

# **The Influence of Value Perspectives on Decision-Making in the South African Private Healthcare Sector**

## **Corresponding author**

Dr Anchen Laubscher

## **Qualifications**

MBChB (UFS), DipPEC(SA), DCH(SA)

PGDip (UP)

## **Affiliation**

Dr Anchen Laubscher is a registered student at the Gordon Institute of Business Science (GIBS), University of Pretoria (UP), and completed this research study in partial fulfilment of the requirements for the degree of Master of Business Administration (MBA).

## **Address**

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

**Mobile** +27 83 298 1228

**Email** anchenlaubscher@gmail.com or 16393318@mygibs.co.za

## **Keywords**

Value of Care; Clinical Outcome; Cost of Clinical Event; Patient's Experience; value perspectives; multiple stakeholders; decision-making; private healthcare; South Africa

**Running title** Value Perspectives in Private Healthcare

## **Key messages**

1. The study explored differences in relative importance of three factors identified as contributors to Value of Care, namely Clinical Outcome, Cost of Clinical Event and Patient's Experience, between provider and consumer groups.
2. The study aimed to deduce a modified value equation that would depict the relative importance or weightings (coefficients) for each of the factors as applicable to different stakeholder groups and different contexts.
3. The study concluded that the balance of factors can be utilised in evidence-based, multi-factor decision-making, by provider and consumer groups, thereby asserting the business utility of the research study.

**Total word count** 6236 (excluding figures, tables and references as per Author Guidelines)

## Abstract

Value of Care can be expressed in an equation, whereby the numerator, outcomes, represents the Clinical Outcome of a care episode whilst the denominator, cost, refers to total Cost of the Clinical Event. Patient's Experience is acknowledged as contributing to value creation in healthcare, alongside clinical effectiveness (outcomes as a function of cost), but its impact remains understudied. Multiple stakeholders are at play in healthcare, including the consumer (patient) and provider (doctor). Oftentimes, stakeholders in healthcare have conflicting goals. A deeper understanding of the differences in value perspectives of key stakeholders in healthcare delivery is therefore required. Using the Value Perspectives Survey, this study explored differences in relative importance of three factors (Clinical Outcome, Cost of Clinical Event and Patient's Experience), identified as contributors to Value of Care, to gain insight into value perspectives of consumers ( $n = 662$ ) and providers ( $n = 381$ ) in the South African private healthcare context. Descriptive statistics were used to characterise the study sample and tests of mean differences were used to assess whether differences exist between consumers and providers in terms of value perspectives, as well as to assess differences in value perspectives as the severity of surgical and medical scenarios increase. The study concluded that Patient's Experience should be added as a factor in the healthcare value equation. Differences in value perspectives were demonstrated between consumers and providers in terms of the value attributed to Clinical Outcome, Cost of Clinical Event and Patient's Experience as well as with progression of severity in surgical and medical scenarios. The study concluded that the balance of factors can be utilised in evidence-based, multi-factor decision-making, by providers and consumers, thereby creating value. A better understanding of how value perspectives differ can inform value creation strategies in the South African private healthcare context.

## Introduction

### The healthcare value agenda

Every clinical care event is targeted at creating value at a certain cost. Value in healthcare delivery, or Value of Care, is defined as the results or outcomes (outputs) achieved relative to the cost incurred or resources applied (inputs) to generate these outcomes (Porter 2010; Mkanta et al. 2016). Numerically depicted as a healthcare value equation, value in healthcare is therefore calculated by outcomes achieved (numerator) divided by the cost incurred (denominator) to generate such outcomes (Porter 2010):

$$\text{Value of Care} = \frac{\text{outcomes}}{\text{cost}}$$

Numerator: Function of the degree to which the care event achieved a clinical goal (objective measure) (Porter 2010).

Denominator: Function of the cost of the event, determined by the combined price charged by the care providers (Porter 2010).

It is however, argued that value in healthcare delivery can be influenced by factors other than Clinical Outcome and Cost of Clinical Event. Additional factors that should be considered as imperative to Value of Care is Patient's Experience (Berwick & Whittington, 2008; Damberg et al., 2014; Mkanta et al., 2016) and patient safety, or the risk of occurrence of adverse events (Slawomirski et al. 2017; Doyle et al. 2013). To accommodate for these additional factors, the Value of Care delivered can thus be quantified or mathematically depicted in a modified equation as follows:

$$\text{Value of Care} = \frac{\text{outcomes} \times \text{patient experience}}{\text{cost} + (\text{risk of adverse outcomes} \times \text{cost of adverse outcomes})}$$

Numerator: Function of the degree to which the care event achieved a clinical goal (objective measure) (Porter 2010) as well as the degree to which satisfaction (subjective) was experienced by or achieved for the consumer (Doyle et al. 2013).

Denominator: Function of the cost of the event, composed of the price charged by the care providers (Porter 2010) plus the cost of an adverse event multiplied by the likelihood of the adverse event occurring (Doyle et al. 2013).

It is well described that adverse events affect more than just the cost of the care episode, but also impacts the quality of the Clinical Outcomes (Rivard et al. 2008) and the patient's subjective perception of their care episode (Patient's Experience) (Doyle et al. 2013).

Therefore, this study isolated Patient's Experience to be studied as an additional factor that might influence the Value of Care delivered.

### **The importance of Patient's Experience**

Patient's Experience has been understudied and underutilised in value creation and value-based care strategies in healthcare (Damberg et al. 2014). Berwick and colleagues introduced the concept of the 'Triple Aim', which includes the elements of care, health and cost, where 'care' refers to the patient's subjective experience of the care episode (Berwick et al. 2008). Damberg and colleagues also described consumer directed healthcare as being important in value creation strategies; the emphasis again on the patient's expectations and experience of care delivered (Buntin et al. 2006). Damberg explained how Patient's Experience in the healthcare context is understudied, whereby a value-based payment study conducted in 2014 found that only 17% of value-based care programmes measured goals that related to the Patient's Experience or the patient's value perspective of the care delivered (Damberg et al. 2014; Mkanta et al. 2016).

Patient's Experience is progressively acknowledged as one of the three mainstays of quality in healthcare, alongside clinical effectiveness (depicted as outcomes expressed as a function of cost) (Doyle et al. 2013). Porter highlights the need for healthcare systems to focus on Clinical Outcomes and Cost of Clinical Event but acknowledges that healthcare systems often fail to recognise a fundamental criterion for health services excellence and value

creation, namely whether patient expectations of care are met (Porter & Lee 2013; Porter et al. 2013). If Patient's Experience is not considered a factor in healthcare value creation strategies, clinical events in healthcare delivery will fail to create value for the patient even though it appeared that cost and outcome goals were achieved (Weeks & Weinstein 2014).

The study therefore aimed to determine the need to add Patient's Experience to the healthcare value equation as originally described by Porter (2010), to understand the relative importance of this additional factor in relation to other factors, and to examine how this relative importance might differ between consumer and provider groups. For this study, the mathematical depiction of the balance of the three measures was referred to as the Care Value Index (CVI):

$$CVI = \frac{outcome}{cost} \times patient\ experience$$

Clinical Outcome: Degree to which the clinical event achieved a clinical goal (objective measure) (Porter 2010; Campbell et al. 2000; Shekelle 2013).

Cost of the Clinical Event: Total price charged by the care providers, thus the price paid by the patient or medical aid or both (Porter 2010; Mkanta et al. 2016).

Patient's Experience: Degree to which the patient's expectation was met (subjective measure) (Wolf et al. 2014).

### **Considering multiple stakeholders in healthcare delivery**

Further to exploring the role of Patient's Experience in Value of Care, the purpose of the research study is to obtain a deeper understanding of the differences in value perspectives between healthcare consumer and provider groups. Value in the healthcare context remains an abstract construct influenced by perception that can vary between different stakeholders depending on the role each of them plays in the care event (Porter 2010; Mkanta et al. 2016; Marsh et al. 2014).

Multiple stakeholders are at play in healthcare delivery. Key stakeholders include the consumer or patient and provider or clinician<sup>1</sup> (Damberg et al., 2014, Lee & Cosgrove, 2014). Oftentimes, stakeholders in healthcare delivery have conflicting goals, leading to divergent approaches and taking away from the shared value agenda (Porter 2010; Herald et al. 2012). A deeper understanding of the differences in value perspectives that inform decision-making in the healthcare context is therefore required.

The study, a quantitative review of primary data, aims to gain insight into the value perspectives of consumers and providers in the South African private healthcare context and to examine if these value perspectives differ between the two groups. Both providers and consumers from the South African private sector were included in this study. Consumers refer to all privately paying or medically-insured patients in the South African healthcare context, thus the consumers making use of private healthcare. Providers refer to clinicians (medical doctors) registered to work in private healthcare practice in South Africa, thus actively practicing or having actively practiced clinical medicine in the private healthcare sector.

The study explored the differences between the relative importance of the three factors (Clinical Outcome, Cost of Clinical Event, and Patient's Experience) that make up the Value of Care for both consumers and providers, in general and specifically in terms of medical and surgical procedures. Patient's Experience is compared with Clinical Outcome and Cost of Clinical Event in a series of scenarios aimed at determining the relative importance or weighting attributed to each of the three factors in the healthcare value equation in order to inform a better understanding of the differences in value perspectives prevalent that, in turn, inform decision-making.

---

<sup>1</sup> Consumers or patients and providers or doctors/clinicians will be used interchangeably throughout

## **Multi-factor decision-making in healthcare delivery**

The value-creation pursuit is described as an exercise in the balance of prioritisation and decision-making (Berwick et al. 2008; Marsh et al. 2014; Shekelle 2013; Thokala et al. 2016). It can be argued that, in the decision-making process of healthcare delivery, factors contributing to value are compared and following this, a trade-off happens (Thokala et al. 2016).

In a 2010 study, Ho, Xu, and Dey (2010) concluded that a single criterion approach, such as one only based on cost, is not representative enough of the complexity of the supplier–provider relationship and that the considerations of other factors in the decision-making process are essential. According to this study, the cost-based approach cannot guarantee that the selected supplier is optimal because customer oriented criteria such as quality, delivery and flexibility were not considered (Ho et al. 2010). In the value equation, outcomes (Clinical Outcome) and cost (Cost of Clinical Event) are both considered to be well described factors in the decision-making process (Mkanta et al. 2016; Porter 2010). It has further been noted that other factors, such as Patient’s Experience, contribute to the value delivered to the patient and should also be considered in the healthcare value equation (Mkanta et al. 2016; Doyle et al. 2013).

Multi-factor decision-making is applied by the patient when making an elective healthcare purchasing decision and by the clinician when planning the execution of the care event. The study explores how the perception of Value of Care influences decision-making in healthcare delivery by exploring the differences in relative importance of the three value-contributing factors identified (Clinical Outcome, Cost of Clinical Event, and Patient’s Experience). The purpose of the study is therefore also to develop a modified value equation that could inform the multifactor decision–making process by providing an understanding of the balance of measures at play and how the balance can influence the Value of Care achieved or delivered.



## **Value of Care and stakeholders in the South African healthcare context**

The goal of any healthcare system should be to ensure that every person in the system has access to affordable, quality healthcare (Johnston, & Spurrett 2011). The Global Competitiveness Index (World Economic Forum 2016) rates the South African healthcare system as 126 out of 140, scoring 4.2 out of a possible 7. It can thus be inferred that healthcare goals are not being met for many South Africans (Mayosi et al. 2012).

The inefficiency and poor quality of healthcare provided by the public sector (Honda et al. 2015) has allowed the emergence of a competitive and expensive private sector (Mayosi et al. 2012). South Africa spends 41.8% of its total health expenditure on private, voluntary health insurance (Lorenzoni & Roubal 2016). Still, only 17% of the South African population can afford private insurance and benefits from this disproportionate contribution (Lorenzoni & Roubal 2016). Furthermore, for selected health services, prices have increased above the rate of inflation – on average by 6.5 percentage points per year – between 2011 and 2013 (Lorenzoni & Roubal 2016).

Value creation strategies in health are aimed at addressing efficiency and quality of care (Kanji & Moura e Sá 2003). From the poor rating achieved in terms of the Global Competitiveness Report's health related metric, the need for healthcare reform is a significant priority, calling for accountability, leadership and stewardship as a matter of collective urgency (Coovadia et al. 2009) both in the public and private healthcare sectors of South Africa. Private healthcare services, specifically, are expensive and reforms are required to ensure value creation strategies are implemented successfully, not only to contain cost but also to ensure clinical goals and patient's needs are met. The current dominant fee-for-service funding model provides no incentive or penalty to compete on quality or price. This is perpetuated by the lack of transparency of data, thus rendering the consumer an ignorant and vulnerable price taker (Johnston, & Spurrett, 2011). The responsibility of the private

sector's healthcare providers lies in the delivery of cost effective quality healthcare.

Consumer surplus is created when the value arising from the purchase is greater than, or equal to, the price paid for the product or service (Ma 1994). For this to be achieved, Value of Care needs to be better understood. Armed with an understanding of value perspectives of consumers and providers and specific to the economic context of South Africa, the incentive should be for the supply side to innovate towards achieving a Value of Care delivered to the patient (Johnston & Spurrett, 2011). Apart from the economic agenda, the social accountability imperative motivates innovation (Goyal, Sergi, Studies, & Kapoor, 2014; Ismail, Kleyn, & Ansell, 2012) towards provision of cost effective, value-based care in the interest of closing the healthcare inequality gap by ensuring accessibility to private care for a larger part of the South African population and by providing care that matches the value perspective of the consumer.

## **Research objectives**

Based on the review of the above literature, applied specifically to the context of private healthcare delivery in South Africa, three objectives were identified:

**Objective 1:** To determine whether value perspectives differ between multiple stakeholder groups in the South African private healthcare context, specifically between provider and consumer groups and their respective subgroups. Value perspectives specific to the perception of value of healthcare services delivered were examined.

**Objective 2:** To deduce a modified value equation that depicts the factors which determine Value of Care delivered and to demonstrate the coefficients (relative importance or weightings) for each of these factors in the value equation as applicable to each of the different stakeholder groups, thereby affirming the theoretical utility of the research study.

**Objective 3:** To demonstrate how the balance of factors can be utilised in evidence-based, multifactor decision-making, both by provider and consumer groups, thereby asserting the business utility of the research study.

## **Materials and methods**

### **Study design**

This study examined the difference in value perspectives between multiple stakeholder groups within the private healthcare sector of South Africa. The design was non-experimental, ex-post facto, cross-sectional, comparative study between consumer and provider groups within the private healthcare sector in South Africa (Thomas, 2009, 2013) and followed a post-positivist philosophy (Creswell, 2003, 2009, 2012).

### **Study setting and sample**

The industry in which the study was conducted was the South African healthcare sector, specifically the private sector where payment is made for medical services rendered.

Clinicians are not employed by private healthcare institutions and operate as independent practitioners in these facilities, as dictated by the Health Professions Council of South Africa (HPCSA) (Health Professions Act 56 of 1974, 1974; Health Professions Council of South Africa, 2005, 2015). Patients are either insured by subscribing to and purchasing of medical aid cover or they pay for private medical care by means of cash at point of care. Medical aid cover ranges in benefit structures from all-inclusive to very limited packages, resulting in varied additional out-of-pocket payment implications when care is received.

The study included a total of 1043 participants between the ages of 19 to 88 years ( $M = 44.45$  years,  $SD = 11.76$ ), of which 605 (58.00%) were female. Consumers of private healthcare comprised 662 participants and providers comprised 381 participants. A total of 298 individuals were excluded from the study for various reasons including non-consent, incomplete survey responses, consumers who utilised, and providers who practiced in public healthcare only, and providers only practicing outside of South Africa.

A non-probability sampling technique was used to collect data and included convenience, purposive and snowball sampling strategies (Laher & Botha, 2012; Saunders & Lewis, 2012; Stangor, 2011). The researcher utilised her professional and personal network to collect data from the two sample groups using various social media platforms. The purposive strategy was employed to ensure a high number of clinician participants across a wide spectrum of subspecialties and registration categories with the HPCSA. Included in the sample were doctors working in both administrative and clinical capacities. Snowball sampling was used to leverage the networks available to the researcher. Participants were asked to distribute the survey to other potentially willing individuals both when they received an invitation and following completion of the survey.

### **Study instrument and data collection**

The data was collected through a self-administered online survey, the Value Perspectives

Survey (VPS), developed by the researcher using the survey platform Qualtrics (see Supplementary document for the full VPS). A participant would click on the survey link and be directed to a participation invitation sheet and cover letter followed by a consent section. The cover letter informed the participant that the survey could be completed from the perspective of a patient or doctor and explained that the potential participant did not have to be a patient at present but could think of a time when he or she was one. Should consent not be given, the participant was thanked for his or her time and was unable to continue with the remainder of the survey. Should consent be given, the participant was asked whether he or she was a patient or doctor. Depending on the response, the participant was directed to either the patient or doctor section of the VPS to complete. The VPS included different questions for consumer and provider groups. To ensure a between subjects design, a participant could not complete the survey from both consumer and provider perspectives. This was ensured by the activation of a single access functionality on Qualtrics. Should a participant work in the healthcare industry as a healthcare worker in any category other than that of a doctor, he or she was required to complete the survey from a patient perspective. Therefore, the consumer sample may have included other healthcare practitioners such as nurses, paramedics, pharmacists, physiotherapists, occupational therapists, and dieticians, for example.

The survey consisted of two components: (1) a set of questions related to basic demographic information, and (2) a value perspectives section with scenario questions aimed at examining the participants' value perspectives. The value perspectives section described a general scenario as well as a series of medical and surgical scenarios, where participants were asked to provide a weighting indicative of how important they valued each factor (Clinical Outcomes, Cost of the Clinical Care Event and Patient's Experience) for the specific clinical scenario. One general, three medical and three surgical scenarios, progressing in severity, were described. For every clinical scenario question, the three factors appeared in a randomised sequence, thereby assuring that the same factor did not always appear last in

the sequence of options provided to the participant. For each scenario, a total of 100 points was available that had to be distributed between the three factors according to the relative importance of each in the view of the responding participant. The value of 100 could not be exceeded as the VPS was designed to allow only values between 0 and 100 to be selected for each of the factors, provided that the three scores totalled 100. Similarly, the total available points had to be used and the survey would not allow the participant to continue to a next question if the accumulated values for the three factors in a specific scenario equated to a total of less than 100.

The language used to describe the scenarios for the consumer group contained commonly used and easily understood layman explanations. For the provider group, commonly used and easily understood medical jargon was used to describe the scenarios. Scenarios were selected to include conditions that could be experienced by patients and encountered by clinicians across different age groups and genders.

Upon ethical approval, the survey was piloted on 15 participants using Google Forms, and following feedback, the survey was amended and transferred onto Qualtrics where it was piloted on another sample of 30 participants. Minor design-related adjustments were made and the survey was distributed for data collection for the main study.

### **Data analysis**

Descriptive statistics were used to characterise the study sample and tests of mean differences (e.g., independent samples  $t$  tests and Analyses of Variance (ANOVAs)) were used to assess whether differences exist between consumer and provider groups in terms of value perspectives, as well as to assess differences in value perspectives as the severity of surgical and medical scenarios increase. Prior to statistical analysis, parametric assumptions were evaluated. These included the evaluation of random sampling, independence of observations, the Central Limit Theorem, skewness and kurtosis coefficients, Kolmogorov-

Smirnov Test, Shapiro-Wilk Test, and Levene's Test of Equality of Variances (Pallant, 2011). For the most part, the data was found to be normally distributed and parametric techniques were employed. Further, to examine the association between the variables of interest, univariate analyses using Pearson product-moment correlations was conducted. Data were analysed using IBM SPSS version 24 and alpha was set at 5% (Pallant 2011; Field 2013; Wegner 2016).

### **Ethical considerations**

Ethical clearance was obtained from the GIBS Research Ethics Committee (GIBS REC) and the University of Pretoria Human Research Ethics Committee (UP HREC) before any research was conducted. Individuals wanting to participate needed to do so voluntarily. Participation required indicating consent on the electronic survey, which stipulated the voluntary nature of the study, that there were no benefits or harm involved and that termination of participation would be allowed at any time without negative consequences. Furthermore, the results of the survey were kept private and confidentiality was upheld throughout. Anonymity was guaranteed as identifying information was not requested. Data was analysed and reported on in an aggregated manner.

## Results

### Study variables

This study reports results on demographic information and two main variables: consumers or providers of private healthcare (independent variable) and value perspectives (Clinical Outcomes, Cost, and Patient's Experience, dependent variable). The independent variable is discrete and nominal and the dependent variable is continuous and ratio.

### Demographic characteristics

Demographic characteristics of the sample groups are presented in Tables 1 and 2. Of the consumer group ( $n = 662$ ), 469 (70.8%) participants were women. Five hundred and eighty-five (88.4%) consumers exclusively use private healthcare services in South Africa, while 77 (11.6%) reported to use a combination of both public and private services. Most consumers ( $n = 625$ , 94.4%) claimed that they were members of a medical aid, where 383 (57.9%) and 226 (34.1%) reported to be fully and partly financially responsible for this service, respectively. Five hundred and thirty-six (81.0%) consumers had been covered by a medical aid for over 10 years. Consumers contributed an average of R4722.06 ( $SD = R2791.60$ ) per month for medical aid services. In total 381 providers took part in this study, of which 136 (35.7%) were women and one (0.3%) preferred not to indicate their gender. Most providers practiced in South Africa ( $n = 359$ , 94.2%), while 22 (5.8%) practiced in both South Africa and abroad. Two hundred and forty-six (64.6%) providers were specialists and 135 (35.4%) were general practitioners. A large majority worked in clinical medicine ( $n = 339$ , 89.0%) and the remainder were involved in medical administration ( $n = 42$ , 11.0%). Of those working in clinical medicine, 25.4% focused on medical, 49.0% on surgical, and 3.5% on diagnostic practices.



**Table 1.** Demographic characteristics of consumer group

Demographic variable	Consumers ( <i>n</i> = 662) <i>n</i> (%)
<b>Gender</b>	
Female	469 (70.8)
Male	193 (29.2)
Prefer not to say	0 (0.0)
<b>Level of education</b>	
Less than Grade 12	5 (0.8)
Grade 12	51 (7.7)
Diploma	151 (22.8)
Bachelor's Degree	147 (22.2)
Postgraduate Honour's	130 (19.7)
Postgraduate Master's	135 (20.4)
Postgraduate Doctoral	18 (2.7)
Other	24 (3.6)
<b>Gross monthly income (ZAR)</b>	
Less than 10,000	36 (5.5)
10,000-19,999	69 (10.5)
20,000-29,999	87 (13.3)
30,000-39,999	68 (10.3)
40,000-49,999	56 (8.5)
50,000-59,999	54 (8.2)
60,000-69,999	49 (7.5)
More than 69,999	184 (28.0)
Prefer not to say	53 (8.1)
<b>Healthcare sector used</b>	
Private	585 (88.4)
Combination of private and public	77 (11.6)
<b>Member of medical aid</b>	
Yes	625 (94.4)
No	37 (5.6)
<b>Years as a member of medical aid</b>	
Less than 1 year	3 (0.5)
1-5 years	30 (4.8)
6-10 years	56 (9.0)
Longer than 10 years	536 (85.8)
<b>Financially responsible for medical aid or cash payment of treatment</b>	
Yes	383 (57.9)
Partly	226 (34.1)
No	53 (8.0)

**Table 2.** Demographic characteristics of provider group

Demographic variable	Providers ( <i>n</i> = 381) <i>n</i> (%)
<b>Gender</b>	
Female	136 (35.7)
Male	244 (64.0)
Prefer not to say	1 (0.3)
<b>Countries of practice</b>	
South Africa only	359 (94.2)
South Africa and other(s)	22 (5.8)
<b>Sector of practice</b>	
Private	283 (74.3)
Public	20 (5.2)
Combination of private and public	78 (20.5)
<b>Clinical medicine or administration</b>	
Clinical medicine	339 (89.0)
Management or administration	42 (11.0)
<b>Type of provider</b>	
General practitioner	135 (35.4)
Specialist	246 (64.6)
<b>Clinical field of specialisation</b>	
General practitioner	135 (35.4)
Specialist	246 (64.6)
Medical	86 (32.6)
Surgical	166 (62.9)
Diagnostic	12 (4.5)

### Value perspectives

Figure 1 provides the mean proportions of value attributed by consumers and providers for general, surgical, and medical scenarios. It appears that, across the general, surgical, and medical categories, Clinical Outcomes is regarded with the highest value to both consumer and provider groups. This is followed by Patient's Experience as second highest value, and Cost of Clinical Event as being valued the least.

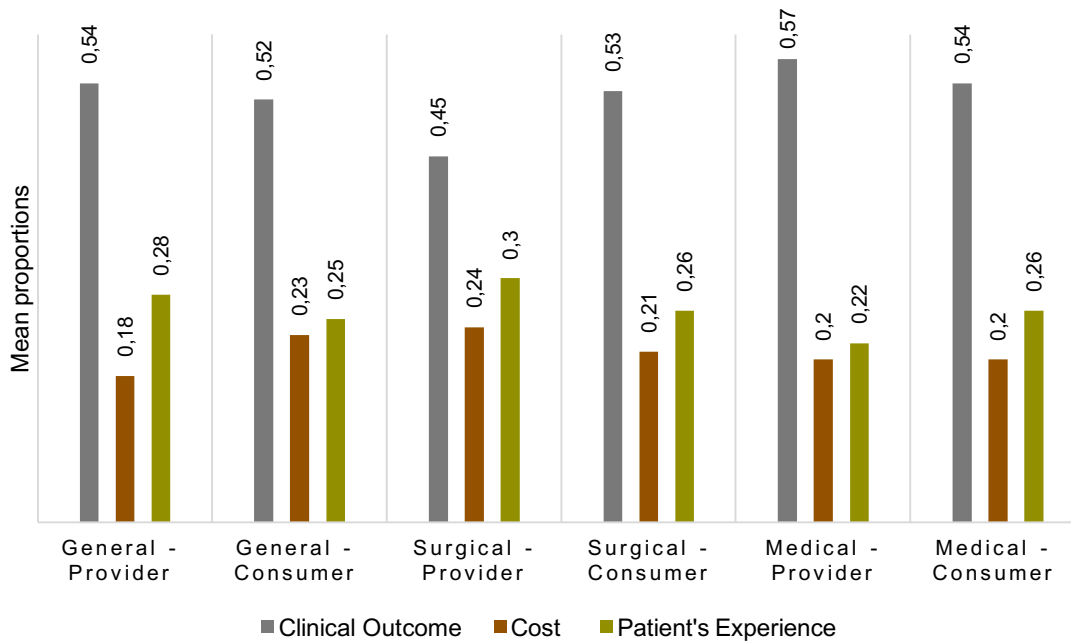


Figure 1. Consumer and provider mean value perspectives expressed as proportions across general, surgical and medical scenarios

From these results, Patient's Experience is considered an important factor and does provide an additional understanding to the relative importance in the Value of Care delivered in the private healthcare sector of South Africa. These mean proportions of value can be used as coefficients and weightings of importance in the CVI equation for consumer and provider groups across general, surgical, and medical scenarios, where the healthcare value equation as modified by these weightings, can be expressed as:

$$CVI = \frac{(outcome\ coefficient)(outcome)}{(cost\ coefficient)(cost)} \times (patient\ experience\ coefficient)(patient\ experience)$$

### Relationships between variables of interest

Pearson correlations were run between the value perspectives of both consumer and provider groups across general, medical and surgical scenarios. The correlation matrix is shown in Table 3. Results were found to be similar across consumer and provider groups,

with only marginal differences. For general value perspectives, General Clinical Outcomes correlated positively with Surgical and Medical Clinical Outcomes, and correlated negatively with Cost (General, Surgical, and Medical) and Patient's Experience (General, Surgical, and Medical) across both consumer and provider groups ( $p < 0.05$ ). As expected, this pattern emerged similarly for the remainder of correlations, where positive relationships were found where the same value perspectives were correlated (i.e., General Cost correlated with Surgical Cost and correlated with Medical Cost for both consumer and provider groups) and negative, or no relationships were found when differing value perspectives were correlated (i.e., General Cost correlated with Surgical Patient's Experience, and General Cost correlated with Medical Clinical Outcomes).

