspective, because the costs had “been driven down”. It will be necessary in the future to strike a balance between cutting costs and ensuring the appropriate clinical benefit for patients. The model had inherent risks if it was driven too low from a cost perspective, as one can leave out or prescribe certain requirements that are a carve-out that could potentially lead to some negligence.

One-third of the agents were convinced that the key value winner was the funder. This is interesting, as the principal who rolled out the model is seen to be the major beneficiary by all its agents.

The second largest group of beneficiaries was the hospital group and the patient, both at 19% each. It was enlightening to see that patient benefit was in the top three on the list, but one would wish to see it right at the top of the list, as clinicians and stakeholders in healthcare, want their patients to be our top priority in all that we do for them. Once again, the hospital groups are listed as one of the major beneficiaries, and they declined an opportunity to engage in the research.

The “system” was seen as a beneficiary, but it is rather difficult to define what is meant by the system. The surgeon was listed as a beneficiary in 4.8% of responses, as was all participants, quality, and profit-driven entities.

The agents definitely did not view themselves as the major beneficiaries, but rather they viewed the funder, hospital groups, and the patients as the major beneficiaries. There is no problem with the patient being one of the top three beneficiaries, but the funder and the hospital groups also being in the top three is concerning, as one would have expected all participants to be benefiting fairly equally, with no dominance by one stakeholder over the other.

The funder indicated that all stakeholders should be looking to create value for their patients, which no participant would disagree with. The whole idea of value creation is placing the patient at the centre of the healthcare delivery model. The funder stated that “as long as the focus is the patient then we’re doing the right thing”. Once again, all stakeholders will agree on this statement. One area of concern is that, although the patient should be central to any ARM created, clinicians and other participants in the model need to contribute to the formulation of the model, in order to ensure that all the stakeholders have sustainable practices and businesses. It needs to get to the point where everyone benefits, with the patient’s interests still taking top priority.

When one designs and implements a new reimbursement model, the impression is that all stakeholders, especially the patient, would be better off. In this question, all participants were asked if they were better or worse off.

Almost half of the respondents indicated that they were worse off (46%); 31% said that they were neutral or that they break even, and only 23% were of the opinion that they were better off. This model certainly seems to favour “more efficient high-volume surgeons”, as one orthopaedic surgeon explained.

When one has rolled out a new bundled payment in order to centre the patient within the system, one would hope that there would have been benefit for all participants, but the interviews have not reflected that at all. All stakeholders should take cognisance of these facts, especially when the model is refined and/or new models are created.

O1 explained that the model “works for more efficient high-volume surgeons.” Does that mean that perhaps it only benefits those surgeons and medical teams that perform high-volume surgery and that are efficient? A3 said that “if it’s unchecked the patient will be first worst off and then the professional. The nature of the way the contract’s designed is that it will at least make sure that the funder offers a fair value for the services delivered. So, I think that in an event-based contract members shouldn’t be worse off. So, I think we are better off in terms of delivering better patient care.” Some of the clinicians were undecided, as it was still “early days” with the model and they felt that time would tell.

If all stakeholders want to participate meaningfully in discussions about their patients and the costs of treatment, they first need to understand the costs of treatment. If everybody is sensitive to the costs around their patients’ treatment, all the participating stakeholders can reduce their inefficiencies in order to create more value.

The majority (45%) believed that the prosthesis was the most expensive item in terms of the cost of the arthroplasty treatment. The second most expensive aspect of the bundle was considered to be the cost allocated to the hospital groups (40%). It is a shame that the hospital groups could not elaborate on this point for the purpose of this research. The other major cost components listed were the managed care companies, theatre time, and the surgeon, each at 5%.

The total cost of the bundle payment is R134 431. In terms of costs, major factors in reducing amounts are the hospital costs, prosthesis, surgeon, anaesthetist, and the other healthcare providers. There were concerns around transparency and efficiency regarding the procedure. The bundle, as it stands, does not necessarily amount to savings in the short term. This initial phase was primarily aimed at “affecting a structural change”, even if the funder received a financial hit in Year 1. One would expect savings in the long term, as the curve for complications and outcomes for patients tighten. The funder would also be able to review outcomes data relating to pulmonary embolism, deep venous thrombosis, or even the thirty-day re-admission rate. The bundled payment is seen as a long-term initiative and would be assessed in line with the policies of Discovery Health.

True value is present when all the stakeholders want to participate in the model as they believe it to be in the best interests of their patient as well as themselves. The agents were asked if they could have said “no” to the bundle. Two-thirds of the agents said “no”, and one-third said “yes”. Participants were invited to partake in the payment arrangement, so why did most agents feel that they were not in a position to say no?

When one reviews some of the comments, the answer becomes clear. According to one agent: “We were put under pressure to agree to this”. This agent felt pressure to join the bundled payment arrangement, which is certainly not in the best interests of all the stakeholders.

Another agent explained that “the consequences of saying no would have seen all my Discovery arthroplasty patients disappear out of my practice”. Here, the surgeon was essentially saying that if they did not participate in the arrangement, they would lose all of their Discovery patients. For a practice in northern Johannesburg, this could mean up to two-thirds of the practice. Does one really have a choice?

One of the agents interviewed at a medical device company was passionate about transforming healthcare in South Africa, and their reasoning was “because I wanted to be part of the mix and I am trying to drive outcomes-based medicine”... “to benefit the patient”, which was truly inspirational.

The funder explained that if participants sign and join the programme, there is less admin and less debt collection, and payment is guaranteed. The funder has managed to save money, ensure quality care, and extract value from the system.

As a researcher, it was necessary to explore this question further by asking, “What would have been the implications if they had said ‘no’ to the bundled payment. Why did they say ‘yes’?”

The most significant reason for them saying “yes” was due to financial considerations, as they were concerned about a loss of income (in 39% of instances). The second most common reason (given by 13% of respondents) was that they were concerned about losing patients or that their patients would not be allowed to choose them as their healthcare provider. This means that, in total, 52% of the agents were concerned about loss of income and patients not having the option to choose to see them, because of co-payments. Responses such as these imply, clearly, that agents are dependent on the

funder to be viable and prosper. The main reasons for them saying “yes” are depicted in Table 32, below.

Thirteen per cent of the agents also indicated that they had a good relationship with their surgeons and wished to maintain the status quo. Other responses have been included in Table 33, below, in order to provide a more complete picture. It is worth noting that all of these responses were prevalent (with 4.375% of respondents indicating each one).

**Table 32: Why did the agents agree to the bundled payment model**

Main reasons for saying “yes”	Percentage
Loss of income (LI)	39%
Loss of patient/patient not allowed to choose me (LP)	13%
Relationship with surgeon (RS)	13%
Relationship with hospital group (RHG)	4.375%
Relationship with funder (RF)	4.375%

**Table 33: What were some of the agent’s reasoning to say yes to the bundled arrangement**

Other reasons for saying “yes”	Percentage
Moral incentive (MI)	4.375%
Social incentive (SI)	4.375%
Designed it (DI)	4.375%
Hospital recognition for arthroplasty (HRA)	4.375%
Legal concerns (LC)	4.375%
Drive outcome-based medicine (DOBM)	4.375%

### 6.3.1 Relevance of findings for Question 2

O1 summarised the value discussion perfectly when defining value: “Any model you make has got to be a win-win for all participants. Create value to the doctor, value to the patients, value to the funders, value to the hospital...” and “Predominantly the patient has to be the winner.” This definition correlates with the definition of value by Conrad (2015).

A3 also elaborated on the definition of value with reference to the current model, indicating that “the intention of value based care is that patients get a better service. The

problem with the way that it is driven, particularly in South Africa, is that the patient was not central to the theme of delivery.” The data suggests that the value creation, as defined by the clinicians, appears to be skewed towards the funder and the hospital group. Realignment of the model, and possibly the implementation of the EBC with improved transparency and multi-stakeholder involvement, could be key to unlocking the true value of the model.

With regard to the literature, the bundled payment arrangement aligns with Bosse and Phillips (2016) with respect to the fact that principals (the funder) want agents to assume some of the risk for value not being achieved, and the agents do not want to accept this risk. Some of the agents (clinicians) in this study were uncomfortable with the risk-sharing aspect of the agreement and were reluctant to accept this risk.

Eisenhardt (1989) is of the opinion that rewarding the agent based on their outcomes is an appropriate incentive alignment mechanism. This ties in with the current model that has been implemented. The model is closely aligned with an outcomes-based assessment, and there will be a peer review process. This will also be strengthened by the EBC, which will protect all the relevant stakeholders.

Shapiro refers to the classical agency problem with regard to the fact that the principal does not really know the skill level of the agent (Shapiro, 2005, p. 263), and only the agent knows their true ability compared to that of their peers. The skill level should become more apparent to all those who review the outcomes, and this model can reduce this agency problem in this instance.

When one considers all the factors, it should be questioned whether the agents really have said “yes”? Was it a viable option? One agent commented that “if I had said no, I would have been taken off the list. Which patient would have the freedom to choose me, but because I am not on the list then they have to pay 20% co-payment for the surgery”. If you are not on the bundle, the reality is that you do not have a patient. If you do not have a patient, the clinical team does not have a patient.

How does the clinical team feel? The agent replied that “it would have been very difficult for me not to proceed with some arrangement as my surgeon, who is one of my primary sources of income, is involved in them.” Despite these concerns, where are all the stakeholder realistically going with these ARMs? One agent summarised the landscape over the next few years. In their opinion, “in the arthroplasty space in a year or two there will be no fee for service. I do not think that going forward it would be an option for people to opt out. At some point they are going to have to opt in. And if they opt in, they have to choose how to opt in. And I think that the guys that opt out and stay in a fee for service over time will lose the work...”

## **6.4 Discussion of results for Question 3**

The next set of questions probed to see if information asymmetry could be a problem in the principal-agent relationship (Shapiro, 2005) (Sharma, 1997).

The question posed was whether information asymmetry was present in the arrangement and whether any of the agents interviewed was not sure what the funder, the hospital or any clinician in the medical team was doing, and vice versa?

Fifty-five per cent of agents were of the opinion that information asymmetry was prevalent. The second theme that arose was that of confusion (on the part of 16% of respondents), which possibly pertained to when a patient went off the bundle and nobody was certain if they were on the pathway or not.

Eleven per cent of the agents indicated that information asymmetry did not exist, while eleven per cent said it was improving. One agent indicated that the model was poorly designed.