An investigation of the coefficients of determination (Nagelkerke, 1991) show that, for the consumer group, Medical Cost and Medical Patient's Experience share the smallest variance, of 0.01%, while the highest shared variance is between Surgical Clinical Outcomes and Medical Clinical Outcomes, of 52.7%. For the provider group, the shared variance ranges from 0.01% for General Cost and Surgical Patient's Experience, to 63.5% for Medical Clinical Outcomes to Medical Cost. Across the variances, it is evident that general value perspectives are related.

These findings indicate consistency in responses and add to the construct validity and reliability of the survey (Saunders & Lewis 2012). The correlation matrix provides proof of the reliability of the data as well as the validity as value perspectives were similarly and consistently responded to across the board: in general perspectives as well as where context was provided, as in the three surgical and three medical scenarios.

**Table 3.** Pearson correlations for value perspectives of consumers and providers across general, medical and surgical scenarios

	1	2	3	4	5	6	7	8	9
1. General Clinical Outcome	-	-0.600**	-0.762**	0.533**	-0.308**	-0.389**	0.499**	-0.328**	-0.429**
2. General Cost	<b>-0.674**</b>	-	-0.061	-0.430**	0.507**	0.012	-0.403**	0.444**	0.132*
3. General Patient's Experience	<b>-0.692**</b>	<b>-0.066</b>	-	-0.321**	-0.029	0.484**	-0.300**	0.048	0.435**
4. Surgical Clinical Outcome	<b>0.570**</b>	<b>-0.441**</b>	<b>-0.364**</b>	-	-0.711**	-0.573**	0.575**	-0.525**	-0.319**
5. Surgical Cost	<b>-0.432**</b>	<b>0.589**</b>	<b>0.044</b>	<b>-0.688**</b>	-	-0.169**	-0.450**	0.633**	-0.016
6. Surgical Patient's Experience	<b>-0.348**</b>	<b>0.013</b>	<b>0.456**</b>	<b>-0.682**</b>	<b>-0.062</b>	-	-0.281**	-0.003	0.466**
7. Medical Clinical Outcome	<b>0.505**</b>	<b>-0.429**</b>	<b>-0.289**</b>	<b>0.726**</b>	<b>-0.551**</b>	<b>-0.443**</b>	-	-0.797**	-0.693**
8. Medical Cost	<b>-0.373**</b>	<b>0.522**</b>	<b>0.027</b>	<b>-0.560**</b>	<b>0.695**</b>	<b>0.070</b>	<b>-0.724**</b>	-	0.117*
9. Medical Patient's Experience	<b>-0.344**</b>	<b>0.079</b>	<b>0.391**</b>	<b>-0.470**</b>	<b>0.076</b>	<b>0.570**</b>	<b>-0.697**</b>	<b>0.010</b>	-

## **Provider and consumer differences**

Independent samples *t* tests were conducted to assess whether provider and consumer groups weighted value perspectives differently across general, surgical, and medical scenarios (see Table 4). It was found that consumers and providers valued Clinical Outcomes, Cost of Clinical Event, and Patient's Experience differently across General Cost and Patient's Experience, all surgical scenarios, and medical scenarios for Clinical Outcomes and Patient's Experience. No statistically significant differences were found for how consumers and providers valued General Clinical Outcomes and Medical Cost. Consumers valued General Cost, Surgical Clinical Outcomes, and Medical Patient's Experience more highly than providers, while providers valued general Patient's Experience, Surgical Cost, Surgical Patient's Experience, and Medical Clinical Outcomes higher than consumers. Cohen's *d* effect sizes were calculated to determine practical differences in addition to statistical differences (Cohen, 1988), and values ranged from weak to moderate for statistical differences, and were very weak for non-statistical results.

In general, Cost of Clinical Event was valued higher by consumers and Patient's Experience by providers. When context was provided (either by surgical or by medical scenarios) the results changed. For surgical scenarios, Clinical Outcome were rated higher by the consumer, whilst Cost and Patient's Experience were both rated higher by the provider. For the medical scenarios, Clinical Outcomes were rated higher by the providers, with Patient's Experience was rated higher by the consumer.

**Table 4.** Independent samples *t* test for general, surgical, and medical scenarios by consumer and provider groups

	Consumers		Providers		Independent samples <i>t</i> test		
	Mean (SD)	SE	Mean (SD)	SE	<i>t</i> (df)	<i>p</i>	<i>d</i>
General Clinical Outcome	52.21 (21.37)	0.83	54.35 (16.71)	0.86	1.794 (948.86)	0.073	0.11
General Cost	22.80 (15.46)	0.60	17.59 (10.84)	0.56	-6.367 (1001.31)	0.000***	0.39
General Patient's Experience	24.99 (15.82)	0.62	28.06 (13.40)	0.69	3.331 (900.95)	0.001***	0.21
Surgical Clinical Outcome	52.70 (18.62)	0.78	45.44 (15.23)	0.83	-6.366 (810.91)	0.000***	0.43
Surgical Cost	20.93 (13.65)	0.57	24.16 (12.67)	0.69	3.523 (903)	0.000***	0.25
Surgical Patient's Experience	26.37 (13.54)	0.57	30.40 (10.87)	0.59	4.915 (820.17)	0.000***	0.33
Medical Clinical Outcome	54.41 (18.77)	0.78	57.18 (17.68)	0.97	2.189 (903)	0.029*	0.15
Medical Cost	19.98 (13.46)	0.56	20.09 (12.84)	0.70	0.126 (903)	0.900	0.01
Medical Patient's Experience	25.62 (12.95)	0.54	22.73 (10.76)	0.59	-3.606 (803.46)	0.000***	0.24

### Comparison of surgical and medical scenarios with progressing severity

One way between-groups ANOVAs were conducted to determine whether differences exist in value perspectives across severity of surgical and medical scenarios for both consumer (see Table 5) and provider (see Table 6) groups.

For consumers, a clear pattern emerged across the data, where Surgical and Medical Clinical Outcomes are given statistically significantly more value as severity increases. Similarly, the value assigned to Surgical and Medical Cost and Patient's Experience statistically significantly decreases with the increase in severity of a scenario. Despite reaching statistical significance, the actual differences in mean scores between the groups

were small to moderate. The effect size, calculated using eta squared (Cohen, 1988), ranged from 0.01 (Surgical Patient's Experience) to 0.09 (Medical Clinical Outcomes). Post-hoc comparisons using the Tukey HSD test indicated that the mean scores across all scenario comparisons (Scenario 1 to Scenario 2, Scenario 1 to Scenario 3, and Scenario 2 to Scenario 3) were statistically different from one another.

In line with the consumer group, providers gave Medical Clinical Outcomes statistically significantly more value as the severity of the scenario increased, and less value to medical Cost of Clinical Event and medical Patient's Experience. An interesting phenomenon is demonstrated in the array of surgical value perspectives in terms of Cost of Clinical Event and Clinical Outcome where the highest value across scenarios was given to Surgical Cost in the mild severity scenario but the lowest value was given in the moderate severity scenario and not the most severe scenario as was the case for the medical array of scenarios. Similarly, the highest value across scenarios for surgical Clinical Outcome was in the moderate severity scenario with the second highest in the severe scenario, which was again different from the result obtained in the medical array of scenarios. Patient's Experience exhibits the same pattern for the medical scenarios where value attributed decreases with an increase in severity. Actual differences in mean scores between the groups were small to moderate despite reaching statistical significance, the effect size ranging from 0.02 to 0.11 (Cohen 1988).



**Table 5.** Comparisons of surgical and medical severity value perspectives for consumers of private healthcare

	Mild Severity			Moderate Severity			Severe severity			ANOVA		
	Mean (SD)	SE	CI	Mean (SD)	SE	CI	Mean (SD)	SE	CI	<i>F</i> (2,1707)	<i>p</i>	$\eta^2$
Surgical Clinical Outcome	46.00 (21.57)	0.90	44.23 – 47.78	52.10 (21.54)	0.90	50.33 – 53.87	59.99 (27.22)	1.14	57.75 – 62.23	50.374	0.000*	0.06
Surgical Cost	25.39 (18.11)	0.76	23.90 – 26.88	21.14 (16.31)	0.68	19.80 – 22.49	16.27 (17.57)	0.74	14.82 – 17.71	39.494	0.000*	0.04
Surgical Patient's Experience	28.61 (17.13)	0.72	27.20 – 30.01	26.75 (16.23)	0.68	25.42 – 28.09	23.74 (20.49)	0.86	22.06 – 25.43	10.544	0.000*	0.01
Medical Clinical Outcome	47.25 (21.17)	0.89	45.51 – 48.99	51.64 (21.17)	0.89	49.90 – 53.38	64.34 (26.75)	1.12	62.14 – 66.54	83.516	0.000*	0.09
Medical Cost	23.62 (18.28)	0.77	22.11 – 25.12	20.30 (15.85)	0.66	19.00 – 21.61	16.01 (18.50)	0.77	14.49 – 17.53	26.814	0.000*	0.03
Medical Patient's Experience	29.13 (17.34)	0.73	27.71 – 30.56	28.06 (17.07)	0.72	26.66 – 29.46	19.65 (18.19)	0.76	18.16 – 21.15	49.936	0.000*	0.06

Table 6. Comparisons of surgical and medical severity value perspectives for providers of private healthcare

	Mild Severity			Moderate Severity			Severe severity			ANOVA		
	Mean (SD)	SE	CI	Mean (SD)	SE	CI	Mean (SD)	SE	CI	<i>F</i> (2,1002)	<i>p</i>	$\eta^2$
Surgical Clinical Outcome	39.03 (19.71)	1.08	36.91 – 41.15	51.84 (17.90)	0.98	49.92 – 53.77	45.44 (25.66)	1.40	42.68 – 48.19	30.171	0.000*	0.06
Surgical Cost	28.24 (19.63)	1.07	26.13 – 30.35	20.37 (13.99)	0.76	18.87 – 21.87	23.87 (18.34)	1.00	21.89 – 25.84	17.025	0.000*	0.03
Surgical Patient's Experience	32.73 (16.52)	0.90	30.95 – 34.50	27.79 (13.70)	0.75	26.31 – 29.26	30.70 (18.55)	1.01	28.71 – 32.69	7.713	0.000*	0.02
Medical Clinical Outcome	50.55 (20.49)	1.12	48.35 – 52.75	54.14 (19.89)	1.09	52.00 – 56.28	66.84 (22.37)	1.22	64.43 – 69.24	55.916	0.000*	0.10
Medical Cost	22.61 (15.88)	0.87	20.90 – 24.31	20.38 (15.23)	0.83	18.74 – 22.01	17.29 (16.66)	0.91	15.50 – 19.08	9.395	0.000*	0.02
Medical Patient's Experience	26.84 (15.34)	0.84	25.19 – 28.49	25.48 (13.84)	0.76	24.00 – 26.97	15.87 (13.00)	0.71	14.47 – 17.27	60.347	0.000*	0.11

## **Discussion**

### **Demonstrating differences in value perspectives**

The study aimed to investigate the difference in relative importance of two enabling and influencing determinants of the CVI, namely Clinical Outcome and Cost of Clinical Event (Mkanta et al., 2016; Porter, 2010) between consumers and providers in the South African private healthcare context. It further aimed to investigate the importance of a third factor, Patient's Experience, which is theorised to contribute to the value perception but, until now, has not been included in the value equation (Berwick et al., 2008; Damberg et al., 2014; Porter & Lee, 2013). As for the Clinical Outcome and Cost of Clinical Event perspectives, differences between consumers and providers in the South African private healthcare context were investigated.

Clinical Outcome is described as a key determinant of Value of Care and included as a factor in the original mathematical depiction by Porter (2010). The study affirmed the importance of Clinical Outcomes from a provider perspective, as across the general, surgical, and medical scenarios, Clinical Outcome was valued the highest by providers. From a provider perspective, clinical decision-making is affected by how the clinician contemplates the elements that constitute the Value of Care delivered (Fifer 2015; Wimmer et al. 2016), whereby factors influencing clinical decision-making processes are mostly considered by Clinical Outcomes. From a consumer perspective, the same trend was noted, affirming that Clinical Outcomes is rightfully placed in the healthcare value equation.

For both the consumer and provider groups, Clinical Outcome is followed by Patient's Experience as being valued second highest, and Cost of Clinical Event as being given the least value. The fact that Cost was found to be valued the least both by consumers and providers supports the argument that value creation strategies in healthcare require more than merely cost containment (Garber et al. 2007). However, Cost of Clinical Event seems to rightfully deem its place in the healthcare value equation as demonstrated by the proportions

attributed across general, surgical and medical scenarios.

It is clear from the results provided in Figure 1 and Table 4 that Patient's Experience provides additional insight into the relative importance of factors contributing to Value of Care delivered in the private healthcare sector of South Africa and should be understood and accommodated in the pursuit of shared value (Charmel & Frampton 2008). This result supports the notion that Patient's Experience is an important determinant of Value of Care and makes an argument for adding this factor to the healthcare value equation described by Porter (2010):

$$CVI = \frac{\text{outcome}}{\text{cost}} \times \text{patient experience}$$

Multiple stakeholders are at play in healthcare delivery, including the consumer and provider (Damberg et al., 2014, Lee & Cosgrove, 2014). Oftentimes, stakeholders in healthcare delivery have conflicting goals (Herald et al. 2012; Thokala et al. 2016) and therefore it can be argued that, in practice, the relative importance of cost (Cost of Clinical Event) versus the degree of achieving the targeted outcome measure (Clinical Outcome) and meeting subjective expectation (Patient's Experience) will differ between stakeholder groups. The results of independent samples *t* tests conducted to assess whether provider and consumer groups weighted value perspectives differently across general, surgical, and medical scenarios found that consumers and providers valued Clinical Outcomes, Cost of Clinical Event, and Patient's Experience differently across general Cost and Patient's Experience, all surgical scenarios, and medical scenarios for Clinical Outcomes and Patient's Experience. Consumers valued general Cost, surgical Clinical Outcomes, and medical Patient's Experience more highly than providers, while providers valued general Patient's Experience, surgical Cost, surgical Patient's Experience, and medical Clinical Outcomes higher than consumers.

In general, Cost of Clinical Event was valued higher by consumers and Patient's Experience

by providers. This affirms the difference in value perspectives between consumers and providers and the important value contribution of Patient's Experience. When context was provided (either by surgical or by medical scenarios) the results changed. For surgical scenarios, Clinical Outcome were rated higher by the consumer, whilst Cost and Patient's Experience were both rated higher by the provider. For the medical scenarios, Clinical Outcomes were rated higher by the providers, and Patient's Experience was rated higher by the consumer. The comparison of surgical and medical scenarios with progressing severity indicated that, for consumers, Surgical and Medical Clinical Outcomes are progressively and significantly more valued as severity increases. Similarly, the value assigned to surgical and medical Cost and Patient's Experience statistically significantly decreases with the increase in severity of a scenario. The provider group showed the same results in term of progression of severity for medical scenarios but differed in surgical scenarios as the highest value to Clinical Outcome and lowest to Cost of Clinical Event was found in the moderate severity category. This again demonstrates that difference in value perspectives exist between consumers and providers and indicates that progression of severity is a determinant in these differences. Exploring this phenomenon would require further research with possible providing more scenarios in each subset or alternatively a qualitative approach.

The findings answer two critical question posed by the researcher, namely whether differences, if demonstrated, can be reliably predicted and if factors influencing these differences can be determined (Damberg et al., 2014; Porter & Lee, 2013; Porter, 2010). Further to this, the proportions exhibited in Figure 1 and outcomes of tests of differences per Table 4 provide a starting point for the coefficient or weightings calculations but further refinement is required.

### **Theoretical utility of the study**

As per Research Objective 2, a further aim of the study was to develop a modified value equation that could inform the multifactor decision-making process by providing an

understanding of the balance of measures at play and how the balance can influence the Value of Care achieved or delivered. The mean proportions of value can be used as coefficients and weightings of importance in the CVI equation for consumer and provider groups across general, surgical, and medical scenarios, where the healthcare value equation as modified by these weightings, can be expressed as:

CVI

$$= \frac{(\text{outcome coefficient})(\text{outcome})}{(\text{cost coefficient})(\text{cost})} \times (\text{patient experience coefficient})(\text{patient experience})$$

When applied to actual Clinical Outcome, Cost of Clinical Event and Patient's Experience data, the weightings, expressed as coefficients, will influence the results of the equation and subsequently determine the Value of Care delivered for a specific care event.

### **Business utility of the study**

The utility from a practical business perspective was the establishing of coefficients applicable to each of the factors (Clinical Outcome, Cost of Clinical Event and Patient's Experience) that could be used to quantify the value of an episode of care delivered. These coefficients would be determined by the weighting or relative importance of each of the factors in relation to the others in the CVI.

The business utility furthermore lies in the understanding of how these factors influence choice and behaviour and how they can be predicted and consciously adjusted. Healthcare managers, policymakers and researchers will benefit from understanding the difference in value perspectives and the influence on decision-making (Thokala et al. 2016; Marsh et al. 2014). The index of determined coefficients can be used retrospectively for evaluation or prospectively for planning, and it is ultimately aimed at providing all stakeholders with the opportunity to make informed choices or informed adjustments. For example, the clinician can

decide on the intervention that will result in the highest Value of Care for the patient if he or she understands the factors that determine value for the specific patient as well as the relative weightings of the factors in the equation. The patient, as another example, can make an informed purchasing decision based on the weightings of the factors applicable to his or her population or him or her specifically. Hospital administrators and funders can compare clinicians based on the Value of Care provided, and funders can use the index to allocate value-based care networks or determine value-based reimbursement or penalty strategies.

Value creation and enhancement are recognised as fundamental goals of healthcare systems and, when embraced as a collective strategy, can serve to better align the multiple stakeholders with divergent and even competing goals (Marsh et al. 2014; Thokala et al. 2016). The business utility of the research study ultimately lies in understanding the requirements for the effective achieving of value-based care objectives, including cost control, quality improvement and better outcomes of care (Mkanta et al. 2016; Lee 2010; Porter 2009).

## **Conclusion**

The improvement of a system, such as healthcare, depends on the identification and pursuit of a shared goal. In healthcare, Value of Care should be the single overarching goal as it aims to achieve what matters most to the patient, thereby uniting all stakeholders involved in the delivery of care (Porter 2010; Herald et al. 2012; Weeks & Weinstein 2014; Dove et al. 2009). The shared value agenda – specific to healthcare – is highly relevant in the South African context, which Porter and Kramer (2011) argue requires the understanding of all stakeholders involved to be fully impactful.

Value in the healthcare context remains an abstract construct influenced by perception that can vary between different stakeholders depending on the role each play in the care event (Mkanta et al., 2016; Porter, 2010). Understanding the factors that constitute Value of Care

and the differences in relative importance of these factors between consumers and providers can inform value creation strategies in the South African private healthcare context.



## References

- Berwick, D.M., Nolan, T.W. & Whittington, J., 2008. The Triple Aim: Care, health, and cost. *Health Affairs*, 27(3), pp.759–769. Available at:  
<http://content.healthaffairs.org/cgi/doi/10.1377/hlthaff.27.3.759>.
- Buntin, M.B. et al., 2006. Consumer-directed health care: Early evidence about effects on cost and quality. *Health Affairs*, 25(6), pp.w516–w530. Available at:  
<http://content.healthaffairs.org/cgi/doi/10.1377/hlthaff.25.w516>.
- Campbell, S., Roland, M. & Buetow, S., 2000. Defining quality of care. *Social Science & Medicine*, 51(11), pp.1611–1625. Available at:  
<http://linkinghub.elsevier.com/retrieve/pii/S0277953600000575>.
- Charmel, P. & Frampton, S., 2008. Building the business case for patient-centered care. *Healthcare Financial Management*, 62(3), pp.80–85.
- Coovadia, H. et al., 2009. The health and health system of South Africa: Historical roots of current public health challenges. *The Lancet*, 374(9692), pp.817–834. Available at:  
[http://dx.doi.org/10.1016/S0140-6736\(09\)60951-X](http://dx.doi.org/10.1016/S0140-6736(09)60951-X).
- Damberg, C.L. et al., 2014. Measuring Success in Health Care Value-Based Purchasing Programs: Findings from an Environmental Scan, Literature Review, and Expert Panel Discussions. *Rand health quarterly*, 4(3), p.9. Available at:  
<http://www.ncbi.nlm.nih.gov/pubmed/28083347>.
- Dove, J.T., Weaver, W.D. & Lewin, J., 2009. Professional accountability in health system reform. *Journal of the American College of Cardiology*, 54(6), pp.499–501. Available at:  
<http://linkinghub.elsevier.com/retrieve/pii/S0735109709016350>.
- 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), p.e001570. Available at: <http://bmjopen.bmj.com/lookup/doi/10.1136/bmjopen-2012-001570>.
- Field, A., 2013. *Discovering statistics using IBM SPSS Statistics Fourth.*, London, England: SAGE Publications, Inc.
- Fifer, J., 2015. Value-based payment: Supporting an intertwined clinical-business model.

- Frontiers of Health Services Management*, 32(2), pp.39–47. Available at: [http://0-search.ebscohost.com/olinkserver.franklin.edu/login.aspx?direct=true&db=buh&AN=111457484&site=eds-live](http://0-search.ebscohost.com/olinkserver/franklin.edu/login.aspx?direct=true&db=buh&AN=111457484&site=eds-live).
- Garber, A., Goldman, D.P. & Jena, A.B., 2007. The Promise Of Health Care Cost Containment. *Health Affairs*, 26(6), pp.1545–1547. Available at: <http://content.healthaffairs.org/cgi/doi/10.1377/hlthaff.26.6.1545>.
- Goyal, S., Sergi, B.S. & Kapoor, A., 2014. Understanding the key characteristics of an embedded business model for the base of the pyramid markets. *Economics and Sociology*, 7(4), pp.26–40.
- Herald, L.R. et al., 2012. Barriers and strategies to align stakeholders in healthcare alliances. *The American journal of managed care*, 18(6 Suppl), pp.s148-55. Available at: <http://www.ncbi.nlm.nih.gov/pubmed/23286710>.
- Ho, W., Xu, X. & Dey, P.K., 2010. Multi-criteria decision making approaches for supplier evaluation and selection: A literature review. *European Journal of Operational Research*, 202(1), pp.16–24. Available at: <http://dx.doi.org/10.1016/j.ejor.2009.05.009>.
- Honda, A. et al., 2015. Improving the public health sector in South Africa: Eliciting public preferences using a discrete choice experiment. *Health Policy and Planning*, 30(5), pp.600–611.
- Ismail-Savile, T., 2017. Innovating business at the base.
- Ismail, T., Kleyn, N. & Ansell, G., 2012. *New Markets, New Mindsets* 1st ed., Auckland Park, Johannesburg: Stonebridge.
- Johnston, S., & Spurrett, D., 2011. *Reforming Healthcare in South Africa*,
- Kanji, G. & Moura e Sá, P., 2003. Sustaining healthcare excellence through performance measurement. *Total Quality Management & Business Excellence*, 14(3), pp.269–289. Available at: <http://www.tandfonline.com/doi/full/10.1080/1478336032000046607> [Accessed November 3, 2017].
- Lee, T.H., 2010. Putting the framework to work.
- Lorenzoni, L. & Roubal, T., 2016. *International Comparison of South African Private Hospital*

*Price Levels,*

- Ma, C.A., 1994. Health care payment systems: Cost and quality Incentives. *Journal of Economics*, 3(1), pp.93–112. Available at: <http://doi.wiley.com/10.1111/j.1430-9134.1994.00093.x> [Accessed August 22, 2017].
- Marsh, K. et al., 2014. Assessing the value of healthcare interventions using multi-criteria decision analysis: A review of the literature. *PharmacoEconomics*, 32(4), pp.345–365. Available at: <http://www.nejm.org/doi/abs/10.1056/NEJMp1013111> [Accessed November 3, 2017].
- Mayosi, B.M. et al., 2012. Health in South Africa: changes and challenges since 2009. *The Lancet*, 380(9858), pp.2029–2043. Available at: [www.thelancet.com](http://www.thelancet.com).
- Mkanta, W.N. et al., 2016. Theoretical and methodological issues in research related to value-based approaches in healthcare. *Journal of Healthcare Management*, 61:60(6), pp.402–420.
- Pallant, J., 2011. *SPSS survival manual: A step by step guide to data analysis using SPSS* Fourth., Australia: Allen and Unwin.
- Porter, Michael E.; Lee, T.L., 2013a. The strategy that will fix health care. *Harvard Business Review*, pp.1–39.
- Porter, Michael E.; Lee, T.L., 2013b. The Strategy That Will Fix Health Care - Harvard Business Review. *Harvard Business Review*, pp.1–39.
- Porter, M.E., 2009. A strategy for health care reform - towards a value-based system. *New England Journal of Medicine*, 361(2).
- Porter, M.E., 2010. What is value in health care? *New England Journal of Medicine*, 363(1), pp.2477–2481. Available at: <http://www.nejm.org/doi/abs/10.1056/NEJMp1002530>.
- Porter, M.E., Pabo, E.A. & Lee, T.H., 2013. Redesigning Primary Care: A strategic vision to improve value by organizing around patients' needs. *Health Affairs*, 32(3), pp.516–525. Available at: <http://content.healthaffairs.org/cgi/doi/10.1377/hlthaff.2012.0961>.
- Rivard, P.E. et al., 2008. Using patient safety indicators to estimate the impact of potential adverse events on outcomes. *Medical Care Research and Review*, 65(1), pp.67–87.

- Available at: <http://mcr.sagepub.com/cgi/doi/10.1177/1077558707309611> [Accessed May 7, 2017].
- Saunders, M. & Lewis, P., 2012. *Doing research in business & management*, Edinburgh Gate: Pearson.
- Shekelle, P.G., 2013. Quality indicators and performance measures: methods for development need more standardization. *Journal of Clinical Epidemiology*, 66(12), pp.1338–1339. Available at: <http://linkinghub.elsevier.com/retrieve/pii/S0895435613002552>.
- Slawomirski, L., Auraaen, A. & Klazinga, N., 2017. *The economics of patient safety*, Available at: <http://www.ncbi.nlm.nih.gov/pubmed/11796988>.
- Thokala, P. et al., 2016. Multiple criteria decision analysis for health care decision making - An introduction: Report 1 of the ISPOR MCDA Emerging Good Practices Task Force. *Value in Health*, 19(1), pp.1–13. Available at: <http://dx.doi.org/10.1016/j.jval.2015.12.003>.
- Weeks, W.B. & Weinstein, J.N., 2014. Value creation strategies for health care. *Health Care Financial Management*, (January), pp.112–114.
- Wegner, T., 2016. *Applied business statistics* Fourth., Cape Town: Juta & Company Ltd.
- Wimmer, H., Yoon, V.Y. & Sugumaran, V., 2016. A multi-agent system to support evidence based medicine and clinical decision making via data sharing and data privacy. *Decision Support Systems*, 88, pp.51–66. Available at: <http://dx.doi.org/10.1016/j.dss.2016.05.008>.
- Wolf, J.A. et al., 2014. Defining Patient Experience. *Patient Experience Journal*, 1(1). Available at: <http://pxjournal.org/journal> [Accessed October 29, 2017].
- World Economic Forum, 2016. *Global Competitiveness Report*, Geneva. Available at: <http://reports.weforum.org/global-competitiveness-report-2015-2016/%0D>.

# **Gordon Institute of Business Science**

University of Pretoria

## **Factors that influence decision-making in healthcare delivery: Examining the difference in value perspectives between multiple stakeholder groups**

Anchen Laubscher

GIBS Student number: 16393318

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.

6 November 2017

## Abstract

Value of Care can be expressed in an equation, whereby the numerator, outcomes, represents the Clinical Outcome of a care episode whilst the denominator, cost, refers to total Cost of the Clinical Event. Patient's Experience is acknowledged as additional contributor to Value of Care, but its impact remains understudied. Multiple stakeholders are at play in healthcare delivery, including the consumer (patient) and provider (doctor). Oftentimes, these stakeholders have conflicting goals. A deeper understanding of the differences in value perspectives of key stakeholders in healthcare delivery is therefore required. This quantitative study explored differences in relative importance of three factors (Clinical Outcome, Cost of Clinical Event and Patient's Experience), identified as contributors to Value of Care, to glean insight into value perspectives of consumers ( $n_{\text{consumer}} = 662$ ) and providers ( $n_{\text{provider}} = 381$ ) in the South African private healthcare context. The study concluded that Patient's Experience should be added as factor in the healthcare value equation. Further, differences were found in value perspectives between consumers and providers as demonstrated by the statistically significant differences in weightings of the factors in the value equation. The understanding of how value perspectives differ could inform value creation strategies in the South African private healthcare context.

**Keywords:** Value of Care; Clinical Outcome; Cost of Clinical Event; Patient's Experience; South African private healthcare sector

## 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 (MBA) at the Gordon Institute of Business Science (GIBS), University of Pretoria (UP). 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.

Anchen Laubscher

6 November 2017

## Table of Contents

<b>Abstract</b> .....	<b>i</b>
<b>Declaration</b> .....	<b>ii</b>
<b>List of Tables</b> .....	<b>vii</b>
<b>Literature Review</b> .....	<b>1</b>
<b>Introduction</b> .....	<b>1</b>
<b>The Research Problem and Purpose</b> .....	<b>3</b>
The research problem. ....	3
The research purpose.....	4
Theoretical need for the research study. ....	6
Business need for the research study. ....	6
<b>Theoretical Pillars from Literature Reviewed</b> .....	<b>8</b>
The healthcare value agenda. ....	8
The complexity of multiple stakeholders. ....	9
Multi-factor, evidence-based and clinical decision-making. ....	10
<b>Value of Care and Stakeholders in the South African Healthcare Context</b> .....	<b>12</b>
<b>Research Objectives and Research Questions</b> .....	<b>14</b>
Research objectives.....	14
Research questions. ....	15
<b>Conclusion</b> .....	<b>16</b>
<b>Research Method</b> .....	<b>17</b>
<b>Research Design</b> .....	<b>17</b>
A post-positivist philosophy. ....	17
A deductive research approach.....	18
An exploratory and explanatory study.....	18
Exploratory research.....	18
Explanatory research.....	18
<b>Sample and Sampling Method</b> .....	<b>19</b>
The populations under review. ....	19
Unit of analysis. ....	20
Sampling method. ....	20
Convenience sampling. ....	20
Purposive sampling. ....	21
Snowball sampling. ....	21



<b>Measurement Instrument.....</b>	<b>21</b>
Online platform. ....	21
Value Perspectives Survey.....	22
Participation invitation sheet and consent. ....	22
Patient survey. ....	23
Basic demographic information section. ....	23
Value perspectives section. ....	23
Doctor survey.....	24
Basic demographic information section. ....	24
Value perspectives section. ....	24
<b>Research Procedure.....</b>	<b>25</b>
<b>Data Analysis.....</b>	<b>26</b>
<b>Ethical Considerations.....</b>	<b>27</b>
<b>Limitations of Method.....</b>	<b>27</b>
Requirement for data clean-up. ....	27
Patient population. ....	28
Doctor population. ....	29
Item randomisation bias. ....	29
Free text responses. ....	30
<b>Results.....</b>	<b>31</b>
<b>Study Variables.....</b>	<b>31</b>
Basic demographic variables. ....	31
Consumers. ....	31
Providers. ....	32
Value perspective variables.....	32
<b>Description of the Sample.....</b>	<b>33</b>
Exclusions applied in data clean-up. ....	33
General exclusions. ....	33
Consumer exclusions.....	33
Provider exclusions. ....	33
Sample size. ....	34
<b>Statistical Results.....</b>	<b>36</b>
Basic demographic variables. ....	36
Descriptive characteristics of basic demographic variables.....	36
Consumer group. ....	36
Provider group. ....	38

Test of mean differences across demographic characteristics. ....	40
Consumer group. ....	40
Gender. ....	40
Highest level of education. ....	42
Gross monthly income. ....	44
Healthcare sector used. ....	46
Member of medical aid. ....	48
Years as a member of medical aid. ....	49
Financially responsible for medical aid or cash payment of treatment. ....	51
Provider group. ....	52
Gender. ....	52
Countries of practice. ....	54
Sector of practice. ....	56
Clinical medicine or administration. ....	57
Type of provider. ....	58
Clinical field of specialisation. ....	59
Value perspectives variables. ....	60
Value perspectives descriptive characteristics. ....	60
Relationships between variables of interest. ....	61
Provider and consumer differences. ....	63
Comparison of surgical and medical scenarios with progressing severity. ....	64
<b>References</b> .....	<b>68</b>
<b>Appendices</b> .....	<b>75</b>

<b>Appendix A: Survey Questionnaire .....</b>	<b>75</b>
Participation invitation sheet. ....	75
Consent. ....	77
Doctor or patient perspective. ....	77
Patient survey.....	78
Basic demographic information section.....	78
Value perspectives section.....	81
Doctor survey. ....	86
Basic demographic information section.....	86
Value perspectives section.....	89
 <b>Appendix B: Ethical approval from the GIBS Research Ethics Committee (GIBS REC).....</b>	 <b>94</b>
 <b>Appendix C: Ethical Approval from the University of Pretoria Human Research Ethics Committee (UP HREC).....</b>	 <b>95</b>

## List of Tables

Table 1. Consumer data clean-up of sample .....	35
Table 2. Provider data clean-up of sample.....	35
Table 3. Total sample size clean-up.....	35
Table 4. Demographic characteristics of consumer group .....	37
Table 5. Demographic characteristics of provider group.....	39
Table 6. Independent samples <i>t</i> test for consumer general, surgical, and medical scenarios by gender .....	41
Table 7a. Comparison for consumer general, surgical, and medical scenarios by level of education.....	43
Table 7b. Comparison for consumer general, surgical, and medical scenarios by level of education.....	44
Table 8a. Comparison for consumer general, surgical, and medical scenarios by gross monthly income .....	45
Table 8b. Comparison for consumer general, surgical, and medical scenarios by gross monthly income .....	46
Table 9. Independent samples <i>t</i> test for consumer general, surgical, and medical scenarios by healthcare sector used.....	47
Table 10. independent samples <i>t</i> test for consumer general, surgical, and medical scenarios by member of medical aid.....	48
Table 11. Comparison for consumer general, surgical, and medical scenarios by years as a member of medical aid .....	50
Table 12. Comparison for consumer general, surgical, and medical scenarios by financially responsible for medical aid contribution .....	51
Table 13. Independent samples <i>t</i> test for provider general, surgical, and medical scenarios by gender .....	53
Table 14. Independent samples <i>t</i> test for provider general, surgical, and medical scenarios by countries of practice .....	55
Table 15. Comparison for provider general, surgical, and medical scenarios by sector of practice.....	56
Table 16. Independent samples <i>t</i> test for provider general, surgical, and medical scenarios by type of provider .....	57
Table 17. Independent samples <i>t</i> test for provider general, surgical, and medical scenarios by type of provider .....	58
Table 18. Comparison for provider general, surgical, and medical scenarios by clinical field of specialisation .....	59

Table 19. Pearson correlations for value perspectives of consumers and providers across general, medical and surgical scenarios.....	62
Table 20. Independent samples <i>t</i> test for general, surgical, and medical scenarios by consumer and provider groups.....	63
Table 21. Comparisons of surgical and medical severity value perspectives for consumers of private healthcare .....	66
Table 22. Comparisons of surgical and medical severity value perspectives for providers of private healthcare .....	67

## Literature Review

### Introduction

Value in healthcare delivery, or Value of Care, is defined as the results or outcomes (outputs) achieved relative to the cost incurred or resources applied (inputs) to generate these outcomes (Beattie & Roger, 2008; Damberg et al., 2014; Mkanta, Green, Katta, Basireddy, & Kentucky, 2016; Porter, 2010; Porter, Pabo, & Lee, 2013). Numerically depicted as a healthcare value equation, value in healthcare delivery can therefore be defined as the outcomes achieved (numerator) divided by the cost incurred (denominator) to generate such outcomes (Value of Care) (Porter, 2010).

It is however, argued that value in healthcare delivery can be influenced by factors other than Clinical Outcome and cost. These factors include Patient's Experience (Berwick & Whittington, 2008; Damberg et al., 2014; Mkanta et al., 2016) and the risk of occurrence of adverse events (Brennan et al., 1991; Leap et al., 1991; Minto & Biccadd, 2014; Rivard, Luther, & Christiansen, 2008; Slawomirski, Auraaen, & Klazinga, 2017). It is specifically contended that Patient's Experience has been understudied and underutilised in value creation and value based care strategies (Damberg et al., 2014).

Berwick and colleagues introduced the concept of the 'Triple Aim', which includes the elements of care, health and cost, where 'care' refers to the patient's subjective experience of the care episode (Berwick et al., 2008; Bodenheimer & Sinsky, 2014). Damberg and colleagues also described consumer directed healthcare as being important in value creation strategies, the emphasis again on the patient's expectations and experience of care delivered (Buntin et al., 2006; Damberg et al., 2014; Ettinger, 1998; Mkanta et al., 2016). Damberg also explained how Patient's Experience in the healthcare context is understudied whereby a value-based payment study conducted in 2014 found that only 17% of value-based care programmes measured goals that related to the Patient's Experience or the patient's value perspective of the care delivered (Damberg et al., 2014; Mkanta et al., 2016).

Patient's Experience is progressively acknowledged as one of the three mainstays of quality in healthcare, alongside clinical effectiveness (depicted as outcomes expressed as a function of cost) and patient safety, the latter alternatively described as the avoidance of adverse events (Doyle, Lennox, & Bell, 2013). The numerical depiction of

Value of Care therefore might require modification to make provision for other factors to be added to the healthcare value equation as originally described by Porter (2010).

Porter highlighted the need for healthcare systems to focus on outcomes and cost but recognised that healthcare systems often fail to recognise a fundamental criterion for health services excellence and value creation, namely the meeting of patient expectations of care (Porter & Lee, 2013; Porter, 2009; Weeks & Weinstein, 2014). Patients should receive the care they want and need and therefore failure to consider the experience of patients may fail to create value even though it appeared that value was created by achievement of cost and outcome goals (Porter & Lee, 2013; (Beattie & Roger, 2008; Weeks & Weinstein, 2014).

The study, a quantitative review of primary data, intended to determine whether Patient's Experience was to be considered a factor in the healthcare value equation or not. The study further aimed to glean insight into the value perspectives of consumers and providers in the South African private healthcare context and to examine how, if at all, these value perspectives differed between the two populations and their subpopulations. The study lastly focused on how the perception of Value of Care delivered influenced decision-making in healthcare delivery by exploring the differences in relative importance of three factors that have been identified as contributors to Value of Care, namely Clinical Outcome, Cost of Clinical Event, and Patient's Experience.

Both providers and consumers from the South African private sector were included in this study. The term 'consumer' referred to all privately paying or medically-insured patients in the South African healthcare context, thus the consumers making use of private healthcare. The term 'provider' referred to clinicians (medical doctors) registered to work in private healthcare practice in South Africa, thus actively practicing or having actively practiced clinical medicine in the private healthcare sector.

Every clinical care event aims to create value at a certain cost (Porter, 2010). For this study, a clinical event referred to a hospital admission for a medical or surgical treatment. In example, a surgical event could range in severity from admission for a skin tag removal to major abdominal surgery for cancer treatment, whilst a medical event could range in severity from admission for a mild allergic reaction to a life-threatening heart attack.

## **The Research Problem and Purpose**

### **The research problem.**

Value of Care, also referred to as healthcare value, is the outcomes achieved relative to the costs incurred for a specific clinical event, or care episode (Damberg et al., 2014; Mkanta et al., 2016; Porter, 2010; Porter et al., 2013). Value of Care has been described as a metric of efficiency in healthcare (Mkanta et al., 2016; Porter, 2010) and can be expressed in an equation where the numerator, outcomes, can be objectively determined and expressed as a single measure or the combination of several measures indicative of the result of a clinical event or care episode delivered (Mkanta et al., 2016; Porter, 2010). The denominator in the equation, cost, refers to the sum of the costs of all services rendered, thus the total cost per clinical care event (Mkanta et al., 2016; Porter, 2010) and is expressed as a monetary amount.

Value in the healthcare context, despite the mathematical depiction described in literature remains an abstract construct influenced by perception that can vary between different stakeholders depending on the role each of them plays in the care event. (Marsh, Lanitis, Neasham, Orfanos, & Caro, 2014; Mkanta et al., 2016; Porter, 2010), Medicine has seen ground-breaking innovation and progress over the years, but healthcare leadership still fails to fully understand what the customer, or patient, needs, specifically when it comes to the subjective side or the Patient's Experience (Doyle et al., 2013; Lee & Cosgrove, 2014). A value-based payment study conducted in 2014 found that only 17% of value-based care programmes measured goals that related to the Patient's Experience or the patient's value perspective (Damberg et al., 2014, Porter 2010). It is clear that Patient's Experience in the healthcare context has been neglected and remains understudied (Damberg et al., 2014; Mkanta et al., 2016; Porter, & Lee, 2013).

Further, multiple stakeholders are at play in healthcare delivery. Key stakeholders include the consumer or patient and provider or clinician (Damberg et al., 2014, Lee & Cosgrove, 2014). Oftentimes, stakeholders in healthcare delivery have conflicting goals, leading to divergent approaches and taking away from the shared value agenda (Herald, Alexander, Beich, Mittler, & O'Hora, 2012; Porter, 2010). A deeper understanding of the differences in value perspectives that inform decision-making in the healthcare context is therefore required.



### The research purpose.

Every clinical care event is targeted at creating value at a certain cost. This ‘value’ can be quantified or mathematically depicted as follows (Mkanta et al., 2016; Porter, 2010):

$$Value = \frac{outcomes}{cost}$$

1. Numerator: function of the degree to which the care event achieved a clinical goal (objective measure) (Porter, 2010).
2. Denominator: function of the cost of the event, determined by the combined price charged by the care providers (Porter, 2010).

It can be argued that value can be influenced by other factors, such as the Patient’s Experience (Berwick et al., 2008; Damberg et al., 2014; Mkanta et al., 2016) and the risk and occurrence of adverse outcomes (Brennan et al., 1991; Doyle et al., 2013; Kohn, Corrigan, & Donaldson, 1999; Leape & Berwick, 2005; Minto & Biccard, 2014; Rivard et al., 2008; Slawomirski et al., 2017). To accommodate for these additional factors, the Value of Care delivered can thus be quantified or mathematically depicted in a modified equation as follows:

$$Value = \frac{outcomes \times patient \ experience}{cost + (risk \ of \ adverse \ outcomes \times cost \ of \ adverse \ outcomes)}$$

1. Numerator: Function of the degree to which the care event achieved a clinical goal (objective measure) (Porter, 2010) as well as the degree to which satisfaction (subjective) was experienced by or achieved for the consumer (Doyle et al., 2013).
2. Denominator: Function of the cost of the event, composed by the price charged by the care providers (Porter, 2010) plus the cost of an adverse event multiplied by the likelihood of the adverse event occurring (Doyle et al., 2013).

It is well described that adverse events affect more than just the cost of the care episode, but rather the impact also relates to both the quality of the Clinical Outcomes (Rivard et al., 2008) and the patient’s subjective perception of their envisioned needs met (Patient’s Experience) (Doyle et al., 2013). Therefore, this study isolated ‘Patient’s Experience’ to be studied as an additional factor that might influence the Value of Care delivered.

The study aimed to determine the need to add this factor, Patient’s Experience, to the healthcare value equation, to understand the relative importance of this additional factor

in relation to other factors and to examine how this relative importance might differ between the consumer and provider populations and subpopulations.

For this study, the mathematical depiction of the balance of the three measures was referred to as the Care Value Index (CVI):

$$CVI = \frac{outcome}{cost} \times patient\ experience$$

'Clinical Outcome' is the degree to which the clinical event achieved a clinical goal (objective measure) (Campbell, Roland, & Buetow, 2000; Porter, 2010; Shekelle, 2013). 'Cost of the Clinical Event' is the total price charged by the care providers, thus the price paid by the patient or medical aid or both (Mkanta et al., 2016; Porter, 2010). 'Patient's Experience' is the degree to which the patient's expectation was met (subjective measure) (Wolf et al., 2014).

Further to exploring the role of Patient's Experience in Value of Care, the purpose of the research study was to obtain a deeper understanding of the differences in value perspectives between the healthcare consumer and provider groups. The study aimed to achieve this purpose by exploring the differences between the relative importance of the three factors (Clinical Outcome, Cost of Clinical Event, and Patient's Experience) that make up the Value of Care for both consumers and providers, in general and specifically in terms of medical and surgical procedures. Patient's Experience was compared with Clinical Outcome and Cost of Clinical Event in a series of scenarios aimed at determining the relative importance or weighting attributed to each of the three factors in the healthcare value equation. 'Value' was kept as a constant in the equation.

It can be argued that, in the decision-making process of care delivery, factors contributing to value are compared and following this, a trade-off happens (Thokala et al., 2016). The purpose of the study was therefore also to develop a modified value equation that could inform the multi-factor decision-making process by providing an understanding of the balance of measures at play and how the balance can influence the Value of Care achieved or delivered.

The mathematical depiction of the CVI with the relative importance of the factors expressed as coefficients would, once determined, be referred to as the relative CVI (CVI<sub>R</sub>). When applied to actual Clinical Outcome, Cost of Clinical Event and Patient's Experience data, the weightings, expressed as coefficients, would influence the results of the equation and subsequently determine the Value of Care delivered for a specific care event.

### ***Theoretical need for the research study.***

The study aims to investigate the relative importance of the two enabling and influencing factors that are well described determinants of the CVI, namely Clinical Outcome and Cost of Clinical Event (Mkanta et al., 2016; Porter, 2010). It further aims to investigate a third factor; a more subjective measure, namely Patient's Experience, which is theorised to contribute to the value perception but has not been as well described in literature as the other two factors nor has it been included in the value equation (Berwick et al., 2008; Damberg et al., 2014; Porter & Lee, 2013). The numerical depiction of Value of Care therefore might require modification to make provision for other factors to be added to the healthcare value equation as was originally described by Porter (2010).

Multiple stakeholders are at play in healthcare delivery. Key stakeholders include the consumer or patient and provider or clinician (Damberg et al., 2014, Lee & Cosgrove, 2014). Oftentimes, stakeholders in healthcare delivery have conflicting goals (Herald et al., 2012; Thokala et al., 2016) and therefore it can be argued that, in practice, the relative importance of cost (Cost of Clinical Event) versus the degree of achieving the targeted outcome measure (Clinical Outcome) and meeting subjective expectation (Patient's Experience) will differ between stakeholder groups. The question is whether this difference can be reliably predicted, what factors it will be influenced by, and what provider and consumer attributes contribute to this difference (Damberg et al., 2014; Porter & Lee, 2013; Porter, 2010).

### ***Business need for the research study.***

The purpose of the research study, further to exploring the role and relevance of Patient's Experience in the healthcare value equation, was to obtain an appreciation of the differences in value perspectives between the healthcare consumer and provider groups. Also, the study intended to develop a modified value equation that could inform the multi-factor decision-making process by providing an understanding of the balance of measures at play and how the balance could influence the Value of Care achieved.

The utility from a practical business perspective was the establishing of coefficients applicable to each of the factors (Clinical Outcome, Cost of Clinical Event and Patient's Experience) that could be used to quantify the value of an episode of care delivered. These coefficients would be determined by the weighting or relative importance of each of the factors in relation to the others in the CVI. Should the study prove that value

perspectives differ across the groups and subgroups examined, a coefficient per factor (representing the weighting as determined) could be applied to measured data in the equation to accurately quantify Value of Care for a specific care event by category of patient or clinician.

The business utility furthermore lies in the understanding of how these factors influence choice and behaviour and how they can be predicted and consciously adjusted. Healthcare managers, policymakers and researchers will benefit from understanding the difference in value perspectives and the influence on decision-making (Marsh et al., 2014; Thokala et al., 2016). The index of determined coefficients can be used retrospectively for evaluation or prospectively for planning, and it is ultimately aimed at providing all stakeholders with the opportunity to make informed choices or informed adjustments. For example, the clinician can decide on the intervention that will result in the highest Value of Care for the patient if he or she understands the factors that determine value for the specific patient as well as the relative weightings of the factors in the equation. The patient, as another example, can make an informed purchasing decision based on the weightings of the factors applicable to his or her population or him or her specifically. Hospital administrators and funders can compare clinicians based on the Value of Care provided, and funders can use the index to allocate value-based care networks or determine value-based reimbursement or penalty strategies.

Value creation and enhancement are recognised as fundamental goals of healthcare systems and, when embraced as a collective strategy, could serve to better align the multiple stakeholders with divergent and even competing goals (Marsh et al., 2014; Thokala et al., 2016). The business utility of the research study ultimately lies in understanding the requirements for the effective achieving of value-based care objectives, including cost control, quality improvement and better outcomes of care (Lee, 2010; Mkanta et al., 2016; Porter, 2009).

## Theoretical Pillars from Literature Reviewed

### The healthcare value agenda.

The concept of shared value is an essential notion in the understanding of markets, competition, and business management and can be translated to any industry and any sector of business (Dembek, Singh, & Bhakoo, 2016; Porter & Kramer, 2011). In “The Triple Aim: Care, Health and Cost”, the authors define the triple aim methodology as one that aims to achieve shared value in healthcare by pursuing multiple interlinked goals (Berwick et al., 2008; Bodenheimer & Sinsky, 2014; Kamal, 2016).

These goals, from a population perspective, are described as the improvement of the health of the population, the reduction of the per capita cost and the improvement of the individual Patient’s Experience of the care delivered compared to previous experiences and set expectations (Berwick et al., 2008; Bodenheimer & Sinsky, 2014). Thus, from a population perspective, data can be aggregated to depict Value of Care given by a specific provider or healthcare institution to a population or an individual (Berwick et al., 2008).

Translated to the single care event, Value of Care can be described as the balance of these three measures as applicable to the specific event. For the individual patient, ‘Clinical Outcome’ is the degree to which the clinical event achieved a clinical goal (objective measure) (Campbell et al., 2000; Porter, 2010; Shekelle, 2013). ‘Cost of the Clinical Event’ is the total price charged by the care providers, thus the price paid by the patient or medical aid or both (Mkanta et al., 2016; Porter, 2010). ‘Patient’s Experience’ is the degree to which the patient’s expectation was met (subjective measure) (Doyle et al., 2013; Wolf et al., 2014).

Value creation strategies for healthcare is a topical discussion point in health economics and health policy forums globally, focusing on cost and Clinical Outcome as main determinants of perceived health services excellence (Lee, 2010; Porter, 2010; Porter & Lee, 2013). Despite the aligned strategic intent, successful operational execution and ability to measure Value of Care provided, remains lacking (Lee, 2010; Weeks & Weinstein, 2014).

One of the reasons for the poor realisation of the value agenda is that value in healthcare is largely unmeasured and not well understood (Lee, 2010; Porter, 2010). The system

can only be reformed if value is clearly defined, measured and improved (Buntin et al., 2006; Grol, 2000). In healthcare, value measures should be designed around the customer, should be determined by output as opposed to inputs and processes, and should reward stakeholders contributing to and inputs resulting in an increase in Value of Care (McKee et al., 2006; Porter, 2010).

Another reason is the issue of multiple stakeholders whose decision-making has a direct impact on the Value of Care delivered to the patient (Hassan, 2005; Marsh et al., 2014; Snowden & Boone, 2007). At the centre of the care episode is the patient (McKee et al., 2006). Value should be defined around the customer as the end user or consumer of healthcare (Charmel & Frampton, 2008; Stewart et al., 2017; Weeks & Weinstein, 2014). Transformation in healthcare requires the will and ability to organise care delivery around the needs of the end users, or patients (Lee & Cosgrove, 2014), thereby delivering value-based clinical care. Porter argues that achieving high value for patients must become the overarching healthcare delivery goal, by uniting all stakeholders in the system. If Value of Care, determined by the health outcomes achieved per capita (Porter, 2009, 2010), increases, both providers and consumers benefit whilst the sustainability of the healthcare system also increases (Berwick et al., 2008).

### **The complexity of multiple stakeholders.**

Although characterised by its scientific and technological advances, healthcare as an industry often fails at the fundamental goal of its business, namely to deliver in line with the customers' needs (Charmel & Frampton, 2008; Lee & Cosgrove, 2014). A main reason for this failure is the inability of stakeholders to collaborate as the healthcare industry is largely characterised by autonomy and individuality in the execution of tasks (Herald et al., 2012). The healthcare ecosystem, like large healthcare organisations, is complex and difficult to manage, largely because of the hybrid of stakeholders that form part of the milieu (Herald et al., 2012; Thokala et al., 2016). High performing healthcare systems require leadership and accountability to be shared amongst all partaking stakeholders as well as an alignment on shared purpose (Baker, 2011; Lee, 2010).

Key to the delivery of Value of Care to the patient is the clinician (Lee & Cosgrove, 2014). At the heart of shaping and running clinical services, the value perspective and role of the clinician (Kaplan, Porter, & Klobnak, 2012) needs to be explored and understood. In a 2013 opinion, Porter and Lee (2013) explained how the stakeholders on the supply side of healthcare, namely hospitals and clinicians, are ideally positioned to lead the way in

bringing about sustainable and disruptive change in healthcare provision. The relationship between healthcare providers is historically a unique and complicated one; the complexity often caused by the dynamics of non-employment of doctors, resulting in the supply side (hospitals and doctors) operating independently (Lee & Cosgrove, 2014).