The researcher also asked the funder if there was some evidence of informational asymmetry in the arrangement, and they responded that they were not going to tell the clinicians what best practice was. The funder expected the clinician to follow what they thought was best practice with regard to their patients, as well as what was considered best arthroplasty practice. The funder stated that they would be transparent with regard to arthroplasty outcomes and that they could share data that could add immense value.

The funder was not privy to certain components of the bundle with regard to the breakdown of funds within the hospital, processes, efficiencies, standard operating procedures, etcetera. This is because the funder pays a lump sum and they cannot see how it is allocated.

The responses from the agents correlate with the literature by Shapiro (2005). "The assumptions of the agency paradigm are stretched where principals seek out agents for their specialized knowledge" (Shapiro, 2005, p. 276). The funder has introduced an ARM for specialised medical teams to deliver on an arthroplasty procedure, and now needs to ensure that they are getting value for what they are paying.

Sharma (1997) observes that information asymmetry (not knowing what the agent does) is exacerbated by knowledge asymmetry as well (not knowing how the agent carries out a job). This is certainly the case, here, but with the monitoring of outcomes, it may become less apparent as more data is collected and analysed.

One of the orthopaedic surgeons was confident that the model was perfect and allowed for transparency of earnings and job description, which is positive. In contrast, two other surgeons described information asymmetry as a significant problem, especially when their patients were classified on or off the bundle (one of the hospital group's model). This was, in their opinion, due to poor design and untrained staff, and resulted in delays in payments.

One of the medical device companies elaborated on the topic and said, "One doesn't know what you don't know", and further commented on the fact that we do not know what the funder is doing, long term. Many of the stakeholders were aligning towards creating business plans for the NHI. Each stakeholder was potentially looking after themselves, and they believed that all the stakeholders are not heading towards a common goal, because "we all have vested interest in our own product".

The second medical device company confirmed that there was information asymmetry present in the arrangement. With the medical device companies, the price was fixed and transparent, with no volume requirements attached. At the same time, the medical device companies did not know what the agreements were between the funder and various hospital groups, as well as how the surgeons were tiered in some of the models. The final comment was that there was no transparency.

One of the anaesthetists commented that the biggest issue, up to now, had been information asymmetry and a lack of information. The same clinician commented on how SASA had taken the lead in educating their members on entering the arrangement, by arranging road shows, sending out emails and providing up-to-date information on their website.

It is clear from the research conducted, and from the literature, that information asymmetry can be problematic in the principal-agent relationship, especially with regard to the bundled payment arrangement. The concerns raised by the respective interviewees must be taken into consideration by the leaders of the stakeholder organisations involved in assessing the bundle. They must also take cognisance of this when rolling out new models.

#### **6.4.1 Relevance of findings for Question 3**

Shapiro states, “The assumptions of the agency paradigm are stretched where principals seek out agents for their specialized knowledge” (Shapiro, 2005, p. 276). The interviews and their commentary reflect a similar view to Shapiro, as there is definite evidence of a “stretched agency paradigm”.

In this research study, the general sentiment expressed was not the same as that explained by Sharma (1997). Sharma (1997) observed that the run-of-the-mill information asymmetry (not knowing what the agent does) is exacerbated in encounters with professionals by knowledge asymmetry as well (not knowing how the agent does a job). With the quality of outcomes assessment included in the model, this variant of information asymmetry is less relevant in the bundled payment arrangement.

O1 explains that “the actual remuneration with the global fee is transparent to everybody. So, transparency is the most important part.” This would imply that, with regard to financial remuneration, there should be no information asymmetry. O4 raises an important point that was not explored in the literature. O4 stated, “I think the asymmetry of information is on the side of the patient because me as a member of the funder, no effort has been made to communicate to me that I have had a reduction in my benefits in terms of arthroplasty option. As a provider, I think the information is straightforward. It is a single fee and I haven’t had a choice in determining my own fee.”

A3 elaborates on this point that “informational asymmetry will sit with the administrators – and that administrator means whoever administers the global fee product – and they then get to share with, so if it’s a third party they will not necessarily share data that doesn’t suit them with a funder. They want to show good data and the funder will see some of it, not all of it. Again, going back to the EBC, the clinician agrees to share the data in his contract or her contract. So it’s inherent in the design. So everyone is kept honest so that takes away the information asymmetry. And that’s again massively important in principle that transparency is maintained at all levels, including cost.”

## **6.5 Discussion of results for Question 4**

The next set of questions was proposed to identify whether incentives are critical in influencing the behaviour of the agent (Conrad, 2005) (Porter & Kaplan, 2014) (Porter, 2009).

The agents were asked if they were of the opinion that the bundled payment arrangement had incentives built into the model.

Interestingly, 66% percent of the responses indicated that there were no incentives built into the model. Two (16%) of the agents reflected on the fact that perverse incentives were created with the model. Two positive incentives raised by two agents were those of an incentive to save (8%) as well as an efficiency incentive (8%).

The funder believed that the model did not put patients at risk, as there was a quality outcomes-based measurement in the system, which was a critical component of the model. This ensured that perverse incentives were not created, as outcomes were closely followed up and reported on. It was also important to exclude patients who were not ideal for the bundled payment arrangement.

The incentive with the model was that one could understand their efficiencies and identify opportunities to eradicate waste. In terms of perverse incentives, there is a risk of cost-cutting and corner-cutting, but there is an implicit incentive in terms of rewards for quality outcomes. This model now created an opportunity to monitor outcomes, and if they started seeing long-term savings, these could be ploughed back into the system. This could mean that one could then start rewarding better performing teams.

O4 explained their view on incentives: “For what? The main thing is that you must do a good job for the patient. But, I don’t see that there is any kind of incentives in your fee. So whether you do a rubbish job or a good job you are going to get paid the same. Whether you do a difficult joint or an easy joint, you are going to get the same. Whether you spend 4 hours or 2 hours, or an hour and a half you are going to get paid the same. So, I don’t see that it provides an incentive at all.”

One anaesthetist, A2, explained incentives from a different perspective. “Efficiency is rewarded. So, I like to view myself as quite an efficient anaesthetist and I am able to be well remunerated at a fixed fee if I am efficient. So. It is an indirect benefit. But no, there is no financial incentivisation.”

The literature distinguished between a “strong and weak payment incentive” (Conrad, 2015, p. 2063), which did not seem to feature in the current bundled payment arrangement. Surgeons were also potentially evaluated on their patients’ time in theatre, time in hospital, complication rates, and consumable costs which could affect their rating on the tiered system, with the one hospital group’s model; but they were not aware of how they were tired or how they were incentivised, at all. One of the orthopaedic surgeons spoke of an incentive to “save money, not to make money”. An anaesthetist mentioned that efficiency is rewarded with the fixed fee model, which is an indirect benefit. There was no financial incentivisation, and this could be a risk, as there is no financial incentive to deliver the best possible care.

“Behavioral economics suggest that a penalty of a given size for failing to advance health benefit will more strongly encourage providers to deliver improved health than an equally large reward for advancing health benefit” (Conrad, 2015, p. 2063). Therefore, if one were to frame an incentive as a gain or a loss, it can increase the strength of the response to that gain or loss. There were potentially some penalties for the model from the one hospital group, which, unfortunately, was not well-defined according to the agents involved in the model. The model from the funder did not have penalties, as all surgeons could participate in the payment arrangement.

Another factor that could determine the strength of the incentive is whether the payment is made prospective or retrospective (Conrad, 2015). Individual providers are risk-averse, so a prospective payment may elicit a stronger response; in addition, they may be reimbursed more in the balanced arrangement than with the traditional FFS model. This was certainly not the case in the current model, as clinicians are paid after the

service is rendered.

The researcher now had to ask whether this new bundled payment meant that they were remunerated better, especially as it aimed to create more value and make each stakeholder more efficient and cost-conscious. The majority (54%) of respondents replied that they were not remunerated more with the bundle. The remaining 46% per cent mentioned that they were paid more (23%) or that it was neutral (23%).

The funder proposed a price to the market for participants to accept or decline. There was also a second option offered, whereby they could decide how they would split the payment bundle up amongst themselves. As Interviewee 2 mentioned, “This comes out as a cost certainly for the first few years to Discovery but you are paying for a behavioural and structural change in the system that would otherwise not be possible to affect”.

#### **6.5.1 Relevance of findings of Question 4**

These questions probed to identify whether incentives were critical in influencing the behaviour of the agent. A3 almost summarised the responses in saying that “built-in incentives, unless they are quality managed with peer review and oversight, are actually perverse incentives. There is a moral incentive that should be with us but if you don’t have that, the contract (EBC) has clear objectives at the start: best patient care, what the administrator needs to deliver, what the society needs to deliver, what the clinician needs to deliver. The built-in incentive turns towards a social incentive”.

The majority of the agents reported no incentives that were built into the model. There was mention of an incentive to save; there was talk of just offering the best possible care for the patient regardless of difficulty of the operation or time spent operating; and by being more efficient, that was an incentive. Most respondents (two-thirds) indicated that there was no incentive. This is interesting, as the funder and hospitals groups with their models, have not focused on incentives at all, as per the literature. This move is in stark contrast with the literature that reviews different ways that incentives can be used positively.

Because the hospital groups did not participate in the interview, it is unclear if and how they incentivise the agents. If one has to judge from the interviews, it appears that they do not incentivise. The funder explained that the bundled payment has built-in incentives, which go along with the fixed fee. There is an incentive for the hospital, especially, to

understand their efficiencies and identify where they can eradicate waste. There is a built-in incentive with regard to efficiencies as well as an implicit incentive with regard to rewards for outcomes.

## **6.6 Discussion of general questions**

The aim behind this first question of this subsection was to get a sense of the leadership by the societies by asking what their respective associations said with regard to the bundled payment arrangement. These questions were asked of the clinicians, about their own society, and the medical devices companies were excluded.

It was clear that SASA was doing something right. Their members were all unified in their responses, when referring to the EBC as the most common theme at 21.40%. The association appeared to be taking an active role in engaging with the respective stakeholders in order to co-create a contract that added true value within the boundaries of a bundled fee arrangement. One of the orthopaedic surgeons mentioned following guidance from SASA as his preference.