In South Africa, clinicians (providers) are not employed by private healthcare institutions and operate as independent practitioners in these facilities, as dictated by the Health Professions Council of South Africa (HPCSA) (“Health Professions Act 56 of 1974,” 1974, *National Health Act 61 of 2003*, 2003, Health Professions Council of South Africa, 2005, 2015). It could be inferred that value perspectives of the stakeholders on the provider side could differ. Despite this, both parties directly influence every aspect of the other’s input and outcomes; specifically, the cost and Clinical Outcomes, which together constitute the value of product purchased by the end user, the patient (Porter & Lee, 2013).

On the demand side, the funder and patient can be considered consumers of private healthcare. It could again be inferred that value perspectives of the stakeholders on the consumer or demand side could differ. Value in healthcare, as perceived by the patient, is determined by a multitude of factors, the most important being acceptable Clinical Outcomes, patient safety (absence of adverse events), an experience that meets subjective expectation targets, and a cost that is considered justified by the quality of care received (Berwick et al., 2008; Doyle et al., 2013; Lee & Cosgrove, 2014). For funders, the Value of Care is determined by clinical goals met and the cost of the care event (Van Dyke, 2016). Superior healthcare outcomes are best achieved when the efforts of all stakeholders are strategically aligned (Hassan, 2005). This alignment is essential for the leveraging of skills and knowledge towards a collective that is larger and more influential than the sum of individual parts (Lee & Cosgrove, 2014; Porter, 2009).

### **Multi-factor, evidence-based and clinical decision-making.**

The value-creation pursuit is described as an exercise in the balance of prioritisation and decision-making (Berwick et al., 2008; Marsh et al., 2014; Shekelle, 2013; Thokala et al., 2016). It can be argued that, in the decision-making process of care delivery, factors contributing to value are compared and following this, a trade-off happens (Thokala et al., 2016).

In a 2010 study, Ho, Xu, and Dey (2010) concluded that a single criterion approach, such as one only based on cost, is not representative enough of the complexity of the supplier–provider relationship and that the considerations of other factors in the decision-making process are essential. According to this study, the cost-based approach cannot guarantee that the selected supplier is optimal because customer oriented criteria such as quality, delivery and flexibility were not considered (Ho et al., 2010). In the value equation, outcomes (Clinical Outcome) and cost (Cost of Clinical Event) are both considered to be well described factors in the decision-making process (Mkanta et al., 2016; Porter, 2010). It has further been described that other factors, such as Patient’s Experience and environmental factors, contribute to the value delivered to the patient and should also be considered in the healthcare value equation (Doyle et al., 2013; Mkanta et al., 2016).

Key to the delivery of value to the patient is the clinician: doctors take centre stage in the delivery of value–based care but are known to inherently resist change, specifically when they consider their autonomy to be impacted (Lee & Cosgrove, 2014). Accountability towards the healthcare value agenda requires the investigation of considerations that influence clinician decision-making at the forefront of care (Lee & Cosgrove, 2014) and ultimately how this impacts on the delivery of value in healthcare (Lee, 2010; Porter, 2009). At the heart of shaping and running clinical services, the value perspective and role of the clinician (Kaplan et al., 2012) needs to be explored and understood.

Clinical decision-making applies to how the clinician contemplates the elements that constitute the Value of Care delivered (Fifer, 2015; Wimmer, Yoon, & Sugumaran, 2016). Factors influencing clinical decision-making processes are mostly considered in the realm of Clinical Outcomes. Evidence-based medicine is the traditional norm for clinical decision-making and requires the application of medical evidence combined with personal clinical expertise to make decisions on patient care (Wimmer et al., 2016).

The transition to value-based care involves quality and cost and therefore requires that clinical and business teams collaborate across a broader set of factors (Berwick et al., 2008; Damberg et al., 2014). Clinical leaders can help business leaders comprehend clinical implications of business decisions whilst financial leaders can help clinicians understand the strategic and business impact of care decisions (Fifer, 2015).

Multi-factor decision-making is therefore the balance of all factors considered as contributing to a certain outcome and how they interact and weigh in on the decision



made and the value created (Berwick et al., 2008). Multi-factor decision-making is applied by the patient when making an elective purchasing decision and by the clinician when planning the execution of the care event.

### **Value of Care and Stakeholders in the South African Healthcare Context**

The goal of any healthcare system should be to ensure that every person in the system has access to affordable, quality healthcare (Johnston, S., & Spurrett, 2011). In South Africa, the need for healthcare reform is a number one priority, calling for accountability, leadership and stewardship as a matter of collective urgency (Coovadia, Jewkes, Barron, Sanders, & McIntyre, 2009).

The Global Competitiveness Index (World Economic Forum, 2016) rates the South African healthcare system as number 126 out of a total of 140, scoring 4.2 out of a possible 7. When critically reviewed from a development economics point of view, the argument of applicability of this index to the emerging market context of South Africa cautions the interpretation (Lall, 2001). Some inferences can however be drawn when considering South Africa's position compared to other emerging economies.

Suffice to say that the goals of a healthcare system mentioned above – affordable and accessible quality healthcare – are not being met for millions of South Africans (Mayosi et al., 2012). That said, the National Development Plan (NDP) (National Planning Commission, South Africa, National Planning Commission, & National Planning Authority, 2010) aims to achieve South Africans' wellbeing both socially and economically. Seven of the key priorities focus on social mobility and inclusive growth towards prosperity, this includes the provision of quality healthcare to all (National Planning Commission et al., 2010). A substantial increase in innovation (Mayosi et al., 2012; Meyer & Scheepers, 2017) in healthcare service delivery is required for South Africa to make progress in healthcare reform and towards achieving the goals of the NDP.

The inefficiency and poor quality of healthcare provided by the public sector (Honda, Ryan, Van Niekerk, & McIntyre, 2015) has opened the door for a competitive and expensive private sector to emerge and flourish (Mayosi et al., 2012). The Competition Commission's market inquiry into South Africa's private healthcare sector, aimed at increasing market transparency, revealed that South Africa spends 41.8% of its total health expenditure on private, voluntary health insurance (Lorenzoni & Roubal, 2016). This is more than in any other OECD (Organisation for Economic Co-operation and

Development) country. Still, only 17% of the South African population can afford private insurance and benefit from this disproportionate contribution. Furthermore, for selected health services, prices have increased above the rate of inflation – on average by 6.5 percentage points per year – between 2011 and 2013 (Lorenzoni & Roubal, 2016).

Urgent healthcare reform is considered a challenge for South Africa's policy makers, presenting opportunities and risks for both the public and private healthcare sectors (Honda et al., 2015; Johnston, & Spurrett, 2011). The responsibility of the private sector's healthcare providers lies in the delivery of cost effective quality healthcare. The current dominant fee-for-service funding model provides no incentive or penalty to compete on quality or price. This is perpetuated by the lack of transparency of data, thus rendering the consumer an ignorant and vulnerable price taker (Johnston, & Spurrett, 2011).

Healthcare data should be used to inform models that describe the relationship between factors contributing to the Value of Care provided as well as how the value can be manipulated by adjusting these factors (Sheikh, Sood, & Bates, 2015). This will allow informed consumers to choose providers based on value attributes such as cost and outcomes, thereby potentially benefitting from prudent expenditure or alternatively from superior outcomes at a chosen higher cost (Mkanta et al., 2016). Data should thus be used to innovate through understanding the interplay between factors defining Value of Care delivered, thereby informing intervention by providers and choice by consumers (Mkanta et al., 2016).

Consumer surplus is created when the value arising from the purchase is greater than, or equal to, the price paid for the product or service (Ma, 1994). Specific to the economic context of South Africa, the pressure to reduce healthcare delivery cost requires providers to innovate towards cost effectiveness without compromising quality (Garber, Goldman, & Jena, 2007). To meet the identified price points and create value, healthcare providers must rethink the design, development and delivery of the services it delivers. Designs and delivery methods must be more customer centred and frugal engineering and radical innovation is required (Buntin et al., 2006; Damberg et al., 2014; Sehgal, Dehoff, & Panneer, 2010). The incentive should be for the supply side to innovate towards achieving a Value of Care delivered to the patient (Johnston & Spurrett, 2011). Apart from the economic agenda, the social accountability imperative motivates innovation towards provision of cost effective, value based care in the interest of closing the healthcare inequality gap (Goyal, Sergi, & Kapoor, 2014; Ismail, Kleyn, & Ansell, 2012).

## Research Objectives and Research Questions

### Research objectives.

Based on the review of the above literature, applied specifically to the context of healthcare delivery in South Africa, three objectives were identified for this study:

**Objective 1:** To determine whether value perspectives differ between multiple stakeholder groups in the South African private healthcare context, specifically between provider and consumer groups and their respective subgroups. Value perspectives specific to the perception of value of healthcare services delivered were examined. The consumer group included patients and the provider group included clinicians (medical doctors).

**Objective 2:** To deduce a modified value equation that depicts the factors which determine Value of Care delivered and to demonstrate the coefficients (relative importance or weightings) for each of these factors in the value equation as applicable to each of the different stakeholder groups, thereby affirming the theoretical utility of the research study.

**Objective 3:** To demonstrate how the balance of factors can be utilised in evidence-based, multi-factor decision-making, both by provider and consumer groups, thereby asserting the business utility of the research study.

## Research questions.

The study aimed to explore the differences in relative importance of three factors (Clinical Outcome, Cost of Clinical Event and Patient's Experience) that have been identified as contributors to Value of Care, thereby gleaning insight into the value perspectives of consumers and providers in the South African private healthcare context. 'Clinical Outcome' is the degree to which the clinical event achieved a clinical goal (objective measure) (Campbell et al., 2000; Porter, 2010; Shekelle, 2013). 'Cost of the Clinical Event' is the total price charged by the care providers, thus the price paid by the patient or medical aid or both (Mkanta et al., 2016; Porter, 2010). 'Patient's Experience' is the degree to which the patient's expectation was met (subjective measure) (Wolf et al., 2014).

This study was guided by ten research questions:

1. Should Patient's Experience be included as a factor in the healthcare value equation?
2. Do value perspectives differ between consumer and provider groups?
3. Do value perspectives in the provider group differ between genders?
4. Do value perspectives in the consumer group differ between genders, level of education, financial means and duration of medical aid membership?
5. Do value perspectives in the provider group differ between general practitioners and specialists, and for specialists between medical, surgical, and diagnostic specialties?
6. Do value perspectives in the provider group differ between medical and surgical scenarios?
7. Do value perspectives in the consumer group differ between medical and surgical scenarios?
8. Do value perspectives in the provider group differ with the progression of severity in medical and surgical scenarios?
9. Do value perspectives in the consumer group differ with the progression of severity in medical and surgical scenarios?
10. Can a set of coefficients, indicative of the relative importance or weighting of each of the factors in the healthcare value equation and specific to the two main stakeholder groups and subgroups, be calculated?

## Conclusion

Value of Care can be expressed in an equation, where the numerator, outcomes, is representative of measures indicative of the objective outcome of a clinical event or care episode delivered whilst the denominator, cost, refers to the total Cost of the Clinical Event (Porter, 2010). Patient's Experience is progressively acknowledged as one of the pillars of quality in healthcare, alongside clinical effectiveness (depicted as outcomes expressed as a function of cost) (Doyle et al., 2013). The contribution that Patient's Experience makes to Value of Care delivered and specifically to value based care strategies in healthcare, remains largely understudied (Mkanta et al., 2016).

The shared value agenda – specific to healthcare – is highly relevant in the South African context and to the concept of economic value creation. Porter argues that it requires the understanding of all stakeholders involved to be fully impactful (Porter & Kramer, 2011).

The improvement of a system, such as healthcare, depends on the identification and pursuit of a shared goal. In healthcare, Value of Care should be the single overarching goal as it aims to achieve what matters most to the patient, thereby uniting all stakeholders involved in the delivery of care (Dove, Weaver, & Lewin, 2009; Herald et al., 2012; Porter, 2010; Weeks & Weinstein, 2014). To achieve disruptive, yet sustainable, change in healthcare systems, the focus of all stakeholders must be appropriately aligned to achieving this overarching goal and to ensure Value of Care is created for the patient (Van Dyke, 2016).

Value in the healthcare context remains an abstract construct influenced by perception which could vary between different stakeholders depending on the role each play in the care event (Mkanta et al., 2016; Porter, 2010). Therefore, the study aims to develop an understanding of the difference in value perspectives of the primary stakeholders at play in the South African private healthcare context, by doing so informing the decision-making of both groups, with the ultimate aim of benefitting the entire healthcare sector in and population of South Africa.

## Research Method

This study employed a quantitative paradigm to examine the difference in value perspectives between multiple stakeholder groups within the private healthcare sector of South Africa. This section of the report describes the research design of the study, the sample and sampling strategy, the measurement instrument that was used to collect the data, the research procedure and analytical approach that was followed, the ethical considerations that were noted and addressed, and finally the limitations of the method (Creswell, 2003, 2009, 2012; Saunders & Lewis, 2012).

### Research Design

The design of the study was a non-experimental, ex-post facto, cross-sectional, comparative study between consumer and provider groups and subgroups within the private healthcare sector in South Africa (Thomas, 2009, 2013). The study followed a post-positivist philosophy, made deductive claims and encompassed a combination of exploratory and explanatory research processes (Creswell, 2003, 2009, 2012), each of which will be elaborated on below.

#### **A post-positivist philosophy.**

The research philosophy followed was that of post-positivism, described as a research philosophy or paradigm that represents the traditional, scientific form of research (Creswell, 2009). The post-positivist worldview seeks to challenge the idea of absolute truth of knowledge by recognising that one “cannot be ‘positive’ about knowledge when studying human behaviour and actions” (Creswell, 2009, p. 7). Rather, one should adopt an approach of examining cause and effect as is applicable to experiments or empirical science (Creswell, 2003, 2009). Post-positivism is reductionist in that it intends to “reduce the ideas into a small, discrete set of ideas to tests, such as the variables that comprise hypotheses and research questions” (Creswell, 2009, p. 7).

The post-positivist philosophy employs a deductive or theory-testing approach in the quest for objective knowledge, and relies on empirical observation and measurement as method (Creswell, 2003, 2009; Ryan, 2006). It is also deterministic, where research studies characteristically begin with a theory, followed by the collection of data that either “supports or refutes this theory” (Creswell, 2009, p. 7), and finally, from the results, inferences are drawn that inform the revision of the tested theory (Creswell, 2003, 2009).

### **A deductive research approach.**

The research approach was deductive, involving the “testing of a theoretical proposition by using a research study designed for this purpose” (Saunders & Lewis, 2012, p.108). The five sequential stages of deductive research, as outlined by Saunders and Lewis (2012), was followed, namely defining research questions from existing theory, operationalising the research questions, seeking answers to the posed research questions, analysing the results of the data collected and, lastly, confirming or modifying the existing theory based on the results obtained.

### **An exploratory and explanatory study.**

#### ***Exploratory research.***

The study demonstrated characteristics of exploratory research, which, as stated by Saunders and Lewis (2012, p.110) is research that “aims to seek new insights, ask new questions and assess topics in a new light”. This was applied as a research technique to elaborate on previously published descriptive research; in this case the work of Porter (2010), where he quantified Value of Care as outcomes relative to cost, thus encompassing efficiency (Porter, 2010; Porter et al., 2013).

The exploratory research technique was further applied to determine the contribution that Patient’s Experience makes to the perception of Value of Care delivered and how this should be factored into the value equation, if at all. This follows on the work of Damberg and colleagues as well as the contribution of Berwick and colleagues, all of whom described factors other than outcomes and cost as influencing the perception of Value of Care delivered and subsequently the value equation, but where these factors had been underutilised and understudied in value based care strategies (Berwick et al., 2008; Damberg et al., 2014; Mkanta et al., 2016; Porter, 2010).

#### ***Explanatory research.***

The explanatory research technique is described as research that “focuses on studying a situation or a problem to explain the relationship between variables” (Saunders & Lewis, 2012). This technique was applied to examine whether value perspectives differ between multiple stakeholder groups in the South African private healthcare context, specifically between the provider and consumer groups and respective subgroups. Value

perspectives specific to the perception of Value of Care provided was examined.

The explanatory research technique was further applied, where the study aimed to deduce a modified value equation that depicts the factors that constitute Value of Care and to demonstrate the relationship between these factors for the different stakeholder groups. This was done building on the original healthcare value equation described in Porter's work and by incorporating the literature critiquing the absence of certain additional factors that were considered as contributors to the Value of Care delivered (Mkanta et al., 2016; Porter, 2010), one of which is Patient's Experience.

The study further aimed to demonstrate how the balance of factors could be utilised in evidence-based, multi-factor decision-making, both by the provider and consumer groups. This again required an exploratory approach, where the utility of the modified value equation by stakeholder adjustment of the determining factors that influence Value of Care delivered, was demonstrated.

## **Sample and Sampling Method**

### **The populations under review.**

Laher and Botha (2012) refer to a population as an all-inclusive set of individuals or units. The industry in which the study was conducted was the private South African healthcare sector, specifically the private sector where payment is made for medical services rendered. The population for this study comprised of all privately paying or medically-insured patients in the South African healthcare context, thus being consumers of private healthcare in South Africa, as well as all clinicians (medical doctors) registered to work in private healthcare practice in South Africa, thus actively practicing or having actively practiced clinical medicine in the private healthcare sector in South Africa.

Clinicians or medical doctors (providers) are not employed by private healthcare institutions and operate as independent practitioners in these facilities, as dictated by the Health Professions Council of South Africa (HPCSA) ("Health Professions Act 56 of 1974," 1974; Health Professions Council of South Africa, 2005, 2015). Patients (consumers) are either insured by purchasing medical aid cover or they pay for private medical care by means of cash at point of care. Medical aid cover ranges in benefit structures from all-inclusive to very limited packages, resulting in varied additional out-of-



pocket payment implications when care is received.

Both consumers and providers from the private sector were included in this study. That is, the consumers comprised medically-insured or private-paying consumers, and the providers were the medical doctors, general practitioners or specialists, who provide services to patients in the private healthcare sector in South Africa.

### **Unit of analysis.**

The unit of analysis refers to the level at which the data collection occurs (Creswell, 2003). For this study, a sample of individuals (each individual referred to as a unit of analysis) was selected from the identified populations (Laher & Botha, 2012). Data collection for this study thus occurred at two levels, namely that of the privately paying and medically-insured patients in the South African healthcare context, as well as clinicians (medical doctors) working in private healthcare practice in South Africa.

### **Sampling method.**

A sample is defined as a subgroup of an entire population, where a population is a complete set of specific group members (Laher & Botha, 2012; Saunders & Lewis, 2012). The sample must be representative of the target population to the extent that conclusions and inferences can be drawn about the population as a whole (Creswell, 2003). A non-probability sampling technique was used to collect data, and included convenience, purposive and snowball sampling strategies (Saunders & Lewis, 2012; Stangor, 2011). Each of these strategies will be explained below.

### ***Convenience sampling.***

Convenience sampling is considered the most expedient of the non-probability sampling strategies available to researchers (Laher & Botha, 2012) and is known to be well-suited for large surveys as a high numbers of participants could be collated at a relatively low cost and within a reasonable but short timeframe (Saunders & Lewis, 2012).

For the convenience method of sampling, the researcher utilised her professional and personal network to collect data from the two target populations. The researcher distributed a survey in electronic format by email, SMS and WhatsApp and posted the survey link on various social media platforms (Facebook, LinkedIn, and Twitter).

### ***Purposive sampling.***

Typical to the purposive sampling method, the researcher relied on her own experience and ingenuity to find participants that would be representative of the population under examination and applied selection criteria based on her knowledge of the industry to find the most suitable individuals (Laher & Botha, 2012). Purposive sampling was done predominantly by email.

The researcher included doctors working in both administrative and clinical capacities in the clinician cohort. Specific to the doctors working in a clinical capacity, the researcher employed a purposive sampling method by strategically targeting various academic associations and clinical groups to ensure a high number of clinician participants across the various specialities and HPCSA registrations available.

### ***Snowball sampling.***

Snowball sampling was used in addition to the convenience and purposive sampling strategies to leverage the networks available to the researcher. Snowball sampling, a participant-driven sampling strategy, is commonly used to access difficult to reach populations (Laher & Botha, 2012) and is considered an inexpensive and useful method for reaching members of the target population (Zikmund, Babin, Carr, & Griffin, 2013).

The researcher distributed the survey, applying the convenience and purposive strategies described, to her primary contacts by various forms of electronic and social media, and then asked primary participants to further distribute the survey to their respective networks. Upon completion of the survey, participants were prompted again to forward the survey to other potentially willing participants.

## **Measurement Instrument**

### **Online platform.**

The data was collected through a self-administered online survey developed by the researcher, using the unlimited version of the survey platform Qualtrics, which was made available through the University of Pretoria. The survey was originally designed on the online survey platform Google Forms, in which it was first piloted. Following this, design concerns were addressed and it was decided that Qualtrics would be a more suitable

platform to use. The survey was transferred into Qualtrics and was piloted again to assess its utility and functionality. The feedback from pilot participants were considered in both instances and the survey was adapted accordingly.

### **Value Perspectives Survey.**

Using the Qualtrics functionality, a survey was developed which included demographic questions and consumer or provider questions, depending on a participant's response. A participant would click on the survey link and be directed to a participation invitation sheet followed by a consent section. Should consent not be given, the participant was thanked for his or her time and was unable to continue with the remainder of the survey. Should consent be given, the participant was asked whether he or she was a doctor or patient. Depending on the response, the participant was directed to either the doctor or patient section to complete.

For ease of distribution and access, various electronic and online platforms (email, SMS, WhatsApp, Facebook, LinkedIn, and Twitter) were leveraged to distribute the link. The online survey could be completed on mobile phones, tablets, laptops and desktop computers. To ensure a between subjects design, a participant could not complete the survey from both the doctor and patient perspective. This was ensured by the activation of a single access functionality on Qualtrics.

The survey, inclusive of detailed explanatory notes on the design and flow, can be seen in Appendix A. The next section provides a detailed breakdown of the individual components of the survey.

### ***Participation invitation sheet and consent.***

It was stipulated in the participation invitation sheet that this study focused on consumers and providers within the private healthcare sector in South Africa (see Appendix A). To access the survey, participants needed to give consent for their responses to be used as part of the research study. This consent was obtained by participants indicating on the online form their willingness to voluntarily participate in this study and that the data gathered would be anonymous.

If consent was not given, the participant could not complete the survey. If consent was given, the participant was then asked to indicate whether he or she was a consumer or

provider of private healthcare in South Africa. The cover letter also informed the participant that the survey could be completed from the perspective of a patient or a doctor and explained that the potential participant did not have to be a patient at present but could think of a time when he or she was one. Consumers were then, based on their selection, directed to the patient section of the survey and providers were directed to the patient section of the survey.

For both the patient and doctor groups, the survey consisted of two components: (1) a set of questions related to basic demographic information, and (2) a value perspectives section with general and scenario-based questions aimed at examining the participants' value perspectives. Below is a detailed breakdown of the individual components of the patient survey followed by a similarly detailed breakdown of the doctor survey.

### ***Patient survey.***

#### *Basic demographic information section.*

The basic demographic section for the patient group included questions regarding gender, age, and whether the patient used healthcare services in the private or public South African healthcare sector or a combination of the two. It further asked whether the patient was a member of a medical aid and, if so, what the total monthly contribution to the medical aid was in South African Rand (ZAR) rounded to the nearest hundred. The survey also asked whether the participant contributed solely, in part, or not at all for his or her medical aid or cash payment of medical services. In addition, questions were asked regarding the patient's gross monthly income and highest level of education.

#### *Value perspectives section.*

The value perspectives section of the patient group was like that of the doctor group, but differed in the language used to describe the general, medical and surgical scenarios, whereby no medical jargon was used, but instead, the scenarios were described in commonly used and easily understood layman terms. The scenarios were selected to include conditions that could be experienced by patients across different age groups and genders. Three medical and three surgical scenarios, progressing in severity, were described.

For each of the scenarios a total of 100 points was available that had to be distributed

between the three factors according to the relative importance of each in the view of the responding patient. The value of 100 could not be exceeded as the survey was designed to allow only values between 0 and 100 to be selected for each of the factors. Similarly, the total available points had to be used and the survey would not allow the participant to continue to a next question if the accumulated values for the three factors in a specific scenario equated to a total of less than 100. For every clinical scenario question, the three factors (Clinical Outcome, Cost of Clinical Event, and Patient's Experience) appeared in a randomised sequence, thereby assuring that the same factor did not always appear last in the sequence of options provided to the participant.

### ***Doctor survey.***

#### *Basic demographic information section.*

The basic demographic section for the doctor group included questions regarding gender, age, and whether the doctor practiced in the private or public South African healthcare sector or a combination of the two. It further asked whether the doctor practiced medicine in South Africa or another country or a combination of the two, how many years the doctor had been practising medicine after the completion of his or her compulsory internship and community service (which are typically done in the public sector), and how many of the total years practiced were in the private sector. In addition, a question was asked about whether the doctor practiced clinical medicine or worked in an administrative or managerial capacity in healthcare. For doctors working in clinical medicine, the researcher distinguished between general practitioners and specialists, and further divided the specialist cohort into medical, surgical, and diagnostic disciplines.

#### *Value perspectives section.*

The value perspectives section described a series of general, medical and surgical scenarios, where doctor participants were asked to provide a weighting indicative of how important they valued each factor (Clinical Outcome, Cost of the Clinical care event and the Patient's Experience) in the value equation firstly in general and then as applicable to the specific clinical scenario. Three medical and three surgical scenarios, progressing in severity, were described. The language used to describe the scenarios contained commonly used and easily understood medical jargon, and the scenarios were selected to include conditions that could be encountered by clinicians in all age groups and genders of their patient population.

For each of the scenarios a total of 100 points was available that had to be distributed between the three factors according to the relative importance of each in the view of the responding doctor. The value of 100 could not be exceeded as the survey was designed to allow only values between 0 and 100 to be selected for each of the factors. Similarly, the total available points had to be used and the survey would not allow the participant to continue to a next question if the accumulated values for the three factors in a specific scenario equated to a total of less than 100. For every clinical scenario question, the three factors (Clinical Outcome, Cost of Clinical Event, and Patient's Experience) appeared in a randomised sequence, thereby assuring that the same factor did not always appear last in the sequence of options provided to the participant.

### **Research Procedure**

Ethical clearance was obtained from the GIBS Research Ethics Committee (GIBS REC) (see Appendix B) as well as the University of Pretoria Human Research Ethics Committee (UP HREC) (see Appendix C) before any research was conducted. Upon ethical approval, the survey was piloted on the Google Forms platform on 15 participants. Following feedback, the survey was amended and transferred onto the Qualtrics platform where it was again piloted on 30 participants. Minor design-related adjustments were made and the survey was distributed for data collection for the main study.

The research choice was mono-method, where a single set of primary, quantitative data was used that was collected by using a developed research instrument (Saunders & Lewis, 2012). The time frame of the study was cross-sectional, where the surveys was conducted over a defined period, thus reflecting a snapshot view in a specified, single period (Saunders & Lewis, 2012).