There were multiple themes, with the second most prevalent themes being “no guidance”, “warnings”, and “driven by the funder””. Two of the respondents were of the opinion that the association’s response was driven by the funder, which raises an interesting point. Were they driven by the funder? How did SASA get it right? In the interview with the funder, they commented on how impressive the leadership has been from all the societies with regard to the bundled payment arrangement. Two participants spoke of their association not offering them the appropriate guidance on how to deal with the bundled payment arrangement, and two interviewees spoke about how their association warned them not to participate. With these sort of responses, one wonders how the agents could make a meaningful decision on whether or not to participate, especially if the message was not clear.

Multiple themes were also raised by the individual agents. These included “limited communication”, “not taking their advice”, “refer to other associations”, “no consensus”, and “it was not their role”. The agent who mentioned that it was not their role was of the opinion that it was the HPCSA’s role to guide the profession on the legality of the bundles, on whether they could proceed, and on how they could participate.

The second question in this section was: "if respondents could change anything about the bundle, what would it be?" Almost one-third of suggested changing the model. The most important point, especially when one is looking at creating value, was a request to ensure that outcomes were monitored. This was certainly present in the funder's model, and the EBC would help to ensure that this was monitored. The second point referred to whether the patient was on or off the bundle and if there was a co-payment levied. This seemed to be a problem prevalent in one of the hospital group's models, and this would need to be addressed.

The last two points spoke of an option to negotiate one's own fee, and another agent requested increased remuneration. These need to be debated and reviewed.

The second most common theme was related to improved communication. Agents spoke of concerns pertaining to the way it was initially rolled out, as it was almost rushed. There were limited meetings for all participants, and there seemed to be very few options; in other words, there was an attitude of "take it or leave it". Communication amongst all the agents also needed to improve.

There were some comments about the role of the SAOA. The agents wanted to see improved leadership within the association and requested that they spearhead the negotiation process.

Regulatory policing was requested by one of the agents that thought that the bundled payment model needed to be policed by a regulatory body that ensured that the model met its intended outcomes. There was also mention of medicolegal assistance with regard to the interpretation and reviewing of the different model and/or contracts, especially within the current challenging medicolegal environment. Other suggested changes were: improved transparency, scrapping the model and keeping the model as it was.

The third question in this series asked all the participants where they saw private healthcare in five years' time. The majority of respondents (44%) spoke of a National Health Insurance plan, with 27% believing that a more expensive private healthcare system would exist. This still weakly reflects on a potential two-tier system, as it currently stands in South Africa. Although it is positive that almost half thought the NHI was inevitable within five years, almost a quarter thought that a super private healthcare system could potentially exist.

The other responses spoke to more bundled-type payments which generally indicated more alternative reimbursement models. There was a discussion around the sustainability of clinical practice, with clinicians concerned about appropriate remuneration in order to keep up with the costs of a modern practice. One clinician was unsure and another thought that salaried work could potentially exist within the next five years.

The second part of the question asked all respondents if they thought the future was bright. The overwhelming majority (46%) said “no”. This was telling. Surely, if the bundled payment arrangement for orthopaedics was a success, then the participants would see it as a step in the right direction, as all healthcare stakeholders move towards value creation for all. This would surely imply that the future was bright, but this was definitely not the sentiment expressed by the agents. Twenty-three per cent said that it was bright; yet the same amount of respondents (23.1%) were uncertain about whether the future was bright.

The final question asked the principal and agents whether this model could be applied to the future NHI, once implemented. The majority of the agents and the principal responded “yes” (Y) to the question (in 84.6% of the responses). The remaining agents (15.4%) were uncertain about the model and its role in the NHI.

Interestingly, not one agent, nor the principal chose “no” as a response. The underlying feeling was that the NHI was to be introduced at some point in the future; the exact date, though, was realistically unknown. The respondents acknowledged the fact that the private and the public sector needed to work closer together to provide affordable quality care. One respondent spoke of the fact that when work for the NHI went out to tender, it would not necessarily be the public sector that would get the contract. Those units that ran efficiently and had quality outcomes, would be the ones in the pole position to be awarded the work, and would ultimately be the ideal providers of value-driven healthcare for patients.

The fact that the NHI and different models were on their way was almost considered a fact to the interviewees. What was a strong theme amongst all the replies was the concerns raised about whether the NHI and new models would be able to pay a market-related and sustainable rate for the agent’s services. Some of the quotes are highlighted in the table below.

**Table 34: Agents' responses as to whether the same model was applicable to the NHI**

<b>Agent</b>	<b>Quote</b>
O2	"But then you pay my medical legal insurance fee. You pay my retirement fund..."
O3	"They will probably try and keep the same model but on a much lower tier and I don't think a lot of the guys will agree to that at present."
O4	"It probably will be and it is going to be even worse when it is applied for the NHI."
A1	"Obviously, the speculation which is very realistic is, will there be money to pay us and I doubt there will be."
A2	"So, I think this is a prelude to adapting to NHI and I think that it is important that we manage it as such."
MD1	"Yes, without a doubt that is exactly where it is going to go and I say that with confidence..."
P1	"I cannot foresee many providers being happy working in that model."
P2	"I think this is what they are trying to enforce."
P3	"They would more than likely negotiate a much cheaper rate as they couldn't afford the private healthcare system."

### **6.6.1 Relevance of findings on general questions**

The various stakeholders and associations had shown great leadership in the last few years. The associations have taken an active role in terms of educating their members and engaging with the funder. The SASA has definitely taken the lead, and the implementation of the EBC is a major milestone in the funding of healthcare in South Africa.

All the agents were focused on good quality outcomes and improving the value created for their patients. Agents requested improved transparency, especially with some of the models, and they were concerned about sustainable remuneration in the medium- to long-term horizon. They agreed that more funding models and other bundled payment arrangements are the trend in healthcare.

The majority of the participants (84.6%) believed the model had potential to assist with implementation of the NHI as long as the service could reimburse them at a reasonable rate.

## 6.7 Conclusion

The agency relationship in the form of the principal agent contract may not be an ideal relationship, but it certainly offers a working framework for the principal and agents to initiate working together for a common goal – to ensure the delivery of affordable, quality healthcare to their patients. The principal-agent contracts can be complex for the healthcare provider to understand, as the principal (funder) comes from a position of strength in terms of understanding funding and the legal jargon, while the agent is well positioned to understand the needs of the patient and the clinical guidelines to follow (Jensen & Meckling, 1976). How do the two worlds meet and work together on equal terms so that the patient ultimately gets the value that they deserve? This can only happen if they are in this together; and transparency is a key facet of the relationship (and was lacking in some relationships).

What was concerning was that, despite the fact that the relationship was not ideal in the contract, the agents still proceeded to join the bundled fee out of concern for not being able to/or allowed to treat their patients due to medical scheme rules or co-payment levies. The agents joined out of absolute necessity and in order to secure a significant amount of their income (up to 50% according to one of the agents interviewed). Is this the way all participating stakeholders want to go about creating value for our patients? This cannot be a sustainable model if there are some concerns with the principal-agent relationship. Was this relationship under strain because there was a perceived lack of transparency and no reported open forums which would allow the various stakeholders to continuously reassess progress with the model, as suggested by Jacobs et al. (2015)?

The evolving relationship between all the stakeholders as the traditional model of hospital-clinician relationship (Robinson, 1997) is changing. It is concerning that the majority of the agents are not familiar with how their fees were determined, with responses favouring the funder, the hospital groups, managed care companies, and those that were uncertain.

It is difficult to precisely define the ideal relationship between the funder and all the respective agents involved in the bundled payment, even within the principal-agent framework. There was definitely a move from the volume-driven, transactional FFS model towards a value-driven model, which, in a positive way, was starting to encourage team participation. The funder had to be sensitive to the relationships amongst all the

stakeholders, especially when bringing them all together, and the research is perhaps alluding to the fact that this process will take longer and could even be improved on. To further complicate the relationship, there were different models that were not transparent, with tiering of the surgeons by a certain hospital group. The surgeons, themselves, could not explain these models.

The fact that the bundled fee (especially with the EBC) allows for outcome-based assessment should reduce informational asymmetry. All participants in the payment arrangement need to be onboard as a team dedicated to delivering value for their patients and allowing for transparency throughout this process.

The majority of the agents (two-thirds) reported no incentives that were built into the model except the fact that there was an incentive to save, provide the best service possible, and be more efficient. The funder and hospital groups, with their models, have significantly not focused on incentives at all, in contrast to the literature that looks at different ways to incentivise good behaviour. The funder has turned their focus with regard to incentivising on improving efficiencies and reducing waste. The hospital groups did not participate in the interview.

The various societies and the major stakeholders undoubtedly displayed good leadership during this time of implementation of the bundle. All the agents and the principals were committed to quality, value-driven healthcare. The majority were aware that ARMs are the future. The agents were in agreement that the model was applicable to the NHI as long as the remuneration was sustainable and market-related so that they could have viable practices and continue doing what they love doing while providing the best care possible to their patients.

# **CHAPTER 7: CONCLUSION**

## **7.1 Introduction**

The funding of healthcare is complex and is one that many nations around the world are grappling with. South Africa is not immune to this challenge, and providing affordable quality care to all our citizens is non-negotiable. What makes South Africa rather unique is its double, two tier system where the majority of its people are dependent on a resource constrained public health system, while the minority that can afford a medical aid utilise the better resourced private healthcare sector.

The status quo cannot continue, and all the relevant stakeholders and their leaders within the different organisations must find ways of linking the two systems as the introduction of our National Health Insurance (NHI) Scheme is looming. There are pockets of excellence in both the public and private sector, and all the participating stakeholders need to ensure that we incorporate what is good in both to co-create a system that delivers the best quality health at the best price, while ensuring sustainability and coverage for all.

The current reimbursement system of private healthcare sector is the fee for service model and is not a sustainable model within our current environment. The orthopaedic bundled payment arrangement is one model that was introduced in order to see if the funder could create value for all the stakeholders, while at the same time ensuring that patients get the best possible quality care. This research explored how the model was viewed amongst the participants in order to assess its merit and extract information that could improve the model, if necessary and assist with new models in the future.

## **7.2 Answering the research problem**

The first set of questions reviewed whether an agency relationship in the form of a bundled payment arrangement is the ideal contract between the principal and the agents. The research explored multiple aspects pertaining to the contract. It was apparent from the responses as well as incorporating the readings from the literature, that the current contract was not ideal.

From the outset, starting off with the simple definition of the bundle and what it meant to the respective agents, it was clear that there was no uniformity in answering the question. There were multiple avenues where there were gaps within the model. There seemed to be a disproportionate amount of consultation that occurred amongst the clinicians, and this certainly varied amongst the different clinical groups themselves (within the various hospital groups and by the respective associations). There was almost a sense that the agents had no alternative but to sign up in order to continue to provide continuity of care for their patients, while at the same time ensuring certainty of payment to themselves and ensuring that there no co-payments for their patients. Although the decision to participate was voluntary, when the choice puts permission to treat patients, income, and co-payments at risk, it cannot be considered a choice at all.

One of the significant highlights, which appears to bode well for the future of healthcare in South Africa, was the implementation of a new contract called the Event Based Contract (EBC). This was launched by the South African Society of Anaesthesiologists (SASA). The EBC was a result of significant efforts on behalf of the leadership of SASA that involved an extensive consultation process with multiple stakeholders. The EBC appeared to offer promise and was perhaps a better way of managing the intricate principal agent relationship, going forward. It ensured that all participants within the bundled payment arrangement were protected and cared for. Importantly it ensured that the quality of patient care was never compromised, as it allowed for the monitoring of patient outcomes. This monitoring would ultimately ensure that high quality outcomes were maintained by allowing for the sharing of data and peer review.

The next aspect of the research problem that was investigated was whether true value is really created when a principal and an agent enter a bundled payment arrangement relationship. This ultimately means that all the stakeholders provide their patients with the best possible treatment, ensuring the best quality outcomes, while at the same time providing the service at the best possible price. The various agents also needed to be remunerated at a fee that was acceptable to the market – a fee that ensured sustainability of clinical practice, and was adjusted appropriately on an annual basis, in order to keep up with the rising costs of medical practice.

All the stakeholders were adamant that the patient was the primary concern and that there could be no compromise on patient quality and outcome driven medicine. This opinion was unanimous, and, although it was expected, it was reassuring to note. There seemed to be a feeling that significant pressure was being placed on some of the

healthcare providers with regard to having their patients discharged on a certain day, when they could possibly have benefitted from an extra day's stay. Each patient's individual characteristics were different. For this reason, it is important that the model is adjusted to allow for clinical leniency (on the part of the medical team) without any penalty whatsoever.

A significant emphasis was placed on the monitoring of outcomes (stress by all participants). Any bundled payment initiative that is built around outcomes is critical, as it ensures that the patient is at the centre of all that the participating stakeholders do. This model definitely ticked this box, and this was further strengthened by the EBC in which outcomes-based assessment was a key factor.

The power dynamics was a delicate aspect of the relationship to assess. The funder, although initially attributed with all the power by the agents, were simply concerned with ensuring that their patients received quality care at a reasonable rate. They were actually paying more for a behavioural change in the system as opposed to structural change. They had a fixed amount to pay for the procedure and were not interested in the power dynamic, but affordable, quality, value driven healthcare.

The power dynamics between all the clinicians and the hospital groups was rather complex. To complicate the assessment of this relationship, the hospital groups declined the opportunity to be involved in the research. Moreover, the dynamics varied amongst the different hospital groups (large and small), amongst surgeons (very experienced and those who are less experienced), and amongst the various clinical teams (surgeon, anaesthetist, and physiotherapist).

One of the major factors for the agents participating in the bundle was the consequences of the potential for the loss of income if they did not participate. Although participants had been offered a choice to participate or not, when one is faced with potentially losing access to more than 50% of their work, it is not feasible to decline the opportunity to be involved.

The bundled payment allowed all the respective agents to assess their own inefficiencies and improve on their value offering, but one could argue that they could do so without the bundled arrangement. The model would ensure that agents would now review their own performance, if they have not done so before, so, in this sense, value was added.

The researcher then investigated whether information asymmetry could be a potential problem in the principal agent relationship. Most of the agents agreed that information asymmetry was present within the current partnership.

The funder was privy to a significant amount of data, but all the relevant data, especially pertaining to the costs associated with the hospital stay, were not so apparent and not really known. This reflected on a lack of transparency around the model from certain participants. With regard to the clinical management of their members (patients), the funder was not interested in enforcing guidelines but expected the healthcare providers to follow evidence based medicine and allow for independent clinical practice. There was going to be an assessment of the outcomes by all the stakeholders which would certainly add value and lead to a reduction in information asymmetry, especially with the introduction of the EBC.

Many of the agents identified with the problem of information asymmetry and identified dissemination of information related to the bundle as a simple, yet useful tool that can reduce the problem if implemented.

Impressive leadership has been demonstrated by many of the medical societies in the last few years which have focused on making the private sector sustainable and on allowing for quality-based, value-based healthcare. It is evident from the interviews that some of the associations could perhaps have played a greater role in leading the transition into a new bundled payment arena, but one has to be sensitive to the intricacies around this.

There is convincing evidence that SASA has taken the lead amongst the societies in formulating the EBC, which is potentially available to all members of all associations. It is also apparent from the interviews that, at times, inconsistent messages were distributed to their members. This inconsistency was interpreted as limited communication about the bundle, warnings about participating in the bundle, no guidance, and even giving an impression that it was potentially driven through the societies by the funder. One must ask if this is really the ideal environment for a clinician to make an appropriate and ethical decision about whether or not to participate in the bundled fee arrangement. Did the funder, hospital group or other party take advantage of this environment or not? One clinician was adamant that it was the role of the HPCSA to guide the profession and it is vital that all relevant stakeholders receive clarity on the matter as new models are imminent for all disciplines.

There could be movement to bigger practice formation or integrated practice units (IPUs), both at primary and secondary care level. There will also be a move towards greater transparency from both the hospitals and clinicians in terms of patient experience. Patients are more educated than ever before, demand greater value, and taking an active role in the management of their own care. All these factors can go a long way in lowering the incidence of information asymmetry.

When assessing the bundled payment arrangement, one had to probe in order to identify whether incentives were critical in influencing the behaviour of the agent. It was interesting to note that 60% of the agents believed that there were no incentives built into the model. The literature referred to incentives that could change behaviour amongst the agents in the relationship, but this was not present in our bundled payment arrangement. Some clinicians were concerned about negative incentives that existed with one of the hospital group's models, which would need to be adjusted in view of the findings above.

### **7.3 Summary of the research findings**

The research demonstrated the significant impact that the healthcare payment arrangements have had on the private healthcare sector in South Africa. The orthopaedic payment arrangement has brought all the relevant stakeholders together in order to transform the health sector towards value driven healthcare. The payment arrangement model has certainly disrupted the mainstream private healthcare ecosystem in a positive way, as all the participating stakeholders search for the best way to deliver quality healthcare to our own patients.

Alternative reimbursement models (ARMs) are acceptable funding mechanisms that can unlock immense value for all the appropriate stakeholders within the healthcare delivery value chain. It principally ensures that the patient receives the best possible care, at the best price that is clinically appropriate, evidence based, and where the clinical outcomes are peer reviewed to ensure that the model delivers on its promise.

ARMs should encourage teamwork and allow for transparency amongst all the relevant participants so that the patient gets the healthcare that they need, while at the same time, the providers of the healthcare receive a sustainable fee that rewards them appropriately. Putting the patient first and allowing for transparency by all participants are key facets for success in the rolling out of ARMs.

ARMs have the potential to bring all the relevant stakeholders to the same negotiating table so that all participants can assist in formulating the best way forward for our very own South African healthcare landscape. It will encourage clinicians, whom are currently fragmented and isolated, to work together and offer new and innovative ARMs that are ethically and legally appropriate. At the same time, it also allows clinicians to simply do what they do best, providing the best possible care for their patients at a sustainable rate, so that they too can be reassured of reasonable and appropriate remuneration.

This study has highlighted that with regard to the payment arrangement, the principal agent contract is perhaps not the ideal relationship. All participants believed in creating value for the patient and the model did not do this for many agents. The patient was unequivocally central to the model as identified by the principal and all the agents. The power dynamic was a lot more complex than it used to be, especially with the changing hospital – physician relationship. Although there was an incentive to improve on one's efficiency, the model lacked other incentives and was at risk for perverse incentives. Informational asymmetry was a valid concern, and transparency certainly needed to be improved on.

The participants of the orthopaedic payment arrangement have all contributed positively to the creation of a bundled payment that has all the characteristics of a successful model. The stakeholders need to work together for the benefit of the patient, so that they can perfect the model to further unlock value. All the relevant leaders within the different societies and stakeholder groupings need to continue to contribute positively towards the creation, piloting, and implementation of ARMs within the healthcare ecosystem. As all the stakeholders work together in order to formulate better ways to deliver the best quality of healthcare to our people, one hopes that these successes will create the opportunity to merge into the National Health Insurance (NHI) so that all our people can have access to world class healthcare.

## **7.4 Implications for academia**

Jensen and Meckling mention that if both the principal and the agent are utility maximisers, then the agent (surgeon) may not necessarily act in the best interests of the principal (medical aid) (Jensen & Meckling, 1976, p. 5). The research reflected on the relevance of a utility maximiser in a healthcare setting. The principal may potentially be a utility maximiser, but the clinicians although cost sensitive, are mainly concerned with the clinical outcome and their patient, while they wish for an appropriate fee for their skills. The concept of a being a utility maximiser needs to be explored within the domains of the clinicians.

The introduction of ARMs in the South African private healthcare landscape is not completely new, but research into a model like the orthopaedic bundled payment, is certainly unique. The patient was central to the model and all participants, and, although expected, was a prevalent and reassuring theme. The power dynamic was more complex than the literature suggested, and may need to be explored further in future studies.

One aspect of the literature that did not really correlate with the research findings was the incentives related to the current model. The agents interviewed in the study were not concerned with incentives that could change their behaviour. The agents mentioned that there was an incentive to save and to be efficient. The role of incentives and their appropriateness with an ARM needs to be further explored so that its role, if at all necessary, can be better defined.

## **7.5 Implications for policy and practice**

An alternative reimbursement committee (ARC) needs to be set up. It should be independent and can act as a mediator between the principal and the agents. The purpose of the ARC is to listen to the various stakeholders and make recommendations on the appropriate structure of the ARM so that all the stakeholders are protected. The ARC needs to link up with both the private sector as well as the government sector which will facilitate better understanding between the two systems (especially as the country moves towards a NHI scheme). It is important that the ARC has the backing of all stakeholders, including the Health Professions Council of South Africa (HPCSA), and that the ARC has the ability to influence, to hold stakeholders to account.

The ARC needs to work together with the NHI committee (including funders, agents, and government agencies) in order to assess the viabilities of the models and their applicability to the NHI. ARMs allow for public and private institutions to bid for the provision of services for treatments or conditions for which ARMs are feasible. These initiatives can allow pilot studies to be rolled out, and if successful can lead to a national rollout of applicable models.