Data collection was conducted by means of an ad hoc, self-administered online survey as outlined in Appendix A. Participant recruitment was through the researcher's network of contacts and the survey was distributed using available electronic and social media platforms (email, SMS, WhatsApp, Twitter, LinkedIn, and Facebook). Participants were asked to further distribute the survey to their respective networks. Participants who had not given consent were also allowed to send the survey link on to other potential participants. Once all the data was collected, it was cleaned and statistically analysed to answer the research questions, and in addition, to inform the development of a modified value equation .

## Data Analysis

The purpose of this study was to obtain an understanding of the differences in value perspectives between healthcare consumer and provider groups. The study aimed to achieve this by exploring the differences between the relative importance of the three factors (Clinical Outcome, Cost of Clinical Event, and Patient's Experience) that make up the Value of Care for both consumers and providers, specifically examined in terms of a range of medical and surgical procedures described in the survey.

This study analysed results on two main variables: namely, consumers and providers of private healthcare as the independent variable, and weightings attributed to factors contributing to Value of Care based on value perspectives (Clinical Outcome, Cost of Clinical Event, and Patient's Experience) as the dependent variable. Patient's Experience was compared to Clinical Outcome and Cost of Clinical Event in a series of scenarios to determine the relative importance or weighting attributed to each of the three factors in the healthcare value equation.

The data was interpreted quantitatively, where comparative analyses were used to infer the differences in value perspectives between the consumer and provider groups and subgroups when applied to different clinical scenarios. Binary data, categorical data and continuous data (numerical data) were statistically analysed. The outcome variable was continuous and numerical.

Prior to statistical analysis of the data, parametric assumptions were assessed to determine whether the data was normally distributed. These included the evaluation of random sampling, independence of observations, the Central Limit Theorem, skewness and kurtosis coefficients, Kolmogorov-Smirnov Test, Shapiro-Wilk Test, and Levene's Test of Equality of Variances (Pallant, 2011). For the most part, the data was found to be normally distributed.

The analysis of the data was performed using IBM SPSS version 24 and alpha was set at 5% (Field, 2013; Pallant, 2011; Wegner, 2016). Considering the research questions posed and the design of the survey, the statistical procedures that were used for the data analysis were descriptive statistics and tests of mean differences (namely independent samples *t* tests and Analyses of Variance tests (ANOVAs)). The value perspective weightings were compared between consumer and provider groups, and between subgroups, based on basic demographic information, inside of the consumer and provider populations respectively. Value perspective weightings were also compared between general, surgical and medical scenarios and with progression in severity of

medical and surgical scenarios. Further, to examine the association between the variables of interest, Pearson product moment correlation coefficient was conducted.

### **Ethical Considerations**

Data collection, specifically in the healthcare sector, requires ethical practises, including respect for the participants, as well as transparency of what is being researched and confidentiality of data (Burns & Burns, 2009; Creswell, 2012). Prior to data collection, this study was granted ethical clearance from both the GIBS Research Ethics Committee (GIBS REC) and the University of Pretoria Human Research Ethics Committee (UP HREC) (see Appendices B and C).

Participants were made aware that the results would be used for the partial completion of an MBA degree and may be presented publically and published in an academic journal. Furthermore, the results of the survey were kept private and confidentiality was upheld throughout. Data was analysed and reported on in an anonymised, aggregated manner and the researcher ensured that participants could by no means be identified as no identifying information (name, ID etc.) was requested in the survey.

Individuals wanting to participate in this study needed to do so voluntarily. After receiving information on the nature and objective of the study, participation required indicating consent on the electronic questionnaire (see Appendix A), which stipulated the voluntary nature of the study. There were no benefits or harm to participating in this study and participants could stop at any time without negative consequences.

When conducting research involving humans it is important to note ethical concerns that may arise during the execution of the research study. Throughout the research study the researcher ensured that ethical standards were upheld.

### **Limitations of Method**

#### **Requirement for data clean-up.**

The use of convenience and snowball sampling strategies resulted in the survey being distributed to patients and doctors outside of the targeted population, namely the private healthcare context in South Africa. The sampling strategy was aimed at achieving a large sample size in a cost-effective manner and within a short timeframe. Therefore, all



participants who had given consent could commence the survey and could further send it on to other potential participants.

From a consumer group perspective, the survey was discontinued and the patient directed to the end of the survey for two possible reasons: when the participant did not give consent and if the participant indicated that he or she only used public healthcare in South Africa. The responses were, regardless, all captured by Qualtrics as per the design of this platform's functionality and included in the primary dataset. The limitation was thus addressed to an extent in the design of the survey and further in the clean-up of the data.

From a provider group perspective, the survey was discontinued similarly if consent was not given but also if a provider indicated that he or she solely worked in healthcare in another country than South Africa. As was the case for the consumer group, these responses were still captured by Qualtrics as per the design of this platform's functionality and included in the primary dataset, but excluded from the final dataset that was used for the analysis. The limitation was thus addressed to an extent in the design of the survey and further in the clean-up of the data.

This limitation required that, prior to statistical analysis of the data, the entire set of collected data had to be cleaned up to include only responses that were relevant to the target population under examination to answer the research questions, and in addition, to inform the development of a modified value equation .

### ***Patient population.***

Everyone who received the survey link and consented to participate could complete the survey. Should a participant work in the healthcare industry or as a healthcare worker in any category other than that of a doctor, he or she was required to complete the survey from a patient perspective. Therefore, the patient sample included other healthcare practitioners such as nurses, paramedics, pharmacists, physiotherapists, occupational therapists, dieticians, dentists, oral hygienists, podiatrists, perfusionists and so forth. The reason for separating doctors in this way is because the actual decisions in the treatment of the patients that influence the factors in the healthcare value equation (Clinical Outcome, Cost of Clinical Event, and Patient's Experience) is made solely by the doctor who prescribes treatment, although the orders or prescriptions are executed by nurses and ancillary healthcare professionals (*National Health Act 61 of 2003*, 2003).

All patients could complete the survey regardless of whether they consumed private or public healthcare or a combination of the two, but only participants who indicated that they received clinical care services in the private healthcare context or a combination of the two had their data used in the final analysis. Consumers of exclusively public healthcare were removed from the dataset for the purposes of this study. The excluded data may be used for future analyses.

### ***Doctor population.***

All doctors could complete the survey regardless of whether they were working in the private or public healthcare sectors or a combination of the two. Only participants who indicated that they provided services in the private healthcare context or a combination of the two had their data used in the final analysis. Data collected from doctors practicing solely in the public healthcare sector in South Africa was removed from the dataset for this study. The excluded data may be used for future analyses.

Similarly, doctors could complete the survey regardless of whether they practiced in South Africa, another country, or a combination of the two, but responses were only included in the final analysis where participants indicated that they practiced in South Africa or a combination of another country and South Africa. Data collected from doctors practicing solely in countries other than South Africa was removed from the dataset for this study. The excluded data may be used for future analyses.

### **Item randomisation bias.**

For every clinical scenario question, in both the consumer and provider questionnaires, the three factors (Clinical Outcome, Cost of Clinical Event, and Patient's Experience) appeared in a randomised sequence, thereby assuring that the same factor did not always appear last in the sequence of options provided to the participant. The researcher was concerned that, should the same factor always appear last, it could potentially result in the participant consistently allocating a smaller value to that factor as he or she might have run out of points and might not have gone back to reduce the values attributed to the other two factors.

The randomisation utility offered by Qualtrics was applied in the design of the survey to address this possible bias occurring. The limitation originated from the allocation of a finite number of points towards the different factors, namely 100. The survey as outlined

in Appendix A does not demonstrate this randomisation as it is only visible when the survey is run in its live format by accessing the survey link.

### **Free text responses.**

In the basic demographic section of the patient survey, free text was allowed when asking participants to indicate what the total monthly contribution to the medical aid was in South African Rand (ZAR) rounded to the nearest hundred. It was not specified whether this amount was for an individual patient or a family of patients. This resulted in answers ranging in amounts from 0 to 17 000 ZAR. The researcher was unable to distinguish whether the stated amount was for a single- or multiply-insured lives, thereby limiting the utility of this demographic variable in the statistical analyses, results and discussion.

## Results

### Study Variables

This study reports results on two main sets of variables, namely consumers and providers of private healthcare as the independent variable, and factors representative of value perspectives (Clinical Outcome, Cost of Clinical Event, and Patient's Experience) as the dependent variable. The independent variable is discrete and nominal (categorical) and the dependent variable is continuous and ratio (Wegner, 2016).

Providers included clinicians (medical doctors) registered to work in private healthcare practice in South Africa, thus actively practicing or having actively practiced clinical medicine in the private healthcare sector in South Africa. Consumers (patients) included privately paying or medically-insured patients in the South African healthcare context, thus the consumers making use of private healthcare in South Africa.

Clinical Outcomes is the result of care as measured by a set of condition-specific, multidimensional objective measures, applied to an individual or a population (Berwick et al., 2008; Porter, 2010). Cost of Clinical Event refers to the total cost of the episode of care delivered and is generally measured in monetary value as attributed to the use of an array of providers, infrastructure, equipment and consumables used to provide the required care (Berwick et al., 2008; Porter, 2010). Patient's Experience is defined by the subjective experience of the entire continuum of care and whether the patient's needs and expectations were met (Wolf et al., 2014).

#### **Basic demographic variables.**

##### ***Consumers.***

Various basic demographic variables were included in the consumer and provider groups. The basic demographic section of the survey for the consumer group included questions regarding gender, age, gross monthly income and highest level of education and whether the patient used healthcare services in the private or public healthcare sector or a combination of the two. It further asked whether the patient was a member of a medical aid and, if so, how long he or she had been a member and what the total monthly contribution to the medical aid was in South African Rand (ZAR) rounded to the

nearest hundred. The survey also asked whether the participant contributed solely for his or her medical aid or cash payment of medical services, in part, or not at all.

### ***Providers.***

The basic demographic section of the survey for the provider group included questions regarding gender, age, and whether the doctor practiced in the private or public healthcare sector or a combination of the two. It further asked whether the doctor practiced medicine in South Africa or another country or a combination of the two, how many years the doctor had been practising medicine after the completion of his or her compulsory internship and community service (which are typically done in the public sector), and how many of the total years practiced were in the private sector. In addition, a question was asked about whether the doctor practiced clinical medicine or worked in an administrative or managerial capacity in healthcare. For doctors working in clinical medicine, the researcher distinguished between general practitioners and specialists, and further divided the specialist cohort into medical, surgical, and diagnostic disciplines.

### **Value perspective variables.**

For the value perspectives sections of the survey, for both the consumer and provider groups, a series of general and clinical scenarios were presented. The first three scenarios were representative of surgical procedures, presented in progressive severity. The second three scenarios were representative of medical conditions commonly encountered and requiring admission, also presented in progressive severity. For each of the scenarios a total number of 100 points was available that had to be distributed between three factors representative of Value of Care delivered, namely Clinical Outcome, Cost of Clinical Event, and Patient's Experience.

The allocation of points was to be made according to the relative importance of each factor in the view of the respondent. The value of 100 could not be exceeded as the survey was designed to allow any value between 0 (inclusive) and 100 (inclusive) to be attributed to each of the factors, provided that the total values for the three factors equated to 100. Similarly, the total available points had to be used and the survey would not allow the respondent to continue to a next question if the accumulated value for the three factors in a specific scenario equated to a total of less than a 100 (See Appendix A).

## **Description of the Sample**

A total of 1341 participants accessed the Qualtrics survey link and were registered in the dataset as participants. After a clean-up of the dataset, 1043 participants remained in the sample for analysis.

### **Exclusions applied in data clean-up.**

Based on the limitations discussed in the method chapter, some participants could not complete the survey and their data was removed based on exclusion criteria. Some participants could complete the survey but, based on additional exclusion criteria, their data was also removed from the dataset. The clean-up process was aimed at ensuring accurate answering of the research objectives and research questions.

#### ***General exclusions.***

Participants who did not give consent could not complete the survey and their data was removed. Responses where participants abandoned the survey before indicating whether they were patients or doctors were similarly removed, as well as responses where participants only completed the demographic section and not the value perspectives sections.

#### ***Consumer exclusions.***

All consumers could complete the survey regardless of whether they utilised private or public healthcare or a combination of the two, but only those who had indicated that they received clinical care services in the private healthcare context or a combination of the two could complete the full survey and had their data used in the final analysis.

#### ***Provider exclusions.***

All providers could complete the survey regardless of whether they were working in the private or public healthcare sectors. However, only those who had indicated that they provided services in the private healthcare context, be it solely in the private sector or as a combination of the private and public sectors, had their data used in the final analysis. Twenty practitioners indicated that they currently practice in the public sector, but they were included in the dataset as they had previously worked in the private sector. The

excluded provider data may be used for future analyses.

Providers who had indicated that they only practiced in countries other than South Africa could not complete the full survey. Only doctors who had indicated that they practiced in South Africa or a combination of South Africa and other countries could complete the survey to the end and had their data included in the final analysis. Data collected from providers practicing solely in countries other than South Africa was removed. The excluded provider data may be used for future analyses.

### **Sample size.**

A total of 1341 participants accessed the Qualtrics survey link. Of this total, six participants did not consent to the study and were removed from the sample for analysis ( $n_{total} = 1335$ ). Another 35 abandoned the survey before indicating whether they were patients or doctors. This data was also removed before analysis ( $n_{total} = 1300$ ).

Of the total provider participants ( $n_{provider} = 558$ ), 43 responded that they only practised medicine outside of South Africa. These participants were not allowed to continue with the survey and their data was removed ( $n_{provider} = 515$ ). Another 89 provider participants indicated that they practiced medicine solely in the public sector in South Africa. These participants could complete the survey but their responses were removed from the sample for analysis ( $n_{provider} = 426$ ). Lastly, 45 provider participants only completed the demographic section of the survey and not the value perspectives section (general or scenario specific) and were also removed from the sample ( $n_{provider} = 381$ ). The final provider participants whose data were included in the analysis totalled to 381.

From the consumer cohort ( $n_{consumer} = 742$ ), a total of 16 participants indicated that they solely made use of public healthcare in South Africa and were not allowed to complete the survey. Their data was removed from the sample for analysis ( $n_{consumer} = 726$ ). From the remaining 726 consumer participants, 64 only completed the demographic sections of the questionnaire and did not complete the general or scenario-specific value perspective sections. Their data were removed from the sample for analysis ( $n_{consumer} = 662$ ).

Based on this data clean-up, a total of 1043 participants remained in the sample for analysis, 662 of which were consumers and 381 providers. The Table 1 depicts the clean-up of the samples of consumer responses, Table 2 of provider responses, as well

as Table 3 of the total sample clean-up.

Table 1. Consumer data clean-up of sample

Total consumer participants	742
Use of public healthcare only	16
Only demographic section completed	64
Total consumer responses included in analysis	662

Table 2. Provider data clean-up of sample

Total provider participants	558
Practice only outside of South Africa	43
Practice only in public healthcare in South Africa	89
Only demographic section completed	45
Total consumer responses included in analysis	381

Table 3. Total sample size clean-up

Total responses	1341
No consent	6
Survey abandoned before indication of patient or doctor	35
Consumers using public healthcare only	16
Consumers who completed only demographic section	64
Providers practicing only outside of South Africa	43
Providers practicing only in public healthcare in South Africa	89
Providers who completed only demographic section	45
Total responses included in analysis	1043



## Statistical Results

Descriptive statistics were used to characterise the study sample and tests of mean differences (e.g., independent samples *t* tests and Analyses of Variance (ANOVAs)) were used to assess whether differences exist between consumer and provider groups and subgroups in terms of value perspectives, as well as to assess differences in value perspectives as the severity of surgical and medical scenarios increased. Prior to statistical analysis of the data, parametric assumptions were evaluated. For the most part, the data was found to be normally distributed and parametric techniques were employed.

Further, to examine the association between the variables of interest, univariate analyses using the Pearson product-moment correlation coefficient was conducted. Throughout, data were analysed using IBM SPSS version 24 and alpha was set at 5% (Field, 2013; Pallant, 2011; Wegner, 2016).

### **Basic demographic variables.**

Descriptive statistics were used to characterise the study samples of both the consumer and provider groups and subgroups.

### ***Descriptive characteristics of basic demographic variables.***

The study included a total of 1043 participants between the ages of 19 to 88 years ( $M_{age} = 44.45$  years,  $SD = 11.76$ ), 437 of which were male and 605 females. Consumers of private healthcare comprised 662 participants ( $M_{age} = 43.19$  years,  $SD = 11.84$ ) and providers of private healthcare comprised 381 participants ( $M_{age} = 46.65$  years,  $SD = 11.30$ ).

### *Consumer group.*

Of the consumer group, 469 (70.8%) were women. The mean age of the consumer population was 43.19 (minimum 19 and maximum 81 years). Characteristics of the consumer population is presented in Table 4. Five hundred and eighty-five (88.4%) consumers exclusively use private healthcare services in South Africa, while 77 (11.6%) reported to use a combination of both public and private services. Most consumers ( $n = 625$ , 94.4%) claimed that they were members of a medical aid, where 383 (57.9%) and

226 (34.1%) reported to be fully and partly financially responsible for this service, respectively. Five hundred and thirty-six (81.0%) consumers had been covered by a medical aid for over 10 years. Consumers contributed an average of R4722.06 ( $SD = R2791.60$ ) per month for medical aid cover.

Table 4. Demographic characteristics of consumer group

Demographic variable	Consumers ( $n = 662$ ) $n$ (%)
<b>Gender</b>	
Female	469 (70.8)
Male	193 (29.2)
Prefer not to say	0 (0.0)
<b>Level of education</b>	
Less than Grade 12	5 (0.8)
Grade 12	51 (7.7)
Diploma	151 (22.8)
Bachelor's Degree	147 (22.2)
Postgraduate Honour's	130 (19.7)
Postgraduate Master's	135 (20.4)
Postgraduate Doctoral	18 (2.7)
Other	24 (3.6)
<b>Gross monthly income (ZAR)</b>	
Less than 10,000	36 (5.5)
10,000-19,999	69 (10.5)
20,000-29,999	87 (13.3)
30,000-39,999	68 (10.3)
40,000-49,999	56 (8.5)
50,000-59,999	54 (8.2)
60,000-69,999	49 (7.5)
More than 69,999	184 (28.0)
Prefer not to say	53 (8.1)
<b>Healthcare sector used</b>	
Private	585 (88.4)
Combination of private and public	77 (11.6)

<b>Member of medical aid</b>	
Yes	625 (94.4)
No	37 (5.6)
<b>Years as a member of medical aid</b>	
Less than 1 year	3 (0.5)
1-5 years	30 (4.8)
6-10 years	56 (9.0)
Longer than 10 years	536 (85.8)
<b>Financially responsible for medical aid or cash payment of treatment</b>	
Yes	383 (57.9)
Partly	226 (34.1)
No	53 (8.0)

*Provider group.*

Characteristics of the provider population is presented in Table 5. In total 136 (35.7%) providers were women and one participant (0.3%) preferred not to indicate their gender. The mean age of the provider population was 46.65 (minimum 27 and maximum 88 years).

Of the 381 providers, 283 (74.3%) responded that they worked solely in the private sector, whilst 78 (20.5%) responded that they work in a combination of the private and public sectors. Twenty practitioners who indicated that they currently practice in the public sector were included in the dataset as they have indicated that they had worked in the private sector previously. The total years that provider participants had practiced medicine was on average 19.40 (minimum 1 year and maximum 63 years), of which the average time spent in private practice was 13.25 years (minimum 1 and maximum 58 years).

Most providers practiced in South Africa ( $n = 359$ , 94.2%), while 22 (5.8%) practiced in both South Africa and abroad. Two hundred and forty-six (64.6%) providers were specialists and 135 (35.4%) were general practitioners. A large majority worked in clinical medicine ( $n = 339$ , 89.0%) and the remainder were involved in management or medical administration ( $n = 42$ , 11.0%). Of those working in clinical medicine, 25.4% were specialised in medical disciplines, 49.0% in surgical disciplines (inclusive of anaesthesia as per the survey), and 3.5% in diagnostic disciplines (inclusive of radiology and pathology as per the survey).

Table 5. Demographic characteristics of provider group

<b>Providers (n = 381)</b>	
	<b>n (%)</b>
<b>Gender</b>	
Female	136 (35.7)
Male	244 (64.0)
Prefer not to say	1 (0.3)
<b>Countries of practice</b>	
South Africa only	359 (94.2)
South Africa and other(s)	22 (5.8)
<b>Sector of practice</b>	
Private	283 (74.3)
Public	20 (5.2)
Combination of private and public	78 (20.5)
<b>Clinical medicine or administration</b>	
Clinical medicine	339 (89.0)
Management or administration	42 (11.0%)
<b>Type of provider</b>	
General practitioner	135 (35.4)
Specialist	246 (64.6)
<b>Clinical field of specialisation</b>	
General practitioner	135 (35.4)
Specialist	246 (64.6)
Medical	86 (32.6)
Surgical	166 (62.9)
Diagnostic	12 (4.5)

### ***Test of mean differences across demographic characteristics.***

Tests of mean differences (independent samples *t* tests and ANOVAs) were conducted to ascertain whether demographic characteristics affected value perspectives across general, surgical, and medical scenarios. Levene's test was used to assess homogeneity of variance for each result.

#### *Consumer group.*

The demographic characteristics evaluated included gender, gross monthly income and highest level of education. It further included whether the patient used healthcare services in the private or public healthcare sector or a combination of the two. The survey also asked whether the patient was a member of a medical aid and, if so, how long he or she had been a member and whether the participant contributed solely for his or her medical aid or cash payment of medical services, in part, or not at all.

Demographic characteristics that were not evaluated included age and total monthly contribution to the medical aid in South African Rand (ZAR) rounded to the nearest hundred as these were interval level variables and, in order to conduct independent samples *t* tests and ANOVAs, the independent variable needs to be nominal (Pallant, 2011)

#### *Gender.*

Table 6 shows the results of the independent samples *t* test for consumer general, surgical, and medical scenarios by gender. In terms of sample characteristics, it was found that there were no statistically significant differences between female and male consumers in any of the cost related value perspectives, namely General Cost, Surgical Cost and Medical Cost. There were, however, statistically significant differences between female and male consumers in all three of the Clinical Outcome related value perspectives, namely General Clinical Outcome, Surgical Clinical Outcome, and Medical Clinical Outcome as well as all three of the Patient's Experience related value perspectives. Male participants valued the Clinical Outcome related perspectives higher than females (for General Clinical Outcome, Surgical Clinical Outcome, and Medical Clinical Outcome). Female participants valued the Patient's Experience related perspectives higher than males (for General Patient's Experience, Surgical Patient's Experience and Medical Patient's Experience).

To examine practical significance, Cohen's  $d$  values (Cohen, 1973, 1988) were calculated to determine effect size (Field, 2013), where Cohen's  $d_{\text{small}} = 0.2$ , Cohen's  $d_{\text{medium}} = 0.5$  and Cohen's  $d_{\text{large}} = 0.8$ . Hereby the effect size of the statistical significance of General Patient's Experience, Surgical Clinical Outcome and Surgical Patient's Experience proved to be small to medium with General Clinical Outcome, Medical Clinical Outcome and Medical Patient's Experience small.

Table 6. Independent samples  $t$  test for consumer general, surgical, and medical scenarios by gender

	Female		Male		Independent samples $t$ test		
	Mean (SD)	SE	Mean (SD)	SE	$t(df)$	$p$	$d$
General Clinical Outcome	50.64 (21.02)	0.97	56.04 (21.79)	1.57	2.975 (660)	0.003**	0.25
General Cost	22.76 (15.49)	0.715	22.91 (15.41)	1.11	0.117 (660)	0.907	0.01
General Patient's Experience	26.61 (15.81)	0.73	21.05 (15.16)	1.09	4.162 (660)	0.000***	0.36
Surgical Clinical Outcome	50.52 (18.26)	0.92	57.61 (18.54)	1.40	4.251 (568)	0.000***	0.39
Surgical Cost	21.55 (13.41)	0.67	19.55 (14.09)	1.07	1.612 (568)	0.108	0.15
Surgical Patient's Experience	27.93 (13.63)	0.69	22.84 (12.68)	0.96	4.198 (568)	0.000***	0.39
Medical Clinical Outcome	53.10 (18.37)	0.92	57.37 (19.39)	1.47	2.517 (568)	0.012*	0.23
Medical Cost	20.26 (13.53)	0.68	19.33 (13.34)	1.01	0.761 (568)	0.447	0.07
Medical Patient's Experience	26.64 (13.00)	0.65	23.30 (12.57)	0.95	2.857 (568)	0.004**	0.26

Note. \* =  $p < 0.05$ , \*\* =  $p < 0.01$ , \*\*\* =  $p < 0.001$ . SE = standard error of the mean.

*Highest level of education.*

Tables 7a and 7b show the results of the ANOVA test as conducted for consumer general, surgical, and medical scenarios by level of education. In terms of level of education, it was found that there were no statistically significant differences in general value perspectives (General Clinical Outcomes, General Cost and General Patient's Experience) as well as for Surgical Patient's Experience. Statistically significant differences in Surgical Clinical Outcomes and Cost, as well as Medical Clinical Outcomes, Cost and Patient's Experience were demonstrated in the ANOVA test.

For Medical Clinical Outcome, the sample did not meet criteria for homogeneity of variance ( $p = 0.026$ ). An inspection of two Robust tests for equality of means, the Brown-Forsyth ( $p = 0.002$ ) and Welch ( $p = 0.003$ ) tests, found a similar statistically significant result. Based on the Scheffé post hoc test, there were no statistically meaningful differences found between different levels of education.

Based on the Scheffé post hoc test, there were no statistically meaningful differences in Surgical Cost, Medical Cost and Medical Patient's Experience. For Surgical Clinical Outcome, the Scheffé post hoc test confirmed this finding only for bachelors and honours degreed participants, but not for participants with master's degrees and less significantly so in terms of p-value.

Table 7a. Comparison for consumer general, surgical, and medical scenarios by level of education

	Grade 12		Diploma		Bachelor's Degree		Postgraduate Honour's		Postgraduate Master's		Postgraduate Doctoral	
	Mean (SD)	SE	Mean (SD)	SE	Mean (SD)	SE	Mean (SD)	SE	Mean (SD)	SE	Mean (SD)	SE
General Clinical Outcome	49.47 (24.23)	3.39	49.50 (21.70)	1.77	52.39 (21.84)	1.80	52.65 (20.26)	1.78	54.35 (19.85)	1.71	50.83 (18.82)	4.44
General Cost	23.24 (16.95)	2.73	23.37 (15.51)	1.26	23.97 (17.01)	1.40	22.13 (14.87)	1.31	21.84 (13.15)	1.13	23.56 (14.93)	3.52
General Patient's Experience	27.29 (14.18)	1.99	27.13 (17.15)	1.40	23.63 (14.94)	1.23	25.22 (16.34)	1.43	23.81 (15.92)	1.37	25.61 (10.26)	2.42
Surgical Clinical Outcome	50.70 (19.58)	2.95	46.49 (18.71)	1.67	55.26 (19.51)	1.75	55.92 (16.72)	1.53	53.46 (17.72)	1.62	58.98 (17.90)	4.48
Surgical Cost	21.72 (14.01)	2.11	24.28 (15.06)	1.35	19.31 (13.81)	1.24	19.29 (12.67)	1.16	21.01 (12.46)	1.14	16.29 (11.95)	2.99
Surgical Patient's Experience	27.58 (13.84)	2.09	29.23 (14.19)	1.27	25.43 (15.31)	1.37	24.78 (11.38)	1.04	25.53 (12.94)	1.18	24.73 (12.19)	3.05
Medical Clinical Outcome	49.70 (23.74)	3.58	49.77 (18.21)	1.63	57.85 (19.96)	1.79	56.62 (17.24)	1.57	53.91 (16.82)	1.54	63.98 (15.37)	3.84
Medical Cost	20.27 (15.10)	2.27	21.85 (13.78)	1.23	18.31 (13.90)	1.24	19.87 (12.73)	1.16	21.11 (12.93)	1.18	10.31 (8.60)	2.15
Medical Patient's Experience	30.03 (18.05)	2.72	28.38 (11.37)	1.02	23.83 (14.28)	1.28	23.52 (11.93)	1.09	24.98 (11.64)	1.06	25.71 (11.64)	1.06



Table 7b. Comparison for consumer general, surgical, and medical scenarios by level of education

	ANOVA		
	<i>F</i> (df,df)	<i>p</i>	$\eta^2$
General Clinical Outcome	1.25(6,649)	0.277	0.01
General Cost	0.48(6,649)	0.854	0.00
General Patient's Experience	1.29(6,649)	0.260	0.01
Surgical Clinical Outcome	3.86(6,561)	0.001**	0.04
Surgical Cost	2.21(6,561)	0.041*	0.02
Surgical Patient's Experience	1.49(6,561)	0.180	0.02
Medical Clinical Outcome	3.52(6,561)	0.002**	0.03
Medical Cost	2.28(6,561)	0.035*	0.02
Medical Patient's Experience	2.82(6,561)	0.010*	0.03

Note. \* =  $p < 0.05$ , \*\* =  $p < 0.01$ . SE = standard error of the mean.  $\eta^2$  = eta squared.

#### *Gross monthly income.*

Tables 8a and 8b demonstrate the comparison for consumer general, surgical, and medical scenarios by gross monthly income. In terms of gross monthly income, it was found that there were statistically significant differences in all categories examined (see Table 8b). General Clinical Outcome was valued the highest by consumers with a monthly income exceeding 60 000 ZAR, the same with Surgical Clinical Outcome and Medical Clinical Outcome. General, Surgical and Medical costs were valued the highest in the consumer group with a monthly income of less than 10 000 ZAR and the lowest in the income group exceeding 60 000 ZAR per month. Patient's Experience showed a similar trend to Cost in that patients in lower income categories valued it more than ones in higher income categories (see Table 8a).

Based on the Scheffé post hoc test, there were statistically meaningful differences in all the Clinical Outcome categories (General, Surgical and Medical) between the consumer group with a gross monthly income below 19 999 ZAR and the group with a gross monthly income exceeding 60 000 ZAR.

Table 8a. Comparison for consumer general, surgical, and medical scenarios by gross monthly income

	Less than 10,000		10,000- 19,999		20,000- 29,999		30,000-39,999		40,000- 49,999		50,000- 59,999		60,000- 69,999		More than 69,999	
	Mean (SD)	SE	Mean (SD)	SE	Mean (SD)	SE	Mean (SD)	SE	Mean (SD)	SE	Mean (SD)	SE	Mean (SD)	SE	Mean (SD)	SE
General Clinical Outcome	42.33 (22.70)	3.78 (21.86)	44.10	2.63	51.17 (20.46)	2.20	48.60 (23.73)	2.88	52.00 (20.58)	2.75	53.74 (17.81)	2.42	57.86 (23.94)	3.42	57.21 (19.17)	1.41
General Cost	26.89 (15.74)	2.62	26.78 (19.02)	2.29	22.47 (15.48)	1.66	24.96 (17.78)	2.16	24.70 (13.74)	1.84	21.93 (14.86)	2.02	21.33 (18.12)	2.59	19.85 (12.54)	0.925
General Patient's Experience	30.78 (18.53)	3.09	29.12 (15.28)	1.84	26.36 (16.25)	1.74	26.44 (20.56)	2.50	23.30 (14.83)	1.98	24.33 (13.30)	1.81	20.82 (13.51)	1.88	22.93 (14.47)	1.07
Surgical Clinical Outcome	39.76 (17.25)	3.20	43.43 (16.03)	2.24	52.32 (17.33)	2.03	47.28 (17.43)	2.27	51.24 (20.98)	3.03	53.40 (18.53)	2.70	62.02 (20.53)	3.13	57.47 (16.36)	1.26
Surgical Cost	29.63 (16.23)	3.01	25.12 (14.69)	2.02	21.06 (13.43)	1.56	23.05 (12.03)	1.57	21.06 (15.06)	2.17	20.26 (14.30)	2.09	17.02 (13.78)	2.01	18.22 (12.03)	0.93
Surgical Patient's Experience	30.61 (12.63)	2.35	31.45 (12.54)	1.72	26.62 (12.23)	1.43	29.67 (14.28)	1.86	27.70 (16.02)	2.31	26.34 (14.33)	2.09	20.95 (13.91)	2.12	24.31 (12.12)	0.93
Medical Clinical Outcome	42.98 (17.39)	3.23	46.43 (18.39)	2.53	52.46 (17.20)	2.01	50.61 (17.77)	2.31	52.71 (21.65)	3.12	57.33 (18.60)	2.71	60.02 (20.24)	3.09	59.08 (16.23)	1.25
Medical Cost	24.67 (12.22)	2.27	23.53 (13.30)	1.83	21.09 (14.93)	1.75	22.87 (13.26)	1.73	20.54 (15.03)	2.17	17.82 (14.06)	2.05	17.59 (14.01)	2.14	17.60 (11.74)	0.90
Medical Patient's Experience	32.36 (12.54)	2.33	30.04 (15.95)	2.19	26.45 (13.88)	1.62	26.52 (12.78)	1.66	26.75 (11.65)	1.68	24.84 (11.98)	1.75	22.40 (11.53)	1.76	23.32 (11.78)	0.91

Table 8b. Comparison for consumer general, surgical, and medical scenarios by gross monthly income

	ANOVA		
	<i>F</i> (df,df)	<i>p</i>	$\eta^2$
General Clinical Outcome	4.42(8,647)	0.000***	0.05
General Cost	2.13(8,647)	0.032*	0.03
General Patient's Experience	2.37(8,647)	0.018*	0.03
Surgical Clinical Outcome	7.39(8,647)	0.000***	0.10
Surgical Cost	3.70(8,557)	0.000***	0.05
Surgical Patient's Experience	3.26(8,557)	0.001**	0.04
Medical Clinical Outcome	5.26(8,557)	0.000***	0.07
Medical Cost	2.38(8,557)	0.016*	0.03
Medical Patient's Experience	2.98(8,557)	0.003**	0.04

Note. \* =  $p < 0.05$ , \*\* =  $p < 0.01$ , \*\*\* =  $p < 0.001$ . SE = standard error of the mean.  $\eta^2$  = eta squared.

#### *Healthcare sector used.*

Tables 9 demonstrates the comparison for consumer general, surgical, and medical scenarios in terms of healthcare sector used (private, public or a combination of both). In terms of healthcare sector used, it was found that there were no statistically significant differences in General Cost, Surgical Patient's Experience, Medical Clinical Outcome, Medical Cost and Medical Patient's Experience between consumers using only private healthcare and those using a combination of private and public healthcare. There were statistically significant differences between General Clinical Outcome, General Patient's Experience, Surgical Clinical Outcome and Surgical Cost (see Table 9). General Clinical Outcome and Surgical Clinical Outcome were valued higher by patients exclusively using private healthcare, whilst General Patient's Experience and Surgical Cost were valued higher by consumers accessing a combination of private and public sector care.

Cohen's *d* values (Cohen, 1973, 1988) were used to evaluate practical significance (Field, 2013) and were calculated to determine the effect size. The effect size of the statistical significance of Surgical Cost was small to medium with all other statistical significance differences having a small effect size (see Table 9).

Table 9. Independent samples *t* test for consumer general, surgical, and medical scenarios by healthcare sector used

	Private		Combination		Independent samples <i>t</i> test		
	Mean (SD)	SE	Mean (SD)	SE	<i>t</i> (df)	<i>p</i>	<i>d</i>
General Clinical Outcome	52.94 (20.87)	0.86	46.68 (24.33)	2.77	2.427 (660)	0.015*	0.28
General Cost	22.52 (15.31)	0.63	24.94 (16.48)	1.88	1.289 (660)	0.198	0.15
General Patient's Experience	24.54 (15.50)	0.64	28.39 (17.75)	2.02	2.013 (660)	0.044*	0.23
Surgical Clinical Outcome	53.24 (18.42)	0.82	48.23 (19.77)	2.51	2.009 (568)	0.045*	0.26
Surgical Cost	20.35 (13.43)	0.60	25.69 (14.57)	1.85	2.928 (568)	0.004**	0.38
Surgical Patient's Experience	26.40 (13.48)	0.60	26.08 (14.12)	1.79	0.176 (568)	0.860	0.23
Medical Clinical Outcome	54.94 (18.73)	0.83	50.06 (18.72)	2.38	1.934 (568)	0.054	0.26
Medical Cost	19.73 (13.55)	0.60	22.02 (12.69)	1.61	1.264 (568)	0.207	0.17
Medical Patient's Experience	25.33 (12.49)	0.55	27.92 (16.21)	2.06	1.485 (568)0	0.138	0.18

Note. \* =  $p < 0.05$ , \*\* =  $p < 0.01$ . SE = standard error of the mean.

*Member of medical aid.*

Table 10 demonstrates the comparison for consumer general, surgical, and medical scenarios in terms of membership of medical aid or not. In terms of sample characteristics, it was found that there were no statistically significant differences in any of the value perspectives between consumers who were members of medical aids and those who were not (see Table 10).

Table 10. independent samples *t* test for consumer general, surgical, and medical scenarios by member of medical aid

	Yes		No		Independent samples <i>t</i> test		
	Mean (SD)	SE	Mean (SD)	SE	<i>t</i> (df)	<i>p</i>	<i>d</i>
General Outcome	52.11 (21.22)	0.89	53.92 (24.13)	3.97	0.50 (660)	0.617	0.08
General Cost	22.84 (15.21)	0.608	22.16 (19.43)	3.20	0.208 (38.64)	0.836	0.04
General Patient's Experience	25.05 (15.81)	0.63	23.92 (16.02)	2.63	0.422 (660)	0.673	0.07
Surgical Outcome	52.87 (18.51)	0.80	49.44 (20.67)	3.91	0.950 (568)	0.343	0.17
Surgical Cost	20.62 (13.31)	0.57	26.98 (18.23)	3.44	0.20 (28.51)	0.079	0.40
Surgical Patient's Experience	26.51 (13.57)	0.58	23.58 (12.74)	2.41	1.12 (568)	0.265	0.22
Medical Outcome	54.40 (18.80)	0.81	54.51 (18.65)	3.52	0.03 (568)	0.976	0.01
Medical Cost	19.87 (13.37)	0.57	22.13 (15.19)	2.87	0.868 (568)	0.386	0.16
Medical Patient's Experience	25.73 (13.00)	0.56	23.36 (11.95)	2.26	0.946 (568)	0.345	0.19

Note. SE = standard error of the mean.

*Years as a member of medical aid.*

Table 11 demonstrates the comparison for consumer general, surgical, and medical scenarios in terms of years as member of medical aid. In terms of sample characteristics, it was found that there were only statistically significant differences in General Clinical Outcomes between consumers, depending on duration of medical aid membership (see Table 11). Based on Levene's Test, however, homogeneity of variance could not be assumed for this sample. Assessing the Robust tests of equality of means conducted, statistical significance was affirmed by the Brown-Forsythe test ( $p = 0.27$ ) but not by the Welch test ( $p = 0.83$ ).

Also, based on Levene's Test, homogeneity of variance could not be assumed for General Cost and Medical Cost. Assessing the Robust tests of equality of means conducted, absence of statistical significance was affirmed by the Brown-Forsythe and Welch tests for both General Cost and Medical Cost.

Table 11. Comparison for consumer general, surgical, and medical scenarios by years as a member of medical aid

	Less than 1 year		1-5 years		6-10 years		Longer than 10 years		ANOVA		
	Mean (SD)	SE	Mean (SD)	SE	Mean (SD)	SE	Mean (SD)	SE	F(df,df)	p	$\eta^2$
General Clinical Outcomes	39.33 (10.69)	6.17	43.33 (27.22)	4.97	48.66 (18.36)	2.45	53.03 (21.03)	0.91	2.93 (3,621)	0.033*	0.01
General Cost	36.33 (21.83)	12.60	24.90 (22.03)	4.02	24.38 (14.74)	1.97	22.49 (14.75)	0.64	1.26 (3,621)	0.288	0.01
General Patient's Experience	24.33 (12.42)	7.17	31.77 (22.37)	4.08	26.96 (12.68)	1.69	24.48 (15.63)	0.68	2.33 (3,621)	0.073	0.01
Surgical Clinical Outcomes	44.11 (18.17)	10.49	51.97 (21.66)	4.33	48.47 (14.82)	2.12	53.43 (18.66)	0.87	1.31 (3,538)	0.269	0.01
Surgical Cost	31.33 (25.62)	14.79	20.33 (16.20)	3.24	23.83 (14.05)	2.01	20.23 (12.96)	0.60	1.74 (3,538)	0.158	0.01
Surgical Patient's Experience	24.56 (7.83)	4.52	27.69 (13.86)	2.77	27.70 (11.18)	1.60	26.33 (13.84)	0.64	0.24 (3,541)	0.872	0.00
Medical Clinical Outcomes	41.22 (23.62)	13.64	49.15 (18.47)	3.69	52.16 (14.46)	2.07	55.00 (19.15)	0.89	1.54 (3,538)	0.203	0.01
Medical Cost	28.89 (30.06)	17.36	20.92 (10.08)	3.02	20.92 (10.78)	1.44	19.51 (13.45)	0.62	1.24 (3,538)	0.296	0.01
Medical Patient's Experience	29.89 (8.69)	5.02	27.51 (9.50)	1.90	26.91 (10.90)	1.56	25.48 (13.39)	0.62	0.45 (3,538)	0.720	0.00

Note. \* =  $p < 0.05$ . SE = standard error of the mean.  $\eta^2$  = eta squared.

*Financially responsible for medical aid or cash payment of treatment.*

Table 12 exhibits the comparison for consumer general, surgical, and medical scenarios by financially responsible for medical aid contribution. In terms of financial responsibility, it was found that there were no statistically significant differences in value perspectives between consumers, depending on whether the participant was solely, partly or not at all responsible for medical aid contribution (see Table 12). Across all results the eta squared values were small, confirming the results.

Table 12. Comparison for consumer general, surgical, and medical scenarios by financially responsible for medical aid contribution

	Yes		Partly		No		ANOVA		
	Mean (SD)	SE	Mean (SD)	SE	Mean (SD)	SE	<i>F</i> (df,df)	<i>p</i>	$\eta^2$
General	53.23	1.04	51.11	1.51	49.58	3.12	1.135	0.322	0.00
Clinical	(20.38)		(22.65)		(22.70)		(2,659)		
Outcome									
General	22.91	0.76	22.08	1.06	25.13	2.41	0.857	0.425	0.00
Cost	(14.86)		(15.95)		(17.51)		(2,659)		
General	23.87	0.78	26.81	1.11	25.28	2.17	2.489	0.084	0.01
Patient's	(15.27)		(16.61)		(15.73)		(2,659)		
Experience									
Surgical	51.86	1.02	54.40	1.38	51.84	2.46	1.176	0.309	0.00
Clinical	(18.72)		(18.93)		(16.13)		(2,567)		
Outcome									
Surgical	21.36	0.74	19.93	0.98	21.97	2.24	0.791	0.454	0.00
Cost	(13.65)		(13.41)		(14.70)		(2,567)		
Surgical	26.78	0.77	25.66	0.95	26.19	1.71	0.414	0.661	0.00
Patient's	14.11)		(12.99)		(11.21)		(2,567)		
Experience									
Medical	53.79	0.99	53.33	1.40	55.22	3.20	0.450	0.638	0.00
Clinical	(18.27)		(19.18)		(21.01)		(2,567)		
Outcome									
Medical	20.74	0.75	18.85	0.95	18.85	1.82	1.358	0.258	0.00
Cost	(13.87)		(13.01)		(11.96)		(2,567)		
Medical	25.46	0.67	25.81	0.95	25.94	2.56	0.058	0.943	0.00
Patient's	(12.37)		(13.07)		(16.78)		(2,567)		
Experience									

Note. SE = standard error of the mean.  $\eta^2$  = eta squared.



### *Provider group.*

The demographic characteristics evaluated included gender, countries in which the respondent practiced and whether the provider practiced in the private sector alone or a combination of the private and public sectors. The researcher also looked at whether the provider was a general practitioner or specialist, if the provider practiced clinical medicine or worked in administration or management in healthcare, and for those working in clinical medicine, it asked what the provider's respective specialty was, namely medical, surgical or diagnostic.

Demographic characteristics that were not evaluated included age and total years of practice as well as total years of practice in the private sector in South Africa, as these were interval level variables. This data could be used for future analysis.

### *Gender.*

Table 13 shows the result of independent samples *t* test for provider general, surgical, and medical scenarios by gender. In terms of gender, it was found that there was only a statistically significant difference between female and male providers related to their value perspectives of Medical Cost, where female providers valued this more than male providers (see Table 13). The Cohen's *d* value (Cohen, 1973, 1988) was however small, attenuating this statistical significance to small from a practical perspective.

Table 13. Independent samples *t* test for provider general, surgical, and medical scenarios by gender

	Female		Male		Independent samples <i>t</i> test		
	Mean (SD)	SE	Mean (SD)	SE	<i>t</i> (df)	<i>p</i>	<i>d</i>
General Clinical Outcome	52.24 (16.68)	1.43	55.56 (16.67)	1.07	1.858 (378)	0.064	0.20
General Cost	18.88 (11.26)	0.97	16.89 (10.58)	0.68	-1.710 (378)	0.088	0.18
General Patient's Experience	28.88 (12.92)	1.11	27.55 (13.66)	0.88	-0.929 (378)	0.353	0.10
Surgical Clinical Outcome	44.00 (14.11)	1.23	46.26 (15.82)	1.08	1.309 (333)	0.192	0.15
Surgical Cost	25.19 (12.02)	1.09	23.57 (13.01)	0.89	-1.127 (333)	0.261	0.13
Surgical Patient's Experience	30.81 (11.02)	1.00	30.17 (10.81)	0.74	-0.519 (333)	0.604	0.06
Medical Clinical Outcome	54.82 (16.73)	1.51	58.53 (18.10)	1.24	1.854 (333)	0.065	0.21
Medical Cost	22.14 (12.38)	1.12	18.92 (12.97)	0.89	-2.220 (333)	0.027*	0.25
Medical Patient's Experience	23.04 (9.96)	0.90	22.55 (11.21)	0.77	-0.402 (333)	0.688	0.05

Note.\* =  $p < 0.05$ . SE = standard error of the mean.

*Countries of practice.*

Table 14 exhibits the independent samples  $t$  test for provider general, surgical, and medical scenarios by countries of practice. In terms of countries of practice, it was found that there was only a statistically significant difference between providers practicing solely in South Africa and those practicing in a combination of countries including South Africa, where it was related to their value perspectives of Surgical Cost. Hereby, providers practicing in a combination of countries including South Africa valued this more than ones practicing solely in South Africa (see Table 14). The Cohen's  $d$  value (Cohen, 1973, 1988) was moderate, indicative of a moderate statistical significance from a practical perspective.

Table 14. Independent samples *t* test for provider general, surgical, and medical scenarios by countries of practice

	South Africa		South Africa and another country		Independent samples <i>t</i> test		
	Mean (SD)	SE	Mean (SD)	SE	<i>t</i> (df)	<i>p</i>	<i>d</i>
General Clinical Outcome	54.59 (16.73)	0.88	50.41 (16.23)	3.46	1.141 (379)	0.255	0.25
General Cost	17.52 (10.98)	0.58	18.73 (8.44)	1.78	-0.505 (379)	0.614	0.12
General Patient's Experience	27.88 (13.28)	0.70	30.86 (15.19)	3.24	-1.013 (379)	0.312	0.21
Surgical Clinical Outcome	45.69 (15.06)	0.85	41.63 (17.59)	3.84	1.182 (333)	0.238	0.25
Surgical Cost	23.71 (12.39)	0.70	30.79 (15.17)	3.31	-2.499 (333)	0.013*	0.51
Surgical Patient's Experience	30.59 (10.96)	0.62	27.57 (9.29)	2.03	1.234 (333)	0.218	0.30
Medical Clinical Outcome	57.27 (17.73)	1.00	55.71 (17.38)	3.79	0.391 (333)	0.696	0.09
Medical Cost	19.84 (12.63)	0.71	23.90 (15.44)	3.37	-1.408 (333)	0.160	0.29
Medical Patient's Experience	22.89 (10.79)	0.61	20.38 (10.21)	2.23	1.034 (333)	0.302	0.24

Note.\* =  $p < 0.05$ . SE = standard error of the mean.

*Sector of practice.*

Table 15 shows the comparison for provider general, surgical, and medical scenarios by sector of practice whereby no statistically significant differences were found in any of the value perspectives examined.

Table 15. Comparison for provider general, surgical, and medical scenarios by sector of practice

	Private		Public		Combination of private and public		ANOVA		
	Mean (SD)	SE	Mean (SD)	SE	Mean (SD)	SE	<i>F</i> (df,df)	<i>p</i>	$\eta^2$
General Clinical Outcome	54.52 (16.61)	0.99	54.55 (13.86)	3.10	53.68 (17.90)	2.03	0.079 (2,378)	0.924	0.00
General Cost	17.68 (11.05)	0.66	17.15 (9.74)	2.18	17.40 (10.46)	1.18	0.038 (2,378)	0.963	0.00
General Patient's Experience	27.80 (13.05)	0.78	28.30 (11.90)	2.66	28.92 (15.03)	1.70	0.218 (2,378)	0.804	0.00
Surgical Clinical Outcome	45.76 (15.41)	0.99	46.70 (11.77)	2.78	44.05 (15.49)	1.81	0.415 (2,332)	0.660	0.00
Surgical Cost	23.44 (12.44)	0.80	21.78 (11.93)	2.81	27.13 (13.28)	1.55	2.746 (2,332)	0.066	0.02
Surgical Patient's Experience	30.80 (11.11)	0.71	31.52 (8.57)	2.02	28.81 (10.53)	1.23	1.036 (2,332)	0.356	0.01
Medical Clinical Outcome	57.54 (18.09)	1.16	49.81 (11.60)	2.73	57.78 (17.32)	2.03	1.661 (2,332)	0.192	0.01
Medical Cost	19.58 (13.05)	0.84	22.56 (9.15)	2.16	21.21 (12.88)	1.51	0.802 (2,332)	0.449	0.01
Medical Patient's Experience	22.88 (11.19)	0.72	27.63 (7.30)	1.72	21.01 (9.62)	1.13	2.853 (2,332)	0.059	0.02

Note. SE = standard error of the mean.  $\eta^2$  = eta squared.

*Clinical medicine or administration.*

Table 16 shows the results if the independent samples *t* test conducted for provider general, surgical, and medical scenarios by type of provider. In terms of type of provider, it was found that there was a statistically significant difference between providers practicing in clinical medicine and those working in administration in the value perspectives of cost (General Cost and Medical Cost) and Clinical Outcomes (Medical Clinical Outcome).

In line with the significance found, the Cohen's *d* values were large (Cohen, 1973, 1988). However, it must be noted that the sample sizes varied greatly, in that 339 providers indicated that they did clinical work and only 42 indicated that they worked in administration.

Table 16. Independent samples *t* test for provider general, surgical, and medical scenarios by type of provider

	Clinical medicine		Administration		Independent samples <i>t</i> test		
	Mean (SD)	SE	Mean (SD)	SE	<i>t</i> (df)	<i>p</i>	<i>d</i>
General Clinical Outcome	54.72 (17.11)	0.93	51.36 (12.85)	1.98	1.537 (60.64)	0.129	2.17
General Cost	16.90 (10.72)	0.58	23.21 (10.32)	1.59	-3.618 (379)	0.000***	5.27
General Patient's Experience	28.38 (13.74)	0.75	25.43 (9.98)	1.54	1.726 (62.12)	0.089	2.44
Surgical Clinical Outcome	45.84 (15.39)	0.89	42.22 (13.69)	2.25	1.366 (333)	0.173	0.25
Surgical Cost	23.71 (12.75)	0.74	27.78 (11.50)	1.89	-1.852 (333)	0.065	2.84
Surgical Patient's Experience	30.45 (10.89)	0.63	30.00 (10.89)	1.79	0.239 (333)	0.811	0.34
Medical Clinical Outcome	58.20 (17.59)	1.02	48.93 (16.41)	2.70	3.046 (333)	0.003**	4.69
Medical Cost	19.42 (12.58)	0.73	25.53 (13.74)	2.26	-2.760 (333)	0.006**	3.34
Medical Patient's Experience	22.38 (10.88)	0.63	25.54 (9.34)	1.54	-1.689 (333)	0.092	2.69

Note. \* =  $p < 0.05$  \*\* =  $p < 0.01$  \*\*\* =  $p < 0.001$ . SE = standard error of the mean.

*Type of provider.*

No statistically significant differences were found on value perspectives between types of provider (general practitioner and specialist groups) as shown in Table 17 which exhibits independent samples *t* test as conducted for provider general, surgical, and medical scenarios by type of provider.

Table 17. Independent samples *t* test for provider general, surgical, and medical scenarios by type of provider

	General practitioner		Specialist		Independent samples <i>t</i> test		
	Mean (SD)	SE	Mean (SD)	SE	<i>t</i> (df)	<i>p</i>	<i>d</i>
General Clinical Outcome	54.09 (16.88)	1.45	54.50 (16.65)	1.06	-0.227 (379)	0.820	0.02
General Cost	18.44 (11.44)	0.99	17.13 (10.49)	0.67	1.126 (379)	0.261	0.12
General Patient's Experience	27.47 (12.49)	1.08	28.37 (13.88)	0.89	-0.627 (379)	0.531	0.07
Surgical Clinical Outcome	45.23 (15.57)	1.43	45.55 (15.08)	1.02	-0.182 (333)	0.855	0.02
Surgical Cost	24.77 (12.21)	1.12	23.83 (12.92)	0.88	0.646 (333)	0.518	0.07
Surgical Patient's Experience	30.00 (10.72)	0.99	30.62 (10.97)	0.74	-0.497 (333)	0.619	0.06
Medical Clinical Outcome	55.38 (18.87)	1.74	58.15 (16.97)	1.15	-1.370 (333)	0.171	0.15
Medical Cost	20.73 (13.78)	1.27	19.74 (12.31)	0.84	0.675 (333)	0.500	0.08
Medical Patient's Experience	23.88 (10.79)	0.99	22.11 (10.71)	0.73	1.445 (333)	0.149	0.16

*Note.* SE = standard error of the mean.

*Clinical field of specialisation.*

Table 18 shows the comparison for provider general, surgical, and medical scenarios by clinical field of specialisation. No statistically significant differences were found on value perspectives between types of clinical specialties in the provider group (medical, surgical and diagnostic).