The EBC is a fine example of how transformational leadership within a complex environment can work towards creating true value for all participants. The EBC needs to be explored in further detail within our context, in order to assess its relevance in ensuring that all the stakeholders are moving in the right direction towards the ideal payment arrangement. An ideal payment arrangement that is transparent, protects the patients and all the relevant stakeholders, is ethically and medico-legally sound, and is accepted by all.

## **7.6 Limitations**

Sampling bias: A study of this nature is rather complex to perform as many physicians would not agree to an interview by an outsider (non-physician interview). Due to time constraints, interviews were conducted in Johannesburg, although the funder that rolled out the payment arrangement has at least 50% of the market in Johannesburg, which also makes it relevant.

Interviewee bias: One risk which can occur during semi-structured interviews is that of the interviewer introducing cognitive bias into the interview. This could take the form of body language and/or facial expressions that could potentially unconsciously influence the responses to the questions asked (Zikmund, Babin, Carr & Griffin, 2013).

Exploring the model from a different perspective or through a different lens may reveal other valuable insights. The interviews were conducted through the lens of a clinician which although makes access to interviews easier, may lead to certain inferences that could be interpreted differently by others.

## **7.7 Recommendations for future research**

It would be of tremendous value to expand this research to include a longitudinal approach so that we can further assess the true value of the payment arrangement over a longer period of time. This would certainly enhance our understanding of the bundled payment model within the principal agent relationship.

The relationship between the hospital groups and the clinicians is a dynamic one that has transitioned over time. This relationship is crucial if all the stakeholders are serious about unlocking true value for patients. This relationship needs to be explored in more detail, as the hospital groups have a significant role to play in co-creating the future healthcare system and yet they did not participate in this research study.

One of the agents raised a concern relating to asymmetry of information with regard to the patient. This is an interesting concept and should be explored further in future research, especially as all the stakeholders enter an era where the patient, who is central to our health system, is more knowledgeable than ever before.

## REFERENCES

- Adams, J., Khan, H. T., Raeside, R., & White, D. I. (2007). *Research methods for graduate business and social science students*. SAGE publications India.
- Bosse, D. A., & Phillips, R. A. (2016). Agency theory and bounded self-interest. *Academy of Management Review*, 41(2), 276-297.
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative research in psychology*, 3(2), 77-101.
- Casalino, L. (2001). Managing uncertainty: intermediate organizations as triple agents. *Journal of Health Politics, Policy and Law*, 26(5), 1055-1068.
- Choné, P., & Ma, C. T. A. (2011). Optimal health care contract under physician agency. *Annals of Economics and Statistics/Annales d'Économie et de Statistique*, 229-256.
- Clarke, V., & Braun, V. (2013). Teaching thematic analysis: Overcoming challenges and developing strategies for effective learning. *The psychologist*, 26(2), 120-123.
- Competition Commission of South Africa (CompCom SA). (2018) *Health Market Inquiry*. Retrieved from <http://www.compcom.co.za/wp-content/uploads/2018/07/Health-Market-Inquiry-1.pdf>.
- Conrad, D. A. (2013). *Design and impact of physician payment incentives: theory and evidence* (Vol. 7). Palgrave Macmillan.
- Deloitte (2016). Global health care outlook: Battling costs while improving care. <https://www2.deloitte.com/content/dam/Deloitte/global/Documents/Life-Sciences-Health-Care/gx-lshc-2016-health-care-outlook.pdf>.
- Deloitte (2018). Global health care outlook: The evolution of smart healthcare.
- Doyle, C., Lennox, L., & Bell, D. (2013). A systematic review of evidence on the links between patient experience and clinical safety and effectiveness. *BMJ open*,

3(1), e001570.

Eisenhardt, K. M. (1989). Agency theory: An assessment and review. *Academy of management review*, 14(1), 57-74.

Evans, R. G. (1974). Supplier-induced demand: Some empirical evidence and implications. In *The economics of health and medical care* (pp. 162-173). Palgrave Macmillan, London.

Heifetz, R. A. & Linsky, M. (2002). A survival guide for leaders. *Harvard business review*, 80(6), 65-74.

Jacobs, J., Daniel, I., Baker, G. R., Brown, A., & Wodchis, W. (2015). Bundling Care and Payment: Evidence from Early-Adopter.

Jensen, M. C. (1983). Organization theory and methodology. *Accounting review*, 319-339.

Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of financial economics*, 3(4), 305-360.

Khullar, D., Chokshi, D. A., Kocher, R., Reddy, A., Basu, K., Conway, P. H., & Rajkumar, R. (2015). Behavioral economics and physician compensation—promise and challenges. *New England Journal of Medicine*, 372(24), 2281-2283.

Larson, M. S., & Larson, M. S. (1979). *The rise of professionalism: A sociological analysis* (Vol. 233). Univ of California Press.

McGuire, T. G. (2000). Physician agency. In *Handbook of health economics* (Vol. 1, pp. 461-536). Elsevier.

Owens, H. (2016). *Influencing accountability in organisations: a critical managerial competence* (Doctoral dissertation, University of Pretoria).

Porter, M. E. (2009). A strategy for health care reform—toward a value-based system. *New England Journal of Medicine*, 361(2), 109-112.

- Porter, M. E., & Kaplan, R. S. (2014). *How should we pay for health care?*. Harvard Business School.
- Porter, M. E., & Kaplan, R. S. (2016). How to pay for health care. *Harv Bus Rev*, 94(7/8), 88-100.
- Robinson, J. C. (1997). Physician-hospital integration and the economic theory of the firm. *Medical Care Research and Review*, 54(1), 3-24.
- Robinson, J. C. (2001). Theory and practice in the design of physician payment incentives. *The Milbank Quarterly*, 79(2), 149-177.
- Saunders, M. N., & Lewis, P. (2012). *Doing research in business & management: An essential guide to planning your project*. Pearson.
- Shapiro, S. P. (2005). Agency theory. *Annual review of sociology*, 31.
- Sharma, A. (1997). Professional as agent: Knowledge asymmetry in agency exchange. *Academy of Management review*, 22(3), 758-798.
- Still, L. (2017). *Health Care in South Africa, 2017*. Profile Media.
- Uhl-Bien, M., & Arena, M. (2017). Complexity leadership: Enabling people and organizations for adaptability. *Organizational Dynamics*.
- Waterman, R. W., & Meier, K. J. (1998). Principal-agent models: an expansion?. *Journal of public administration research and theory*, 8(2), 173-202.
- Zikmund, W. G., Babin, B. J., Carr, J. C., & Griffin, M. (2013). *Business research methods*. Cengage Learning.

# APPENDICES: ADDITIONAL DOCUMENTS

## Appendix 1: GIBS ethical clearance

The Research Ethics Committee, Faculty Health Sciences, University of Pretoria complies with ICH-GCP guidelines and has US Federal wide Assurance.

- FWA 00002567, Approved dd 22 May 2002 and Expires 03/20/2022.
- IRB 0000 2235 IORG0001762 Approved dd 22/04/2014 and Expires 03/14/2020.



UNIVERSITEIT VAN PRETORIA  
UNIVERSITY OF PRETORIA  
YUNIBESITHI YA PRETORIA

Faculty of Health Sciences Research Ethics Committee

28/06/2018

### Endorsement Notice

**Ethics Reference No: 348/2018**

**Title:** The impact of changes to healthcare payment arrangements on private healthcare in South Africa

Dear Dr Evangelos Apostoloris

The **New Application** as supported by documents specified in your cover letter dd 22/06/2018 for your research received on the 22/06/2018, was approved by the Faculty of Health Sciences Research Ethics Committee on the 27/06/2018.

Please note the following about your ethics approval:

- Please remember to use your protocol number (**348/2018**) on any documents or correspondence with the Research Ethics Committee regarding your research.
- Please note that the Research Ethics Committee may ask further questions, seek additional information, require further modification, or monitor the conduct of your research.

**Ethics approval is subject to the following:**

- The ethics approval is conditional on the receipt of **6 monthly written Progress Reports**, and
- The ethics approval is conditional on the research being conducted as stipulated by the details of all documents submitted to the Committee. In the event that a further need arises to change who the investigators are, the methods or any other aspect, such changes must be submitted as an Amendment for approval by the Committee.

We wish you the best with your research.

Yours sincerely

A handwritten signature in black ink, appearing to read 'R Sommers'.

**Dr R Sommers**; MBChB; MMed (Int); MPharMed, PhD  
**Deputy Chairperson** of the Faculty of Health Sciences Research Ethics Committee, University of Pretoria

*The Faculty of Health Sciences Research Ethics Committee complies with the SA National Act 61 of 2003 as it pertains to health research and the United States Code of Federal Regulations Title 45 and 46. This committee abides by the ethical norms and principles for research, established by the Declaration of Helsinki, the South African Medical Research Council Guidelines as well as the Guidelines for Ethical Research: Principles Structures and Processes, Second Edition 2015 (Department of Health).*

☎ 012 356 3084    ✉ [deepeka.behari@up.ac.za](mailto:deepeka.behari@up.ac.za) / [fhsethics@up.ac.za](mailto:fhsethics@up.ac.za)    🌐 <http://www.up.ac.za/healthethics>  
✉ Private Bag X323, Arcadia, 0007 - Tswelopele Building, Level 4, Room 60 / 61, 31 Bophelo Road, Gezina, Pretoria

## Appendix 2: Medical ethical clearance



31 May 2018

Mr Evangelos Apostoleris:

Dear Evangelos

*Please be advised that your application for Ethical Clearance has been approved subject to the following conditions.:*

Corrections stipulated:

Please remove the statement on the consent letter that states "Once you have completed the interview, you may not recall your consent"

This must be removed prior to submission to health ethics, and additionally submit the amended documents to the GIBS Ethics Committee for record keeping.

*Once you have made this minor amendment and submitted the changes on Aspire and the InfoEd, you will be allowed to continue collecting your data when your resubmission has been approved.*

*We wish you everything of the best for the rest of the project.*

*Kind Regards*

GIBS MBA Research Ethical Clearance Committee

## Appendix 3A: Informed consent and questionnaire for the principal – Discovery Health Medical Scheme

### 5. PARTICIPANT'S INFORMATION & INFORMED CONSENT DOCUMENT

**Researcher's name:** Evangelos Apostoleris

**Student Number:** 96251311

**Department:** Gordon Institute of Business Science (GIBS)

**University of Pretoria**

Dear Doctor / Participant: \_\_\_\_\_

**Title of research:**

**The impact of changes to healthcare payment arrangements on private healthcare in South Africa**

I am a second year student at the Gordon Institute of Business from the University of Pretoria. I am also a urologist in private practice in Johannesburg. You are invited to volunteer to participate in our research project titled "The impact of changes to healthcare payments arrangements on private healthcare in South Africa".

This letter gives information to help you to decide if you want to take part in this study. Before you agree you should fully understand what is involved. If you do not understand the information or have any other questions, do not hesitate to ask us. You should not agree to take part unless you are completely happy about what we expect of you.

The purpose of the study is to interview all the various stakeholders that are participating in the orthopaedic payment arrangement for arthroplasty. The purpose of the study is to review the payment arrangement through the lens of "Agency theory". The study will consist of a recorded interview for one hour. All information will be kept confidential and will be stored in a safe place for ten years as required by the Ethics Committee.

We would like to interview you for sixty minutes and it will help us understand the payment arrangement in more detail. We will discuss the orthopaedic payment arrangement according to your point of view without discussing specifics or revealing confidential information regarding any patient or sensitive information. **The interview may be recorded only if you give consent.**

**Should any question during the interview make you uncomfortable, please understand that you do not have to answer the question.** Your participation in this study is voluntary. You can refuse to participate or stop at any time without giving any reason and without any penalty whatsoever. You do not have to write your name on the consent form and you may give us the information anonymously. We will not be able to trace your information. You will be anonymous so you will not be identified as a participant in any publication that comes from this study.

The Research Ethics Committee of the University of Pretoria, Faculty of Health Sciences, who can be contacted on 012 356 3084 / 012 356 3085 have granted written approval for this study.

Page 1 of 5

In the event of questions asked, which will cause emotional distress, then the researcher is able to refer you to a competent counselling.

**Note:** The implication of completing the questionnaire is that informed consent has been obtained from you. Thus any information derived from your form (which will be totally anonymous) may be used for e.g. publication, by the researchers.

We sincerely appreciate your help.

Yours truly,

**Researcher:** Evangelos Apostoleris

**Signature:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Participant:** \_\_\_\_\_

**Signature:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Contact details:**

<b>Researcher</b>	<b>Telephone number</b>	<b>Email address</b>
Evangelos Apostoleris	083 256 5185	eaurology@gmail.com
<b>Supervisor</b>		
Allan Maram		ajmaram@gmail.com

**QUESTIONNAIRE FOR PRINCIPAL:**

**Interviewer:** Evangelos Apostoleris

**Interviewee:**

Discovery Health Medical Scheme

**Research title:** The impact of changes to healthcare payment arrangements on private healthcare in South Africa

**Duration:** One hour

Please explain the orthopaedic bundled payment arrangement as it currently stands.

Has the Health Professions Council of South Africa (HPCSA) approved the payment arrangement?

Is this the ideal relationship between principal (funder) and agents (all those involved in delivering healthcare for the joint replacement)? Are we moving in the right direction? If so, why is the move to change the reimbursement of healthcare providers necessary?

What were the factors that initiated the bundled payment arrangement?

Could you please define Diagnosis Related Groups (DRG) payments and how are they different?

What are the major cost drivers in orthopaedic surgery?

Did you run a pilot study? What were your findings? Do you have similar payment arrangements with other hospitals and /or specialists?

How did the pilot study inform current policy? What were the changes made and why were they made?

What is the total cost of the bundle? If you are not able to answer that question, how much are you saving with the model for example ten or fifteen percent? Will you increase the bundled payment year on year? If so, by how much? Is the bundled payment amount sufficient? How was it calculated?

Page 3 of 5

Do you negotiate increases every year or have you decided on an annual adjustment? How was that calculated?

How do you avoid collusion?

Is this bundled payment arrangement open to all healthcare providers? How did you go about selecting individuals? Do you have inclusion / exclusion criteria? Do you choose the best surgeons?

How do you confirm commitment? Do healthcare providers sign a document?

Does the bundled payment arrangement have built in incentives?

How do you define success with the model? Do you monitor outcomes? How?

Who would you consider has the power advantage in the relationship? The hospital, the surgeon, or you? Please could you explain in further detail if possible?

Do you think there could be some information asymmetry in the arrangement? For example, either you are not sure what the medical team is doing and vice versa?

Amongst the healthcare providers, who has the most power in the relationship? How is that monitored?

In your opinion, what is the biggest driver of cost in joint surgery?

Is this model important for healthcare? For South Africa?

Where do you see private healthcare in five years' time? Is the future bright?

Does this model create value? If so, for who?

Could this model be applied to our future National Health Service once implemented?

Will this model put patient care at risk in any way whatsoever?

Page 4 of 5

**Interviewer:** Evangelos Apostoleris

**Signature:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Interviewee:** \_\_\_\_\_ (Can be anonymous)

**Signature:** \_\_\_\_\_ **Date:** \_\_\_\_\_

The signatures confirm that the interview was conducted by Evangelos Apostoleris and only the questions stated above were discussed.

## Appendix 3B: Informed consent and questionnaire for agent – hospital group

### 5. PARTICIPANT'S INFORMATION & INFORMED CONSENT DOCUMENT

**Researcher's name:** Evangelos Apostoleris

**Student Number:** 96251311

**Department:** Gordon Institute of Business Science (GIBS)

**University of Pretoria**

Dear Doctor / Participant: \_\_\_\_\_

**Title of research:**

**The impact of changes to healthcare payment arrangements on private healthcare in South Africa**

I am a second year student at the Gordon Institute of Business from the University of Pretoria. I am also a urologist in private practice in Johannesburg. You are invited to volunteer to participate in our research project titled "The impact of changes to healthcare payments arrangements on private healthcare in South Africa".

This letter gives information to help you to decide if you want to take part in this study. Before you agree you should fully understand what is involved. If you do not understand the information or have any other questions, do not hesitate to ask us. You should not agree to take part unless you are completely happy about what we expect of you.

The purpose of the study is to interview all the various stakeholders that are participating in the orthopaedic payment arrangement for arthroplasty. The purpose of the study is to review the payment arrangement through the lens of "Agency theory". The study will consist of a recorded interview for one hour. All information will be kept confidential and will be stored in a safe place for ten years as required by the Ethics Committee.

We would like to interview you for sixty minutes and it will help us understand the payment arrangement in more detail. We will discuss the orthopaedic payment arrangement according to your point of view without discussing specifics or revealing confidential information regarding any patient or sensitive information. **The interview may be recorded only if you give consent.**

**Should any question during the interview make you uncomfortable, please understand that you do not have to answer the question.** Your participation in this study is voluntary. You can refuse to participate or stop at any time without giving any reason and without any penalty whatsoever. You do not have to write your name on the consent form and you may give us the information anonymously. We will not be able to trace your information. You will be anonymous so you will not be identified as a participant in any publication that comes from this study.

The Research Ethics Committee of the University of Pretoria, Faculty of Health Sciences, who can be contacted on 012 356 3084 / 012 356 3085 have granted written approval for this study.

Page 1 of 5

In the event of questions asked, which will cause emotional distress, then the researcher is able to refer you to a competent counselling.

**Note:** The implication of completing the questionnaire is that informed consent has been obtained from you. Thus any information derived from your form (which will be totally anonymous) may be used for e.g. publication, by the researchers.

We sincerely appreciate your help.

Yours truly,

**Researcher:** Evangelos Apostoleris

**Signature:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Participant:** \_\_\_\_\_

**Signature:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Contact details:**

Researcher	Telephone number	Email address
Evangelos Apostoleris	083 256 5185	eaurology@gmail.com
Supervisor		
Allan Maram		ajmaram@gmail.com

**QUESTIONNAIRE FOR AGENTS:**

**Interviewer:** Evangelos Apostoleris

**Interviewee:**

Hospital Group: \_\_\_\_\_

**Research title:** The impact of changes to healthcare payment arrangements on private healthcare in South Africa

**Duration:** One hour

Please explain the orthopaedic payment arrangement with the medical aid. How did it come about? Was it a mutual decision or was it initiated by the funder? Are there any concerns regarding the arrangement?

Who benefits most from the payment arrangement?

Is this the ideal relationship between principal (funder) and agents (all those involved in delivering healthcare for the joint replacement)?

Why did you decide to participate? What are the trends that you are seeing in joint surgery and healthcare in South Africa?

Is the bundled payment sufficient to cover costs? Is it sufficient to make a profit? What are the deciding factors that play a key role? How do you monitor performance and / or outcomes? How will the fee increase year on year? Is the fee fair? How was the fee calculated?

Does the bundled payment arrangement have built in incentives?

Who has the power in this relationship? Does the medical aid have more power than you? Who has more power, the surgeon or you?

Do you think there could be some information asymmetry in the arrangement? For example, either you are not sure what the medical funder or medical team is doing and vice versa?

Which hospitals were selected and why? Inclusion / exclusion criteria?

How are the surgeons selected? Did the surgeons agree? What were some of their concerns regarding the payment arrangement?

Page 4 of 5

Can the surgeons choose their own healthcare team for example: anaesthetists, physiotherapist, et cetera.

Is this model applicable to other disciplines? Yes / no. Why? Please elaborate?

Is this model important for your hospital? The group? Healthcare in South Africa?

In your opinion, what is the biggest driver of cost in joint surgery?

If the surgeon had said no, what would your options be?

Where do you see private healthcare in five years' time? Is the future bright?

Could this model be applied to our future National Health Service once implemented?

Does this model create value? If so, for who?

Will this model put patient care at risk in any way whatsoever?

**Interviewer:** Evangelos Apostoleris

**Signature:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Interviewee:** \_\_\_\_\_ (Can be anonymous)

**Signature:** \_\_\_\_\_ **Date:** \_\_\_\_\_

The signatures confirm that the interview was conducted by Evangelos Apostoleris and only the questions stated above were discussed.

## Appendix 3C: Informed consent and questionnaire for agent – orthopaedic surgeon

### 5. PARTICIPANT'S INFORMATION & INFORMED CONSENT DOCUMENT

**Researcher's name:** Evangelos Apostoleris

**Student Number:** 96251311

**Department:** Gordon Institute of Business Science (GIBS)

**University of Pretoria**

Dear Doctor / Participant:

**Title of research:**

**The impact of changes to healthcare payment arrangements on private healthcare in South Africa**

I am a second year student at the Gordon Institute of Business from the University of Pretoria. I am also a urologist in private practice in Johannesburg. You are invited to volunteer to participate in our research project titled "The impact of changes to healthcare payments arrangements on private healthcare in South Africa".