Table 18. Comparison for provider general, surgical, and medical scenarios by clinical field of specialisation

	Medical		Surgical		Diagnostic		ANOVA		
	Mean (SD)	SE	Mean (SD)	SE	Mean (SD)	SE	<i>F</i> (df,df)	<i>p</i>	$\eta^2$
General Clinical Outcome	52.62 (17.73)	1.91	55.58 (16.19)	1.26	51.25 (18.30)	5.28	0.835 (3,335)	0.475	0.01
General Cost	18.14 (10.89)	1.17	16.07 (10.29)	0.80	19.25 (11.82)	3.41	0.905 (3,335)	0.439	0.01
General Patient's Experience	29.24 (14.67)	1.58	28.34 (13.79)	1.07	29.50 (14.35)	4.14	0.295 (3,335)	0.829	0.00
Surgical Clinical Outcome	43.71 (14.79)	1.67	46.51 (15.35)	1.26	48.70 (16.67)	5.03	0.744 (3,294)	0.526	0.01
Surgical Cost	25.47 (12.22)	1.38	22.56 (13.45)	1.11	21.45 (10.40)	3.14	1.136 (3,294)	0.335	0.01
Surgical Patient's Experience	30.82 (10.92)	1.24	30.94 (11.08)	0.91	29.85 (11.25)	3.39	0.546 (3,294)	0.652	0.01
Medical Clinical Outcome	56.37 (16.09)	1.82	59.03 (16.90)	1.38	58.76 (17.94)	5.41	0.395 (3,294)	0.757	0.00
Medical Cost	19.89 (12.23)	1.39	19.19 (12.56)	1.03	19.12 (9.65)	2.91	0.055 (3,294)	0.983	0.00
Medical Patient's Experience	23.74 (10.39)	1.18	21.78 (10.77)	0.88	22.12 (10.14)	3.06	0.560 (3,294)	0.642	0.01

Note. \* =  $p < 0.0001$ . SE = standard error of the mean.  $\eta^2$  = eta squared.



**Value perspectives variables.**

***Value perspectives descriptive characteristics.***

Figure 1 provides the mean proportions of value attributed by consumers and providers for general, surgical, and medical scenarios. It appears that, across the general, surgical, and medical categories, Clinical Outcomes is consistently regarded with the highest value to both consumer and provider groups. This is followed by Patient's Experience as the second highest value, and Cost as being valued the least.

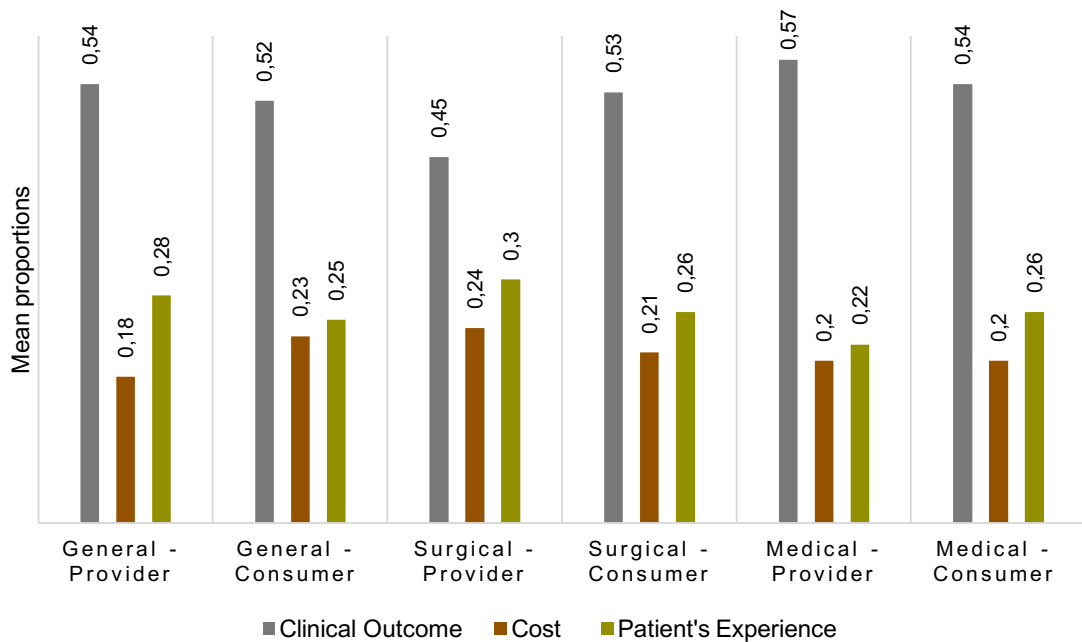


Figure 1. Consumer and provider mean value perspectives expressed as proportions across general, surgical and medical scenarios

From these results, and in answering Research Question 1, Patient's Experience is considered an important factor in determining the perception of Value of Care delivered, both from a consumer as well as from a provider point of view.

Referring to Research Objective 1, the results provide an understanding of the relative importance of factors in the healthcare value equation as applied to care delivered in the private healthcare sector of South Africa.

Referring to Research Objective 2 and specifically in answering Research Question 10, these mean proportions of value can be used as coefficients or weightings of importance

in the CVI equation for consumer and provider groups across general, surgical, and medical scenarios, where the healthcare value equation as modified by these weighting, can be expressed as:

$$CVI = \frac{(outcome\ coefficient)(outcome)}{(cost\ coefficient)(cost)} \times (patient\ experience\ coefficient)(patient\ experience)$$

### ***Relationships between variables of interest.***

Pearson correlations were run between the value perspectives of both consumer and provider groups across general, medical and surgical scenarios. The correlation matrix is shown in Table 19. Results were found to be similar across consumer and provider groups, with only marginal differences. For general value perspectives, General Clinical Outcomes correlated positively with surgical and medical Clinical Outcomes, and negatively correlated with cost (general, surgical, and medical) and Patient's Experience (general, surgical, and medical) across both consumer and provider groups ( $p < 0.05$ ). As expected, this pattern emerged similarly for the remainder of correlations, where positive relationships were found where the same value perspectives were correlated (i.e., general cost correlated with surgical cost and correlated with medical cost for both consumer and provider groups) and negative, or no relationships, were found when differing value perspectives were correlated (i.e., general cost correlated with surgical Patient's Experience, and general cost correlated with medical Clinical Outcomes).

These findings indicate consistency in responses and add to the construct validity and reliability of the survey (Saunders & Lewis, 2012). The correlation matrix provides proof of the reliability of the data as well as the validity as value perspectives were similarly and consistently responded to across the board: in general perspectives as well as where context was provided, as in the three surgical and three medical scenarios.

An investigation of the coefficients of determination (Nagelkerke, 1991) show that, for the consumer group, medical cost and medical Patient's Experience share the smallest variance, of 0.01%, while the highest shared variance is between surgical Clinical Outcomes and medical Clinical Outcomes, of 52.70%. For the provider group, the shared variance ranges from 0.01% for general cost and surgical Patient's Experience, to 63.50% for medical Clinical Outcomes to medical cost. Across the variances, it is evident that general value perspectives are related.

Table 19. Pearson correlations for value perspectives of consumers and providers across general, medical and surgical scenarios

	1	2	3	4	5	6	7	8	9
1. General Clinical Outcome	-	-0.600**	-0.762**	0.533**	-0.308**	-0.389**	0.499**	-0.328**	-0.429**
2. General Cost	<b>-0.674**</b>	-	-0.061	-0.430**	0.507**	0.012	-0.403**	0.444**	0.132*
3. General Patient's Experience	<b>-0.692**</b>	<b>-0.066</b>	-	-0.321**	-0.029	0.484**	-0.300**	0.048	0.435**
4. Surgical Clinical Outcome	<b>0.570**</b>	<b>-0.441**</b>	<b>-0.364**</b>	-	-0.711**	-0.573**	0.575**	-0.525**	-0.319**
5. Surgical Cost	<b>-0.432**</b>	<b>0.589**</b>	<b>0.044</b>	<b>-0.688**</b>	-	-0.169**	-0.450**	0.633**	-0.016
6. Surgical Patient's Experience	<b>-0.348**</b>	<b>0.013</b>	<b>0.456**</b>	<b>-0.682**</b>	<b>-0.062</b>	-	-0.281**	-0.003	0.466**
7. Medical Clinical Outcome	<b>0.505**</b>	<b>-0.429**</b>	<b>-0.289**</b>	<b>0.726**</b>	<b>-0.551**</b>	<b>-0.443**</b>	-	-0.797**	-0.693**
8. Medical Cost	<b>-0.373**</b>	<b>0.522**</b>	<b>0.027</b>	<b>-0.560**</b>	<b>0.695**</b>	<b>0.070</b>	<b>-0.724**</b>	-	0.117*
9. Medical Patient's Experience	<b>-0.344**</b>	<b>0.079</b>	<b>0.391**</b>	<b>-0.470**</b>	<b>0.076</b>	<b>0.570**</b>	<b>-0.697**</b>	<b>0.010</b>	-

Note. Producers above the diagonal, Consumers below the diagonal in bold. \* =  $p < 0.05$ , \*\* =  $p < 0.01$ .

### **Provider and consumer differences.**

Independent samples *t* tests were conducted to assess whether provider and consumer groups weighted value perspectives differently across general, surgical, and medical scenarios (see Table 20).

Table 20. Independent samples *t* test for general, surgical, and medical scenarios by consumer and provider groups

	Consumers		Providers		Independent samples <i>t</i> test		
	Mean (SD)	SE	Mean (SD)	SE	<i>t</i> (df)	<i>p</i>	<i>d</i>
General Clinical Outcome	52.21 (21.37)	0.83	54.35 (16.71)	0.86	1.794 (948.86)	0.073	0.11
General Cost	22.80 (15.46)	0.60	17.59 (10.84)	0.56	-6.367 (1001.31)	0.000***	0.39
General Patient's Experience	24.99 (15.82)	0.62	28.06 (13.40)	0.69	3.331 (900.95)	0.001***	0.21
Surgical Clinical Outcome	52.70 (18.62)	0.78	45.44 (15.23)	0.83	-6.366 (810.91)	0.000***	0.43
Surgical Cost	20.93 (13.65)	0.57	24.16 (12.67)	0.69	3.523 (903)	0.000***	0.25
Surgical Patient's Experience	26.37 (13.54)	0.57	30.40 (10.87)	0.59	4.915 (820.17)	0.000***	0.33
Medical Clinical Outcome	54.41 (18.77)	0.78	57.18 (17.68)	0.97	2.189 (903)	0.029*	0.15
Medical Cost	19.98 (13.46)	0.56	20.09 (12.84)	0.70	0.126 (903)	0.900	0.01
Medical Patient's Experience	25.62 (12.95)	0.54	22.73 (10.76)	0.59	-3.606 (803.46)	0.000***	0.24

Note.\* =  $p < 0.05$ , \*\*\* =  $p < 0.001$ . SE = standard error of the mean.

It was found that consumers and providers valued Cost and Patient's Experience

differently across general value perspectives; Clinical Outcome, cost and Patient's Experience were valued differently by consumers and providers in all surgical scenarios; and in medical scenarios, Clinical Outcomes and Patient's Experience were valued differently. No statistically significant differences were found for how consumers and providers valued General Clinical Outcomes and Medical Cost. Consumers valued General Cost, Surgical Clinical Outcomes, and Medical Patient's Experience more highly than providers. Providers valued General Patient's Experience, Surgical Cost, Surgical Patient's Experience, and Medical Clinical Outcomes higher than consumers. Cohen's *d* effect sizes were calculated to determine practical differences in addition to statistical differences (Cohen, 1988), and values ranged from weak to moderate for statistical differences, and were very weak for non-statistical results.

In general, cost was valued higher by consumers and Patient's Experience by providers. When context was provided (either by surgical or by medical scenarios) the results changed. For surgical scenarios, Clinical Outcome were rated higher by the consumer, whilst Cost and Patient's Experience were both rated higher by the provider. For the medical scenarios, Clinical Outcomes were rated higher by the providers, with Patient's Experience was rated higher by the consumer.

#### ***Comparison of surgical and medical scenarios with progressing severity.***

One way between-groups ANOVAs were conducted to determine whether differences exist in value perspectives across severity of surgical and medical scenarios for both consumer (see Table 21) and provider (see Table 22) groups.

For consumers, a clear pattern emerged across the data, where surgical and medical Clinical Outcomes are given statistically significantly more value as severity increases. Similarly, the value assigned to surgical and medical cost and Patient's Experience statistically significantly decreases with the increase in severity of a scenario.

Despite reaching statistical significance, the actual differences in mean scores between the groups were small to moderate (eta squared). The effect size, calculated using eta squared, ranged from 0.01 (surgical Patient's Experience) to 0.09 (medical Clinical Outcomes). Post-hoc comparisons using the Tukey HSD test indicated that the mean scores across all scenario comparisons (scenario 1 to scenario 2, scenario 1 to scenario 3, and scenario 2 to scenario 3) were statistically different from one another.

As for the consumer group, providers give Medical Clinical Outcomes statistically significantly more value as severity increases, with less value given to Medical Cost of Clinical Event and Medical Patient's Experience. Patient's Experience exhibits the same pattern than for the medical scenarios where value attributed decreases with increased severity. Actual differences in mean scores between the groups were small to moderate despite reaching statistical significance, the effect size ranging from 0.02 – 0.11 (Cohen, 1988).

An interesting phenomenon is demonstrated in the array of surgical value perspectives in terms of Cost of Clinical Event and Clinical Outcome where the highest value across scenarios was given to Surgical Cost in the mild severity example but the lowest given in the moderate severity scenario and not the most severe scenario as was the case for the medical array of scenarios. Similarly, the highest value across scenarios for Surgical Clinical Outcome was in the moderate severity category with the second highest in the severe one which was again different from the result obtained in the medical array of scenarios. The effect range for the surgical array of scenarios are small to moderate again (0.02 – 0.06) despite reaching statistical significance (Cohen, 1988).

Table 21. Comparisons of surgical and medical severity value perspectives for consumers of private healthcare

	Mild Severity			Moderate Severity			Severe severity			ANOVA		
	Mean (SD)	SE	CI	Mean (SD)	SE	CI	Mean (SD)	SE	CI	$F(2,1707)$	$p$	$\eta^2$
Surgical Clinical Outcome	46.00 (21.57)	0.90	44.23 – 47.78	52.10 (21.54)	0.90	50.33 – 53.87	59.99 (27.22)	1.14	57.75 – 62.23	50.374	0.000*	0.06
Surgical Cost	25.39 (18.11)	0.76	23.90 – 26.88	21.14 (16.31)	0.68	19.80 – 22.49	16.27 (17.57)	0.74	14.82 – 17.71	39.494	0.000*	0.04
Surgical Patient's Experience	28.61 (17.13)	0.72	27.20 – 30.01	26.75 (16.23)	0.68	25.42 – 28.09	23.74 (20.49)	0.86	22.06 – 25.43	10.544	0.000*	0.01
Medical Clinical Outcome	47.25 (21.17)	0.89	45.51 – 48.99	51.64 (21.17)	0.89	49.90 – 53.38	64.34 (26.75)	1.12	62.14 – 66.54	83.516	0.000*	0.09
Medical Cost	23.62 (18.28)	0.77	22.11 – 25.12	20.30 (15.85)	0.66	19.00 – 21.61	16.01 (18.50)	0.77	14.49 – 17.53	26.814	0.000*	0.03
Medical Patient's Experience	29.13 (17.34)	0.73	27.71 – 30.56	28.06 (17.07)	0.72	26.66 – 29.46	19.65 (18.19)	0.76	18.16 – 21.15	49.936	0.000*	0.06

Note.\* =  $p < 0.001$ . SE = standard error of the mean. CI = 95% confidence interval for mean.  $\eta^2$  = eta squared.

Table 22. Comparisons of surgical and medical severity value perspectives for providers of private healthcare

	Mild Severity			Moderate Severity			Severe severity			ANOVA		
	Mean (SD)	SE	CI	Mean (SD)	SE	CI	Mean (SD)	SE	CI	<i>F</i> (2,1002)	<i>p</i>	$\eta^2$
Surgical Clinical Outcome	39.03 (19.71)	1.08	36.91 – 41.15	51.84 (17.90)	0.98	49.92 – 53.77	45.44 (25.66)	1.40	42.68 – 48.19	30.171	0.000*	0.06
Surgical Cost Outcome	28.24 (19.63)	1.07	26.13 – 30.35	20.37 (13.99)	0.76	18.87 – 21.87	23.87 (18.34)	1.00	21.89 – 25.84	17.025	0.000*	0.03
Surgical Patient's Experience	32.73 (16.52)	0.90	30.95 – 34.50	27.79 (13.70)	0.75	26.31 – 29.26	30.70 (18.55)	1.01	28.71 – 32.69	7.713	0.000*	0.02
Medical Clinical Outcome	50.55 (20.49)	1.12	48.35 – 52.75	54.14 (19.89)	1.09	52.00 – 56.28	66.84 (22.37)	1.22	64.43 – 69.24	55.916	0.000*	0.10
Medical Cost Outcome	22.61 (15.88)	0.87	20.90 – 24.31	20.38 (15.23)	0.83	18.74 – 22.01	17.29 (16.66)	0.91	15.50 – 19.08	9.395	0.000*	0.02
Medical Patient's Experience	26.84 (15.34)	0.84	25.19 – 28.49	25.48 (13.84)	0.76	24.00 – 26.97	15.87 (13.00)	0.71	14.47 – 17.27	60.347	0.000*	0.11

Note.\* =  $p < 0.001$ . SE = standard error of the mean. CI = 95% confidence interval for mean.  $\eta^2$  = eta squared.



## References

- Baker, G. R. (Commission on L. and M. in the N. (2011). The roles of leaders in high-performing health care systems. *Commission on Leadership and Management in the NHS. The Kings Fund*, 1–27. Retrieved from <http://www.kingsfund.org.uk/publications/articles/roles-leaders-high-performing-health-care-systems>
- Beattie, P., & Roger, N. (2008). Preserving the quality of the patient-therapist relationship: An important consideration for value-centered physical therapy care. *Journal of Orthopaedic & Sports Physical Therapy*, 38(2), 34–35. <http://doi.org/10.2519/jospt.2008.0113>
- Berwick, D. M., Nolan, T. W., & Whittington, J. (2008). The Triple Aim: Care, health, and cost. *Health Affairs*, 27(3), 759–769. <http://doi.org/10.1377/hlthaff.27.3.759>
- Bodenheimer, T., & Sinsky, C. (2014). From Triple to Quadruple Aim: Care of the Patient Requires Care of the Provider. *The Annals of Family Medicine*, 12(6), 573–576. <http://doi.org/10.1370/afm.1713>
- Brennan, T., Leape, L., Laird, N., Hebert, L., Localio, R., Lawthers, N., ... Hiatt, H. H. (1991). Incidence of adverse events and negligence in hospitalized patients: results of the Harvard Medical Practice Study I. *New England Journal of Medicine*, 324(6), 370–376.
- Buntin, M. B., Damberg, C., Haviland, A., Kapur, K., Lurie, N., McDevitt, R., & Marquis, M. S. (2006). Consumer-directed health care: Early evidence about effects on cost and quality. *Health Affairs*, 25(6), w516–w530. <http://doi.org/10.1377/hlthaff.25.w516>
- Burns, R. B., & Burns, R. A. (2009). *Business Research Methods and Statistics Using SPSS*. London, England: SAGE Publications, Inc.
- Campbell, S., Roland, M., & Buetow, S. (2000). Defining quality of care. *Social Science & Medicine*, 51(11), 1611–1625. [http://doi.org/10.1016/S0277-9536\(00\)00057-5](http://doi.org/10.1016/S0277-9536(00)00057-5)
- Charmel, P., & Frampton, S. (2008). Building the business case for patient-centered care. *Healthcare Financial Management*, 62(3), 80–85.
- Cohen, J. (1973). Eta-squared and partial eta-squared in fixed factor ANOVA designs. *Educational and Psychological Measurement*, 33, 107–112. <http://doi.org/10.1177/001316447303300111>
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Lawrence Earlbaum Associates.
- Coovadia, H., Jewkes, R., Barron, P., Sanders, D., & McIntyre, D. (2009). The health

- and health system of South Africa: Historical roots of current public health challenges. *The Lancet*, 374(9692), 817–834. [http://doi.org/10.1016/S0140-6736\(09\)60951-X](http://doi.org/10.1016/S0140-6736(09)60951-X)
- Creswell, J. W. (2003). *Research design: Qualitative, quantitative, and mixed method approaches* (2<sup>nd</sup>). United States of America: SAGE Publications, Inc.
- Creswell, J. W. (2009). *Research design: Qualitative, quantitative and mixed method approaches* (3<sup>rd</sup>). London, England: SAGE Publications, Inc.
- Creswell, J. W. (2012). Educational research: Planning, conducting, and evaluating quantitative and qualitative research. *Educational Research*, 4(22), 673.
- Culyer, A. (2005). Involving stakeholders in healthcare decisions - The experience of the National Institute for Health and Clinical Excellence (NICE) in England and Wales. *Healthcare Quarterly*, 8(3), 56–60. <http://doi.org/10.12927/hcq..17155>
- Damberg, C. L., Sorbero, M. E., Lovejoy, S. L., Martsolf, G. R., Raaen, L., & Mandel, D. (2014). Measuring Success in Health Care Value-Based Purchasing Programs: Findings from an Environmental Scan, Literature Review, and Expert Panel Discussions. *Rand Health Quarterly*, 4(3), 9. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/28083347>
- Dembek, K., Singh, P., & Bhakoo, V. (2016). Literature review of shared value: A theoretical concept or a management buzzword? *Journal of Business Ethics*, 137(2), 231–267. <http://doi.org/10.1007/s10551-015-2554-z>
- Dove, J. T., Weaver, W. D., & Lewin, J. (2009). Professional accountability in health system reform. *Journal of the American College of Cardiology*, 54(6), 499–501. <http://doi.org/10.1016/j.jacc.2009.05.010>
- 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. <http://doi.org/10.1136/bmjopen-2012-001570>
- Ettinger, W. H. (1998). Consumer-perceived value: The key to a successful business strategy in the healthcare marketplace. *Journal of the American Geriatrics Society*, 46(1), 111–113. <http://doi.org/10.1111/j.1532-5415.1998.tb01024.x>
- Field, A. (2013). *Discovering statistics using IBM SPSS Statistics* (4<sup>th</sup>). London, England: SAGE Publications, Inc.
- Fifer, J. (2015). Value-based payment: Supporting an intertwined clinical-business model. *Frontiers of Health Services Management*, 32(2), 39–47. Retrieved from <http://0-search.ebscohost.com.olinserver.franklin.edu/login.aspx?direct=true&db=buh&A=N=111457484&site=eds-live>
- Garber, A., Goldman, D. P., & Jena, A. B. (2007). The Promise Of Health Care Cost

- Containment. *Health Affairs*, 26(6), 1545–1547.  
<http://doi.org/10.1377/hlthaff.26.6.1545>
- Goyal, S., Sergi, B. S., & Kapoor, A. (2014). Understanding the key characteristics of an embedded business model for the base of the pyramid markets. *Economics and Sociology*, 7(4), 26–40. <http://doi.org/10.14254/2071-789X.2014/7-4/2>
- Grol, R. (2000). Between evidence-based practice and total quality management: The implementation of cost-effective care. *International Journal for Quality in Health Care*, 12(4), 297–304. <http://doi.org/10.1093/intqhc/12.4.297>
- Hassan, D. (2005). Measuring performance in the healthcare field: A multiple stakeholders' perspective. *Total Quality Management & Business Excellence*, 16(8–9), 945–953. <http://doi.org/10.1080/14783360500163086>
- Health Professions Act 56 of 1974. (1974). Retrieved from [www.hpcs.co.za/](http://www.hpcs.co.za/)
- Health Professions Council of South Africa. Policy Document on Undesirable Business Practices, Professional Board for Psychology (2005). Retrieved from [www.hpcs.co.za/](http://www.hpcs.co.za/)
- Health Professions Council of South Africa. Policy Document on Business Practices (2015).
- Herald, L. R., Alexander, J. A., Beich, J., Mittler, J. N., & O'Hora, J. L. (2012). Barriers and strategies to align stakeholders in healthcare alliances. *The American Journal of Managed Care*, 18(6 Suppl), s148-55. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/23286710>
- Ho, W., Xu, X., & Dey, P. K. (2010). Multi-criteria decision making approaches for supplier evaluation and selection: A literature review. *European Journal of Operational Research*, 202(1), 16–24. <http://doi.org/10.1016/j.ejor.2009.05.009>
- Honda, A., Ryan, M., Van Niekerk, R., & McIntyre, D. (2015). Improving the public health sector in South Africa: Eliciting public preferences using a discrete choice experiment. *Health Policy and Planning*, 30(5), 600–611.  
<http://doi.org/10.1093/heapol/czu038>
- Ismail, T., Kleyn, N., & Ansell, G. (2012). *New Markets, New Mindsets* (1<sup>st</sup>). Auckland Park, Johannesburg: Stonebridge.
- Johnston, S., & Spurrett, D. (2011). *Reforming Healthcare in South Africa*.
- Kamal, R. N. (2016). Quality and value in an evolving health care landscape. *Journal of Hand Surgery*, 41(7), 794–799. <http://doi.org/10.1016/j.jhsa.2016.05.016>
- Kaplan, A. S., Porter, E., & Klobnak, L. (2012). Creating a strategy-based physician leadership development program. *Physician Executive*, 38(1), 22–5. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/23885505>
- Kohn, L., Corrigan, J., & Donaldson, M. (1999). *To err is human: Building a safer health*

- system. Washington DC: National Academy Press.
- Laher, S., & Botha, A. (2012). Methods of sampling. *Doing social research: A global context* (pp. 86–100). London: McGraw-Hill.
- Lall, S. (2001). Competitiveness indices and developing countries :An economic evaluation of the Global Competitiveness Report. *World Development*, 29(9). Retrieved from [www.elsevier.com/locate/worlddev](http://www.elsevier.com/locate/worlddev)
- Leape, L. L., Brennan, T. A., Laird, N., Lawthers, A. G., Localio, A. R., Barnes, B. A., ... & Hiatt, H. (1991). The nature of adverse events in hospitalized patients: Results of the Harvard Medical Practice Study II. *New England Journal of Medicine*, 324(6), 377–384. Retrieved from <http://www.nejm.org/doi/full/10.1056/NEJM199102073240605>
- Leape, L. L., & Berwick, D. M. (2005). Five years after to err is human. *JAMA*, 293(19), 2384. <http://doi.org/10.1001/jama.293.19.2384>
- Lee, T. H. (2010). Putting the value framework to work. *New England Journal of Medicine*, 363(26), 2481–2483. <http://doi.org/10.1056/NEJMp1013111>
- Lee, T. H., & Cosgrove, T. (2014). Engaging doctors in the healthcare revolution. *Harvard Business Review*, 92(6), 105–111.
- Lorenzoni, L., & Roubal, T. (2016). *International Comparison of South African Private Hospital Price Levels*. <http://doi.org/10.1787/5jrrxrzn24wl-en>
- Ma, C. A. (1994). Health care payment systems: Cost and quality Incentives. *Journal of Economics*, 3(1), 93–112. <http://doi.org/10.1111/j.1430-9134.1994.00093.x>
- Marsh, K., Lanitis, T., Neasham, D., Orfanos, P., & Caro, J. (2014). Assessing the value of healthcare interventions using multi-criteria decision analysis: A review of the literature. *Pharmacoeconomics*, 32(4), 345–365. <http://doi.org/10.1007/s40273-014-0135-0>
- Mayosi, B. M., Lawn, J. E., van Niekerk, A., Bradshaw, D., Abdool Karim, S. S., & Coovadia, H. M. (2012). Health in South Africa: Changes and challenges since 2009. *The Lancet*, 380(9858), 2029–2043. [http://doi.org/10.1016/S0140-6736\(12\)61814-5](http://doi.org/10.1016/S0140-6736(12)61814-5)
- McKee, M., Edwards, N., & Atun, R. (2006). Public-private partnerships for hospitals. *Bulletin of the World Health Organization*, 84(11), 890–6. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/17143463>
- Meyer, E., & Scheepers, C. (2017). Contextual leadership of a multi-partner approach to health care innovation. *Emerald Emerging Markets Case Studies*, 7(1), 1–29. <http://doi.org/10.1108/EEMCS-05-2016-0067>
- Minto, G., & Biccard, B. (2014). Assessment of the high-risk perioperative patient. *Continuing Education in Anaesthesia, Critical Care and Pain*, 14(1), 12–17.