This letter gives information to help you to decide if you want to take part in this study. Before you agree you should fully understand what is involved. If you do not understand the information or have any other questions, do not hesitate to ask us. You should not agree to take part unless you are completely happy about what we expect of you.

The purpose of the study is to interview all the various stakeholders that are participating in the orthopaedic payment arrangement for arthroplasty. The purpose of the study is to review the payment arrangement through the lens of "Agency theory". The study will consist of a recorded interview for one hour. All information will be kept confidential and will be stored in a safe place for ten years as required by the Ethics Committee.

We would like to interview you for sixty minutes and it will help us understand the payment arrangement in more detail. We will discuss the orthopaedic payment arrangement according to your point of view without discussing specifics or revealing confidential information regarding any patient or sensitive information. **The interview may be recorded only if you give consent.**

**Should any question during the interview make you uncomfortable, please understand that you do not have to answer the question.** Your participation in this study is voluntary. You can refuse to participate or stop at any time without giving any reason and without any penalty whatsoever. You do not have to write your name on the consent form and you may give us the information anonymously. We will not be able to trace your information. You will be anonymous so you will not be identified as a participant in any publication that comes from this study.

The Research Ethics Committee of the University of Pretoria, Faculty of Health Sciences, who can be contacted on 012 356 3084 / 012 356 3085 have granted written approval for this study.

Page 1 of 4

In the event of questions asked, which will cause emotional distress, then the researcher is able to refer you to a competent counselling.

**Note:** The implication of completing the questionnaire is that informed consent has been obtained from you. Thus any information derived from your form (which will be totally anonymous) may be used for e.g. publication, by the researchers.

We sincerely appreciate your help.

Yours truly,

**Researcher:** Evangelos Apostoleris

**Signature:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Participant:** \_\_\_\_\_

**Signature:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Contact details:**

<b>Researcher</b>	<b>Telephone number</b>	<b>Email address</b>
Evangelos Apostoleris	083 256 5185	eaurology@gmail.com
<b>Supervisor</b>		
Allan Maram		ajmaram@gmail.com

**Questions for research**

**Interviewer:** Evangelos Apostoleris

**Interviewee:**

**Healthcare provider:** Orthopaedic Surgeon \_\_\_\_\_

**Research title:** The impact of changes to healthcare payment arrangements on private healthcare in South Africa

**Duration:** One hour

Describe the orthopaedic bundled payment arrangement?

Does this model create value? If so, for who? Are you better or worse off because of the model?

Is this the ideal relationship between principal (funder) and agents (all those involved in delivering healthcare for the joint replacement)?

Who benefits most from the payment arrangement?

Were you invited to participate or did you ask to be involved? Why are you involved?

Was there a negotiation with regards to remuneration in any way or form?

Were you offered different options or packages? Will you be using your usual billing codes for the joint replacement? Who determined your professional fee?

Does the bundled payment arrangement have built in incentives?

Is there a benefit/ If so, for who?

Who has the power in the relationship? You, the medical aid, the hospital?

Do you think there could be some information asymmetry in the arrangement? For example, either you are not sure what the funder, the hospital, or any clinician in the medical team is doing and vice versa?

Will this model put patient care at risk in any way whatsoever? Page 3 of 4

In your opinion, what is the biggest driver of cost in joint surgery?

Could you have said no? What would have been the implications? Why did you say yes?

What does your association say with regards to the bundled payment arrangement?

If you could change one thing about the bundled payment arrangement, what would it be?

Where do you see private healthcare in five years' time? Is the future bright?

Could this model be applied to our future National Health Service once implemented?

**Interviewer:** Evangelos Apostoleris

**Signature:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Interviewee:** \_\_\_\_\_ (Can be anonymous)

**Signature:** \_\_\_\_\_ **Date:** \_\_\_\_\_

The signatures confirm that the interview was conducted by Evangelos Apostoleris and only the questions stated above were discussed.

## Appendix 3D: Informed consent and questionnaire for agent – anaesthetist

### 5. PARTICIPANT'S INFORMATION & INFORMED CONSENT DOCUMENT

Researcher's name: Evangelos Apostoleris

Student Number: 96251311

Department: Gordon Institute of Business Science (GIBS)

University of Pretoria

Dear Doctor / Participant: \_\_\_\_\_

**Title of research:**

**The impact of changes to healthcare payment arrangements on private healthcare in South Africa**

I am a second year student at the Gordon Institute of Business from the University of Pretoria. I am also a urologist in private practice in Johannesburg. You are invited to volunteer to participate in our research project titled "The impact of changes to healthcare payments arrangements on private healthcare in South Africa".

This letter gives information to help you to decide if you want to take part in this study. Before you agree you should fully understand what is involved. If you do not understand the information or have any other questions, do not hesitate to ask us. You should not agree to take part unless you are completely happy about what we expect of you.

The purpose of the study is to interview all the various stakeholders that are participating in the orthopaedic payment arrangement for arthroplasty. The purpose of the study is to review the payment arrangement through the lens of "Agency theory". The study will consist of a recorded interview for one hour. All information will be kept confidential and will be stored in a safe place for ten years as required by the Ethics Committee.

We would like to interview you for sixty minutes and it will help us understand the payment arrangement in more detail. We will discuss the orthopaedic payment arrangement according to your point of view without discussing specifics or revealing confidential information regarding any patient or sensitive information. **The interview may be recorded only if you give consent.**

**Should any question during the interview make you uncomfortable, please understand that you do not have to answer the question.** Your participation in this study is voluntary. You can refuse to participate or stop at any time without giving any reason and without any penalty whatsoever. You do not have to write your name on the consent form and you may give us the information anonymously. We will not be able to trace your information. You will be anonymous so you will not be identified as a participant in any publication that comes from this study.

The Research Ethics Committee of the University of Pretoria, Faculty of Health Sciences, who can be contacted on 012 356 3084 / 012 356 3085 have granted written approval for this study.

Page 1 of 4

In the event of questions asked, which will cause emotional distress, then the researcher is able to refer you to a competent counselling.

**Note:** The implication of completing the questionnaire is that informed consent has been obtained from you. Thus any information derived from your form (which will be totally anonymous) may be used for e.g. publication, by the researchers.

We sincerely appreciate your help.

Yours truly,

**Researcher:** Evangelos Apostoleris

**Signature:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Participant:** \_\_\_\_\_

**Signature:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Contact details:**

<b>Researcher</b>	<b>Telephone number</b>	<b>Email address</b>
Evangelos Apostoleris	083 256 5185	eaurology@gmail.com
<b>Supervisor</b>		
Allan Maram		ajmaram@gmail.com

**Questions for research**

**Interviewer:** Evangelos Apostoleris

**Interviewee:**

Healthcare provider: Anaesthetist \_\_\_\_\_

**Research title:** The impact of changes to healthcare payment arrangements on private healthcare in South Africa

**Duration:** One hour

Describe the orthopaedic bundled payment arrangement?

Were you invited to participate or did you ask to be involved? Why are you involved?

Is this the ideal relationship between principal (funder) and agents (all those involved in delivering healthcare for the joint replacement)?

Who benefits most from the payment arrangement?

Was there a negotiation with regards to remuneration in any way or form?

Were you offered different options or packages? Will you be using your usual billing codes for the joint replacement? Who determined your professional fee?

Does the bundled payment arrangement have built in incentives?

Will this model put patient care at risk in any way whatsoever?

Who has the power in the relationship? You, the medical aid, the hospital, the surgeon?

Do you think there could be some information asymmetry in the arrangement? For example, either you are not sure what the funder, the hospital, or any clinician in the medical team is doing and vice versa?

Does this model create value? If so, for who? Are you better or worse off because of the model?

Do you get remunerated more with the bundled payment or not? Page 3 of 4

In your opinion, what is the biggest driver of cost in joint surgery?

Could you have said no? What would have been the implications? Why did you say yes?

What does your association say with regards to the bundled payment arrangement?

If you could change one thing about the bundled payment arrangement, what would it be?

Where do you see private healthcare in five years' time? Is the future bright?

Could this model be applied to our future National Health Service once implemented?

**Interviewer:** Evangelos Apostoleris

**Signature:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Interviewee:** \_\_\_\_\_ (Can be anonymous)

**Signature:** \_\_\_\_\_ **Date:** \_\_\_\_\_

The signatures confirm that the interview was conducted by Evangelos Apostoleris and only the questions stated above were discussed.

## Appendix 3E: Informed consent and questionnaire for agent – physiotherapist

### 5. PARTICIPANT'S INFORMATION & INFORMED CONSENT DOCUMENT

**Researcher's name:** Evangelos Apostoleris

**Student Number:** 96251311

**Department:** Gordon Institute of Business Science (GIBS)

**University of Pretoria**

Dear Doctor / Participant: \_\_\_\_\_

**Title of research:**

**The impact of changes to healthcare payment arrangements on private healthcare in South Africa**

I am a second year student at the Gordon Institute of Business from the University of Pretoria. I am also a urologist in private practice in Johannesburg. You are invited to volunteer to participate in our research project titled "The impact of changes to healthcare payments arrangements on private healthcare in South Africa".

This letter gives information to help you to decide if you want to take part in this study. Before you agree you should fully understand what is involved. If you do not understand the information or have any other questions, do not hesitate to ask us. You should not agree to take part unless you are completely happy about what we expect of you.

The purpose of the study is to interview all the various stakeholders that are participating in the orthopaedic payment arrangement for arthroplasty. The purpose of the study is to review the payment arrangement through the lens of "Agency theory". The study will consist of a recorded interview for one hour. All information will be kept confidential and will be stored in a safe place for ten years as required by the Ethics Committee.

We would like to interview you for sixty minutes and it will help us understand the payment arrangement in more detail. We will discuss the orthopaedic payment arrangement according to your point of view without discussing specifics or revealing confidential information regarding any patient or sensitive information. **The interview may be recorded only if you give consent.**

**Should any question during the interview make you uncomfortable, please understand that you do not have to answer the question.** Your participation in this study is voluntary. You can refuse to participate or stop at any time without giving any reason and without any penalty whatsoever. You do not have to write your name on the consent form and you may give us the information anonymously. We will not be able to trace your information. You will be anonymous so you will not be identified as a participant in any publication that comes from this study.

The Research Ethics Committee of the University of Pretoria, Faculty of Health Sciences, who can be contacted on 012 356 3084 / 012 356 3085 have granted written approval for this study.

Page 1 of 4

In the event of questions asked, which will cause emotional distress, then the researcher is able to refer you to a competent counselling.

**Note:** The implication of completing the questionnaire is that informed consent has been obtained from you. Thus any information derived from your form (which will be totally anonymous) may be used for e.g. publication, by the researchers.

We sincerely appreciate your help.

Yours truly,

**Researcher:** Evangelos Apostoleris

**Signature:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Participant:** \_\_\_\_\_

**Signature:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Contact details:**

Researcher	Telephone number	Email address
Evangelos Apostoleris	083 256 5185	eaurology@gmail.com
Supervisor		
Allan Maram		ajmaram@gmail.com

**Questions for research**

**Interviewer:** Evangelos Apostoleris

**Interviewee:**

**Healthcare provider:** Physiotherapist \_\_\_\_\_

**Research title:** The impact of changes to healthcare payment arrangements on private healthcare in South Africa

**Duration:** One hour

Describe the orthopaedic bundled payment arrangement?

Does this model create value? If so, for who? Are you better or worse off because of the model?

Is this the ideal relationship between principal (funder) and agents (all those involved in delivering healthcare for the joint replacement)?

Who benefits most from the payment arrangement?

Were you invited to participate or did you ask to be involved? Why are you involved?

Was there a negotiation with regards to remuneration in any way or form?

Were you offered different options or packages? Will you be using your usual billing codes for the joint replacement? Who determined your professional fee?

Does the bundled payment arrangement have built in incentives?

Who has the power in the relationship? You, the medical aid, the hospital? The surgeon?

Do you think there could be some information asymmetry in the arrangement? For example, either you are not sure what the funder, the hospital, or any clinician in the medical team is doing and vice versa?

Will this model put patient care at risk in any way whatsoever?

In your opinion, what is the biggest driver of cost in joint surgery?      Page 3 of 4

Could you have said no? What would have been the implications? Why did you say yes?

What does your association say with regards to the bundled payment arrangement?

If you could change one thing about the bundled payment arrangement, what would it be?

Where do you see private healthcare in five years' time? Is the future bright?

Could this model be applied to our future National Health Service once implemented?

**Interviewer:** Evangelos Apostoleris

**Signature:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Interviewee:** \_\_\_\_\_ (Can be anonymous)

**Signature:** \_\_\_\_\_ **Date:** \_\_\_\_\_

The signatures confirm that the interview was conducted by Evangelos Apostoleris and only the questions stated above were discussed.

## Appendix 3F: Informed consent and questionnaire for agent – medical device company

### 5. PARTICIPANT'S INFORMATION & INFORMED CONSENT DOCUMENT

**Researcher's name:** Evangelos Apostoleris

**Student Number:** 96251311

**Department:** Gordon Institute of Business Science (GIBS)

**University of Pretoria**

Dear Doctor / Participant: \_\_\_\_\_

**Title of research:**

**The impact of changes to healthcare payment arrangements on private healthcare in South Africa**

I am a second year student at the Gordon Institute of Business from the University of Pretoria. I am also a urologist in private practice in Johannesburg. You are invited to volunteer to participate in our research project titled "The impact of changes to healthcare payments arrangements on private healthcare in South Africa".

This letter gives information to help you to decide if you want to take part in this study. Before you agree you should fully understand what is involved. If you do not understand the information or have any other questions, do not hesitate to ask us. You should not agree to take part unless you are completely happy about what we expect of you.

The purpose of the study is to interview all the various stakeholders that are participating in the orthopaedic payment arrangement for arthroplasty. The purpose of the study is to review the payment arrangement through the lens of "Agency theory". The study will consist of a recorded interview for one hour. All information will be kept confidential and will be stored in a safe place for ten years as required by the Ethics Committee.

We would like to interview you for sixty minutes and it will help us understand the payment arrangement in more detail. We will discuss the orthopaedic payment arrangement according to your point of view without discussing specifics or revealing confidential information regarding any patient or sensitive information. **The interview may be recorded only if you give consent.**

**Should any question during the interview make you uncomfortable, please understand that you do not have to answer the question.** Your participation in this study is voluntary. You can refuse to participate or stop at any time without giving any reason and without any penalty whatsoever. You do not have to write your name on the consent form and you may give us the information anonymously. We will not be able to trace your information. You will be anonymous so you will not be identified as a participant in any publication that comes from this study.

The Research Ethics Committee of the University of Pretoria, Faculty of Health Sciences, who can be contacted on 012 356 3084 / 012 356 3085 have granted written approval for this study.

Page 1 of 4

In the event of questions asked, which will cause emotional distress, then the researcher is able to refer you to a competent counselling.

**Note:** The implication of completing the questionnaire is that informed consent has been obtained from you. Thus any information derived from your form (which will be totally anonymous) may be used for e.g. publication, by the researchers.

We sincerely appreciate your help.

Yours truly,

**Researcher:** Evangelos Apostoleris

**Signature:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Participant:** \_\_\_\_\_

**Signature:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Contact details:**

Researcher	Telephone number	Email address
Evangelos Apostoleris	083 256 5185	eaurology@gmail.com
Supervisor		
Allan Maram		ajmaram@gmail.com

**Questions for research**

**Interviewer:** Evangelos Apostoleris

**Interviewee:**

Healthcare provider: Medical Device Company

---

**Research title:** The impact of changes to healthcare payment arrangements on private healthcare in South Africa

**Duration:** One hour

Describe the orthopaedic bundled payment arrangement?

Does this model create value? If so, for who?

Are you better or worse off because of the model?

Is this the ideal relationship between principal (funder) and agents (all those involved in delivering healthcare for the joint replacement)?

Who benefits most from the payment arrangement?

Were you invited to participate or did you ask to be involved? Why are you involved?

Do you have experience with this model or similar bundled payment arrangements in other countries or territories around the world? If so, what have you learned from these arrangements that could add value here in South Africa?

Has the orthopaedic surgeon been using your services for long?

Was there a negotiation with regards to remuneration in any way or form?

Does the bundled payment arrangement have built in incentives?

Who has the power in the relationship? You, the medical aid, the hospital? The surgeon?

Do you think there could be some information asymmetry in the arrangement? For example, either you are not sure what the funder, the hospital, or any clinician in the medical team is doing and vice versa?

In your opinion, what is the biggest driver of cost in joint surgery?

Could you have said no? What would have been the implications? Why did you say yes?

If you could change one thing about the bundled payment arrangement, what would it be?

Where do you see private healthcare in five years' time? Is the future bright?

Could this model be applied to our future National Health Service once implemented?

**Interviewer:** Evangelos Apostoleris

**Signature:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Interviewee:** \_\_\_\_\_ (Can be anonymous)

**Signature:** \_\_\_\_\_ **Date:** \_\_\_\_\_

The signatures confirm that the interview was conducted by Evangelos Apostoleris and only the questions stated above were discussed.

## Appendix 4: Copyright declaration

### COPYRIGHT DECLARATION

Student details			
Surname:	APOSTOLERIS	Initials:	E
Student number:	96251311		
Email:	eaurology@gmail.com		
Phone:	0832565185		
Qualification details			
Degree:	MBA	Year completed:(pending)	2018
Title of research	The impact of changes to healthcare payment arrangements on private healthcare in South Africa		
Supervisor:	Allan Maram		
Supervisor email:	ajmaram@gmail.com		
Access			
Please select			
<b>A.</b>			
<input type="checkbox"/>	My research is not confidential and may be made available in the GIBS Information Centre on UPSpace.		
I give permission to display my email address on the UPSpace website			
<input type="checkbox"/>	Yes	<input type="checkbox"/>	Yes
<input type="checkbox"/>	No	<input type="checkbox"/>	
<b>B.</b>			
<input type="checkbox"/>	My research is confidential and may <b>NOT</b> be made available in the GIBS Information Centre nor on UPSpace.		
Please indicate embargo period requested			
<input type="checkbox"/>	Two years	Please attach a letter of motivation to substantiate your request. Without embargo will not be granted.	
<input type="checkbox"/>	Permanent	Permission from the Vice-Principal: Research and Postgraduate Studies is required for permanent embargo. Please attach a copy permission. Without a letter permanent embargo will not be granted.	
Copyright declaration			
I hereby declare that I have not used unethical research practices nor gained material dishonesty in this electronic version of my research submitted. Where appropriate, written permission statement(s) were obtained from the owner(s) of third-party copyrighted matter included in my research, allowing distribution as specified below.			
I hereby assign, transfer and make over to the University of Pretoria my rights of copyright in the submitted work to the extent that it has not already been affected in terms of the contract I			

entered into at registration. I understand that all rights with regard to the intellectual property of my research, vest in the University who has the right to reproduce, distribute and/or publish the work in any manner it may deem fit.

<b>Signature:</b>	<b>Date:2018 / 11 / 01</b>
<b>Supervisor signature:</b>	<b>Date:2018 / 11 / 01</b>

## Appendix 5: Appropriate additional support

### CERTIFICATION OF ADDITIONAL SUPPORT

*Please note that failure to comply and report on this honestly will result in disciplinary action*

I hereby certify that:

- **I RECEIVED** additional/outside assistance (i.e. statistical, transcriptional, thematic, coding, and/or editorial services) on my research report

.....

If any additional services were retained– please indicate below which:

- Coding (quantitative and qualitative)
- Transcriber
- Editor

Please provide the name(s) and contact details of all retained:

NAME: **Gita Lowe**

EMAIL ADDRESS: [gita@performability.co.za](mailto:gita@performability.co.za)

CONTACT NUMBER: 082 853 1901

TYPE OF SERVICE: Transcriber

NAME: **Chantal Joseph**

EMAIL ADDRESS: [chantalj12@gmail.com](mailto:chantalj12@gmail.com)

CONTACT NUMBER: 076 817 0821

TYPE OF SERVICE: Editor

I hereby declare that all interpretations (statistical and/or thematic) arising from the analysis; and write-up of the results for my study was completed by myself without outside assistance

NAME OF STUDENT: **Evangelos Apostoleris**

SIGNATURE:

.....

STUDENT NUMBER:

**96251311**

STUDENT EMAIL ADDRESS:

[eaurology@gmail.com](mailto:eaurology@gmail.com)