- <http://doi.org/10.1093/bjaceaccp/mkt020>
- Mkanta, W. N., Green, B., Katta, M., Basireddy, K., & Kentucky, W. (2016). Theoretical and methodological issues in research related to value-based approaches in healthcare. *Journal of Healthcare Management*, 61:60(6), 402–420.
- National Health Act 61 of 2003 (2003). Retrieved from [www.hpcs.co.za/](http://www.hpcs.co.za/)
- National Planning Commission, South Africa, National Planning Commission, & National Planning Authority. (2010). *National development plan* (Vol. 50). Retrieved from <http://www.politicsweb.co.za/documents/what-the-national-development-plan-proposes>
- Pallant, J. (2011). *SPSS survival manual: A step by step guide to data analysis using SPSS* (4<sup>th</sup>). Australia: Allen and Unwin.
- Porter, Michael E.; Lee, T. L. (2013). The strategy that will fix health care. *Harvard Business Review*, 1–39.
- Porter, M. E. (2009). A strategy for health care reform - towards a value-based system. *New England Journal of Medicine*, 361(2).
- Porter, M. E. (2010). What is value in health care? *New England Journal of Medicine*, 363(1), 2477–2481. <http://doi.org/10.1056/NEJMp1002530>
- Porter, M. E., & Kramer, M. R. (2011). Creating shared value. *Harvard Business Review*, 89(1–2). <http://doi.org/10.1108/09600039410055963>
- Porter, M. E., Pabo, E. A., & Lee, T. H. (2013). Redesigning Primary Care: A strategic vision to improve value by organizing around patients' needs. *Health Affairs*, 32(3), 516–525. <http://doi.org/10.1377/hlthaff.2012.0961>
- Rivard, P. E., Luther, S. S. L., Christiansen, C. C. L., Shibe Zhao, Loveland, S., Elixhauser, A., ... Rosen, A. K. (2008). Using patient safety indicators to estimate the impact of potential adverse events on outcomes. *Medical Care Research and Review*, 65(1), 67–87. <http://doi.org/10.1177/1077558707309611>
- Ryan, A. B. (2006). Post-positivist approaches to research. *Researching and Writing Your Thesis: A Guide for Postgraduate Students*, 12–26. Retrieved from <http://eprints.maynoothuniversity.ie/874/>
- Saunders, M., & Lewis, P. (2012). *Doing research in business & management*. Edinburgh Gate: Pearson.
- Sehgal, V., Dehoff, K., & Panneer, G. (2010). The importance of frugal engineering. *Strategy+ Business, Summer*(59), 1–6. Retrieved from <http://www.strategy-business.com/article/06306%5Cnhttp://www.lhstech.com/chair/Articles/FrugalEngineering.pdf>
- Sheikh, A., Sood, H. S., & Bates, D. W. (2015). Leveraging health information technology to achieve the “triple aim” of healthcare reform. *Journal of the*

- American Medical Informatics Association : JAMIA*, 22(4), 849–856.  
<http://doi.org/10.1093/jamia/ocv022>
- Shekelle, P. G. (2013). Quality indicators and performance measures: Methods for development need more standardization. *Journal of Clinical Epidemiology*, 66(12), 1338–1339. <http://doi.org/10.1016/j.jclinepi.2013.06.012>
- Slawomirski, L., Auraaen, A., & Klazinga, N. (2017). *The economics of patient safety*. OECD (Vol. 415). Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/11796988>
- Snowden, D. J., & Boone, M. E. (2007). A leader's framework for decision-making. Retrieved from <http://www.hbrreprints.org/>
- Stangor, C. (2011). *Research Methods for the Behavioral Sciences*. Wadsworth Cengage Learning.
- Stewart, D. E., Dang, B. N., Trautner, B., Cai, C., Torres, S., & Turner, T. (2017). Assessing residents' knowledge of patient satisfaction: A cross-sectional study at a large academic medical centre. *BMJ Open*, 7(8), e017100. <http://doi.org/10.1136/bmjopen-2017-017100>
- Thokala, P., Devlin, N., Marsh, K., Baltussen, R., Boysen, M., Kalo, Z., ... Ijzerman, M. (2016). Multiple criteria decision analysis for health care decision making - An introduction: Report 1 of the ISPOR MCDA Emerging Good Practices Task Force. *Value in Health*, 19(1), 1–13. <http://doi.org/10.1016/j.jval.2015.12.003>
- Thomas, G. (2009). *Deciding on an approach: Research Design. How to do your Research Project: A guide for Students in Education and Applied Social Sciences*.
- Thomas, G. (2013). *How to do your research project: A guide for Students in Education and Applied Social Sciences (2<sup>nd</sup>)*. London, England: Sage.
- Van Dyke, M. (2016). Revealing the secret to sustainable healthcare cost savings. *Healthcare Executive*, Vol. 31 (2016).
- Weeks, W. B., & Weinstein, J. N. (2014). Value creation strategies for health care. *Health Care Financial Management*, (January), 112–114.
- Wegner, T. (2016). *Applied business statistics (4<sup>th</sup>)*. Cape Town: Juta & Company Ltd.
- Wimmer, H., Yoon, V. Y., & Sugumaran, V. (2016). A multi-agent system to support evidence based medicine and clinical decision making via data sharing and data privacy. *Decision Support Systems*, 88, 51–66. <http://doi.org/10.1016/j.dss.2016.05.008>
- Wolf, J. A., Niederhauser, V., Dean, R., Marshburn, D., LaVela, S. L. (2014). Defining Patient Experience. *Patient Experience Journal*, 1(1). Retrieved from <http://pxjournal.org/journal>
- World Economic Forum. (2016). *Global Competitiveness Report*. Geneva. Retrieved from <http://reports.weforum.org/global-competitiveness-report-2015-2016/%0D>

Zikmund, W. G., Babin, B. J., Carr, J. C., & Griffin, M. (2013). Business Research Methods. *Business Research Methods*, 696. <http://doi.org/10.1.1.131.2694>

## Appendices

### Appendix A: Survey Questionnaire

**Note:** Please note that notes included in each of the sections below, indicated as '**Note:**', did not form part of the survey as viewed by the respondent but is aimed at explaining the thinking behind the design and flow of the survey.

#### Participation invitation sheet.

Dear Participant

#### Factors that influence decision-making in healthcare delivery

I am a second-year student in Business Sciences, studying towards a Master in Business Administration (MBA) at the Gordon Institute of Business Science (GIBS), University of Pretoria (UP). I would like to invite you to participate in a research study by completing an anonymous survey which will take approximately 5 minutes of your time.

The purpose of this study is to obtain an understanding of the differences in value perspectives that exist between and in healthcare consumer (patient) and provider (doctor) groups in the private healthcare sector of South Africa.

The survey will consist of three components:

- A consent page;
- A page with questions related to basic demographic information and
- A section with questions aimed at examining your value perspectives across different clinical scenarios.

The GIBS Research Ethics Committee (GIBS REC) and the Faculty of Health Sciences Research Ethics Committee, University of Pretoria (UP) have granted written approval for this research study to be conducted.

Your participation is completely voluntary and you may withdraw from the study at any time. All your data will be kept confidential. Should you have any concerns, please do not hesitate to contact either myself or my supervisor on the details provided below:



Researcher: Dr Anchen Laubscher

Email: 16393318@mygibs.co.za

Mobile: +27 83 298 1228

Research Supervisor: Prof Adrian Saville

Email: savillea@gibs.co.za

Mobile: +27 82 772 9933

I sincerely appreciate your time and your help.

Yours truly,

Dr Anchen Laubscher

MBChB (UFS), DipPEC(SA), DCH(SA)

PGDip (UP)

### Consent.

I hereby give my permission to participate in a research study conducted by Dr Anchen Laubscher, where I will complete an anonymous survey about my value perspectives within the private healthcare sector of South Africa. The information I provide will be kept confidential and will be used for research purposes and possible publication.

Yes, I consent to participate in this study	1
No, I do not consent to participate in this study	2

**Note:** This was made a compulsory question on the Qualtrics design functionality by the researcher and failure to select a response prohibited the continuation of the survey. If consent was not given, the participant could not complete the survey and he or she was directed to the end of the survey and thanked for their time and participation. The data entries of these participants were removed from the dataset that was analysed for this research study and will not be used for any future analyses.

### Doctor or patient perspective.

Are you completing this survey from the perspective of a doctor or a patient?

Doctor	1
Patient	2

**Note:** This was made a compulsory question on the Qualtrics design functionality by the researcher and failure to select a response prohibited the continuation of the survey. Based on the above response the survey was directed to the Patient Survey or Doctor Survey sections for further completion.

**Patient survey.**

***Basic demographic information section.***

**Do you use private healthcare in South Africa?**

I only use public healthcare and never private healthcare	1
I sometimes use private healthcare and sometimes use public healthcare	2
I only use private healthcare and never public healthcare	3

**Note:** This was made a compulsory question on the Qualtrics design functionality by the researcher and failure to select a response prohibited the continuation of the survey. Should a respondent select option 1 (“I only use public healthcare and never private healthcare”), he or she was directed to the end of the survey and thanked for their time and participation. When the data was cleaned prior to statistical analysis the participants who had selected option 1 for this question were removed from the dataset that was analysed for this research study. The excluded data may be used for future analyses.

**Gender**

Male	1
Female	2
Prefer not to say	3

**Note:** This was not made a compulsory question on the Qualtrics design functionality by the researcher and failure to select a response did not prohibit the continuation of the survey.

**Age in years**

**Note:** This was not made a compulsory question on the Qualtrics design functionality by the researcher and failure to select a response did not prohibit the continuation of the survey.

### What is your highest level of education?

Less than Grade 12	1
Grade 12	2
Diploma	3
University degree (bachelor degree)	4
Post graduate honours degree	5
Post graduate master's degree	6
Post graduate doctoral degree	7
Other	8

**Note:** This was not made a compulsory question on the Qualtrics design functionality by the researcher and failure to select a response did not prohibit the continuation of the survey.

### What is your total gross monthly household income?

< R10 000	1
R10 000 – R19 999	2
R20 000 – R29 999	3
R30 000 – R39 999	4
R40 000 – R49 999	5
R50 000 – R19 999	6
R60 000 – R29 999	7
More than R69 999	8
Prefer not to say	9

**Note:** This was not made a compulsory question on the Qualtrics design functionality by the researcher and failure to select a response did not prohibit the continuation of the survey.

### Are you a member of a medical aid?

Yes	1
No	2

**Note:** This was made a compulsory question on the Qualtrics design functionality by the researcher and failure to select a response prohibited the continuation of the survey. If the answer to this question was 'No', the survey skipped the following two questions and proceeded to ask: 'Are you financially responsible for payment for private medical care/medical aid you or your family receives?'.

**How long have you been a member of a medical aid?**

Longer than 10 years	1
6 – 10 years	2
1 – 5 years	3
Less than a year	4

**Note:** This was made a compulsory question on the Qualtrics design functionality by the researcher and failure to select a response prohibited the continuation of the survey.

**How much does it cost for you to be on a medical aid per month? State amount in South African Rands (ZAR), rounded off to the nearest hundred.**

**Note:** This was made a compulsory question on the Qualtrics design functionality by the researcher and failure to select a response prohibited the continuation of the survey.

**Are you financially responsible for payment for private medical care/medical aid you or your family receives?**

I am the sole contributor towards all medical costs for myself/and or my family	1
I partly contribute towards medical costs for myself/and or my family	2
I do not contribute towards any medical costs for myself/and or my family	3

**Note:** This was made a compulsory question on the Qualtrics design functionality by the researcher and failure to select a response prohibited the continuation of the survey.

***Value perspectives section.***

**General**

Every clinical care event aims to create value at a certain cost. For this study, a clinical event refers to a hospital admission for a medical or surgical treatment. The next set of questions are aimed at exploring the differences between the relative importance of three factors (Clinical Outcome, Cost of Clinical Event, and Patient’s Experience) that make up the Value of Care delivered to patients:

- ‘Clinical Outcome’ is the degree to which the clinical event achieved a clinical goal (objective measure);
- ‘Cost of the Clinical Event’ is the total price charged by the care providers, thus the price paid by the patient or medical aid or both;
- ‘Patient’s Experience’ is the degree to which the patient’s expectation was met (subjective measure).

From your perspective, please indicate how important each of these factors (Clinical Outcome, Cost of Clinical Event, and Patient’s Experience) are in ensuring that high value care is delivered to patients.

Value of Care

(where 0 = not important at all and 100 = extremely important)

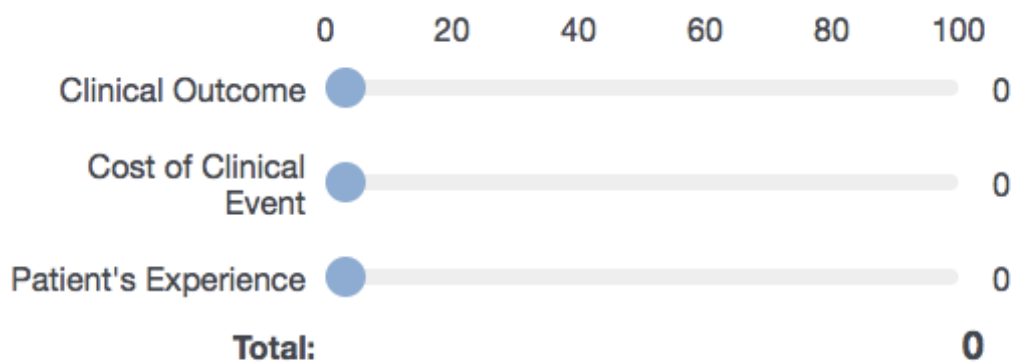
From your perspective, please indicate how important each of these factors (Clinical Outcome, Cost of Clinical Event, and Patient’s Experience) are by allocating a total of 100% between the three value factors. For example, you can allocate 20% to Clinical Outcomes, 30% to Cost of Clinical Event and 50% to Patient’s Experience. The total score must equal 100%.

Clinical Outcome	0 - 100
Cost of the Clinical Event	0 - 100
Patient’s Experience	0 - 100

**Note:** This was made a compulsory question on the Qualtrics design functionality by the researcher and failure to select a response prohibited the continuation of the survey. A

sliding scale functionality was used to ensure ease of allocation of points (see Figure 2 below). The sliding scale functionality was introduced based on the ease of use feedback obtained from the pilot study as was conducted on the Qualtrics platform (30 participants).

**Figure 2** Screenshot (webpage view as accessed via desktop or laptop computer or tablet) of sliding scale functionality used for General and Clinical Scenario value perspective sections.



### Clinical Scenarios

In the next section, you will be asked to compare all three of these value factors in a series of six clinical scenarios.

From your perspective, please indicate how important each of these factors (Clinical Outcome, Cost of Clinical Event and Patient's Experience) are by allocating a total of 100% between the three value factors. For example, you can allocate 20% to Clinical Outcomes, 30% to Cost of Clinical Event and 50% to Patient's Experience. The total score must equal 100% for every scenario.

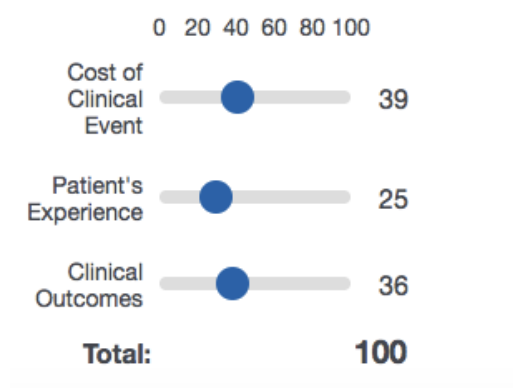
**Scenario 1:** You require admission to a day ward for the surgery to remove a skin tag.

Clinical Outcome	0 - 100
Cost of the Clinical Event	0 - 100
Patient's Experience	0 - 100

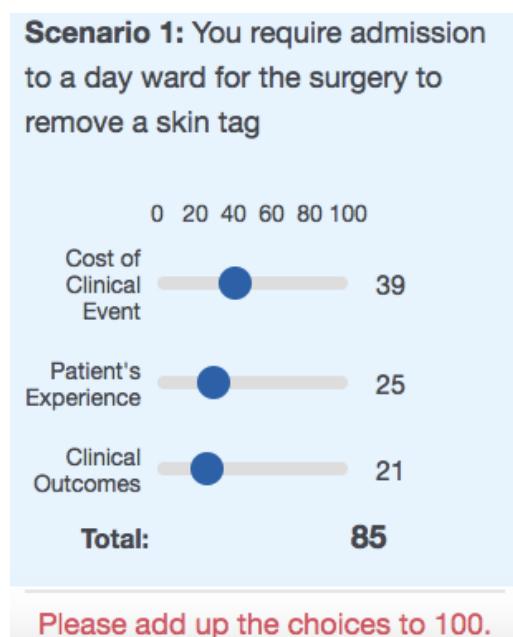
**Note:** A sliding scale functionality was used to ensure ease or allocation of points (see Figure 3 below). This was made a compulsory question on the Qualtrics design functionality by the researcher and failure to select a response prohibited the continuation of the survey.

**Figure 3** Screenshot (screen view as accessed via mobile device) of sliding scale functionality used for General and Clinical Scenario value perspective sections.

**Scenario 1:** You require admission to a day ward for the surgery to remove a skin tag



**Figure 4** Screenshot (screen view as accessed via mobile device) of sliding scale functionality indicating that this was a compulsory question and failure to select a response prohibited the continuation of the survey.





**Scenario 2:** You require admission to a general ward for surgery to repair a hernia in your groin.

Clinical Outcome	0 - 100
Cost of the Clinical Event	0 - 100
Patient's Experience	0 - 100

**Scenario 3:** You require admission to an intensive care unit for abdominal surgery for the treatment of liver cancer that has spread to other organs in your body.

Clinical Outcome	0 - 100
Cost of the Clinical Event	0 - 100
Patient's Experience	0 - 100

**Scenario 4:** You require admission to a day ward for control of your blood sugar levels that are too high.

Clinical Outcome	0 - 100
Cost of the Clinical Event	0 - 100
Patient's Experience	0 - 100

**Scenario 5:** You require admission to a general ward to receive oxygen therapy for pneumonia.

Clinical Outcome	0 - 100
Cost of the Clinical Event	0 - 100
Patient's Experience	0 - 100

**Scenario 6:** You require admission to an intensive care unit for a heart attack with severe shock as complication.

Clinical Outcome	0 - 100
Cost of the Clinical Event	0 - 100
Patient's Experience	0 - 100

Thank you for your time!

**Note:** All 6 clinical scenario questions were made compulsory questions on the Qualtrics design functionality by the researcher and failure to select a response at each of the 6 prohibited the continuation of the survey. A sliding scale functionality was used for all 6 questions to ensure ease or allocation of points (as per Figures 2, 3 and 4) and that all 100 points were allocated for each scenario.

For every clinical scenario question, the three factors (Clinical Outcome, Cost of Clinical Event, and Patient's Experience) appeared in a randomised sequence, thereby assuring that the same factor did not always appear last in the sequence of options provided to the participant. The survey as outlined in this appendix does not demonstrate this randomisation as it is only visible when the survey is run in its live format by accessing the survey link.

Following completion of the six scenario-based questions the participant was thanked for his or her time and allowed to exit the survey. Upon completion of the survey, participants were prompted again to forward the survey to other potentially willing participants in line with the snowball sampling technique.

## Doctor survey.

### *Basic demographic information section.*

#### **Do you practice medicine in South Africa or another country?**

I practice only in South Africa	1
I practice in South Africa and another country	2
I do not practice in South Africa	3

**Note:** This was made a compulsory question on the Qualtrics design functionality by the researcher and failure to select a response prohibited the continuation of the survey. Should a respondent select option 3 (“I do not practice in South Africa”), he or she was directed to the end of the survey and thanked for their time and participation. When the data was cleaned prior to statistical analysis the participants who had selected option 3 for this question were removed from the dataset that was analysed for this research study. The excluded data may be used for future analyses.

#### **Gender**

Male	1
Female	2
Prefer not to say	3

**Note:** This was not made a compulsory question on the Qualtrics design functionality by the researcher and failure to select a response did not prohibit the continuation of the survey.

#### **Age in years**

**Note:** This was not made a compulsory question on the Qualtrics design functionality by the researcher and failure to select a response did not prohibit the continuation of the survey.

**Are you a General Practitioner or a Specialist?**

General Practitioner	1
Specialist	2

**Note:** This was made a compulsory question on the Qualtrics design functionality by the researcher and failure to select a response prohibited the continuation of the survey.

**Do you practice clinical medicine or do you work in a managerial or administrative capacity as a doctor?**

I practice clinical medicine	1
I work a manager or in administrative capacity as a doctor	2

**Note:** This was made a compulsory question on the Qualtrics design functionality by the researcher and failure to select a response prohibited the continuation of the survey.

**If you practice clinical medicine, do you practice a medical, surgical (including anaesthetics) or diagnostic (including radiology and pathology) discipline?**

Medical	1
Surgical	2
Diagnostic	3
Not applicable	4

**Note:** This was made a compulsory question on the Qualtrics design functionality by the researcher and failure to select a response prohibited the continuation of the survey.

**Do you work in the private or public healthcare sector or a combination of the two?**

Private healthcare sector	1
Public healthcare sector	2
Combination of the two	3

**Note:** This was made a compulsory question on the Qualtrics design functionality by the researcher and failure to select a response prohibited the continuation of the survey.

**How many years have you been practicing medicine or working in healthcare in South Africa (excluding internship and community service)?**

**Note:** This was made a compulsory question on the Qualtrics design functionality by the researcher and failure to select a response prohibited the continuation of the survey.

**Of the years that you have been practicing medicine or working in healthcare (excluding internship and community service), how many have been in the private sector?**

**Note:** This was made a compulsory question on the Qualtrics design functionality by the researcher and failure to select a response prohibited the continuation of the survey.

***Value perspectives section.***

**General**

Every clinical care event aims to create value at a certain cost. For this study, a clinical event refers to a hospital admission for a medical or surgical treatment. The next set of questions are aimed at exploring the differences between the relative importance of three factors (Clinical Outcome, Cost of Clinical Event, and Patient’s Experience) that make up the Value of Care delivered to patients:

- ‘Clinical Outcome’ is the degree to which the clinical event achieved a clinical goal (objective measure);
- ‘Cost of the Clinical Event’ is the total price charged by the care providers, thus the price paid by the patient or medical aid or both;
- ‘Patient’s Experience’ is the degree to which the patient’s expectation was met (subjective measure).

From your perspective, please indicate how important each of these factors (Clinical Outcome, Cost and Patient’s Experience) are in ensuring that high value care is delivered to patients.

**Value of Care**

(where 0 = not important at all and 100 = extremely important)

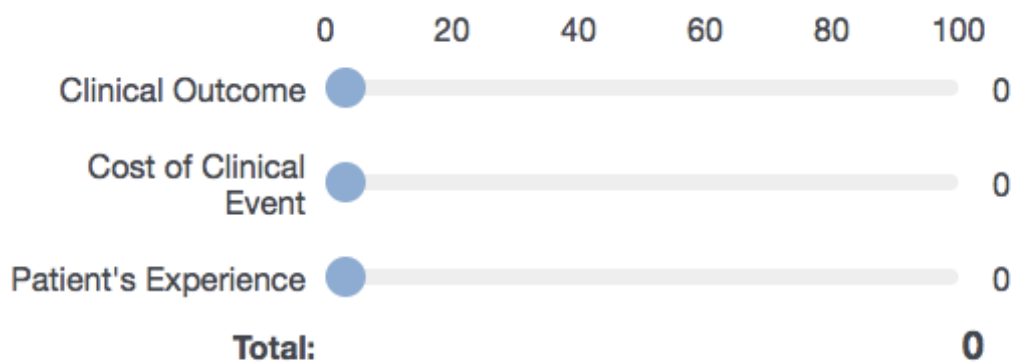
From your perspective, please indicate how important each of these factors (Clinical Outcome, Cost of Clinical Event and Patient’s Experience) are by allocating a total of 100% between the three value factors. For example, you can allocate 20% to Clinical Outcomes, 30% to Cost and 50% to Patient’s Experience. The total score must equal 100%.

Clinical Outcome	0 - 100
Cost of the Clinical Event	0 - 100
Patient’s Experience	0 - 100

**Note:** This was made a compulsory question on the Qualtrics design functionality by the researcher and failure to select a response prohibited the continuation of the survey. A

sliding scale functionality was used to ensure ease of allocation of points (see Figure 5 below).

**Figure 5** Screenshot (webpage view as accessed via desktop or laptop computer or tablet) of sliding scale functionality used for General and Clinical Scenario value perspective sections.



### Clinical Scenarios

In the next section, you will be asked to compare all three of these value factors in a series of six clinical scenarios.

From your perspective, please indicate how important each of these factors (Clinical Outcome, Cost of Clinical Event and Patient's Experience) are by allocating a total of 100% between the three value factors. For example, you can allocate 20% to Clinical Outcomes, 30% to Cost of Clinical Event and 50% to Patient's Experience. The total score must equal 100% for every scenario.

**Scenario 1:** Your patient requires admission to a day ward for the surgical removal of a skin tag.

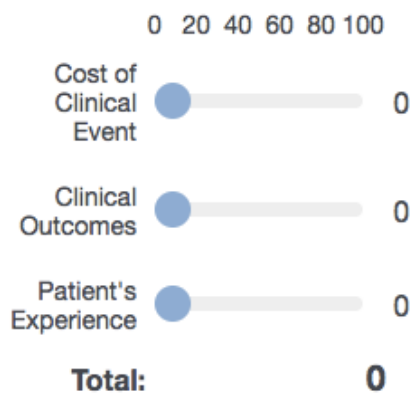
Clinical Outcome	0 - 100
Cost of the Clinical Event	0 - 100
Patient's Experience	0 - 100

**Note:** A sliding scale functionality was used to ensure ease of allocation of points (see Figure 6 below). This was made a compulsory question on the Qualtrics design

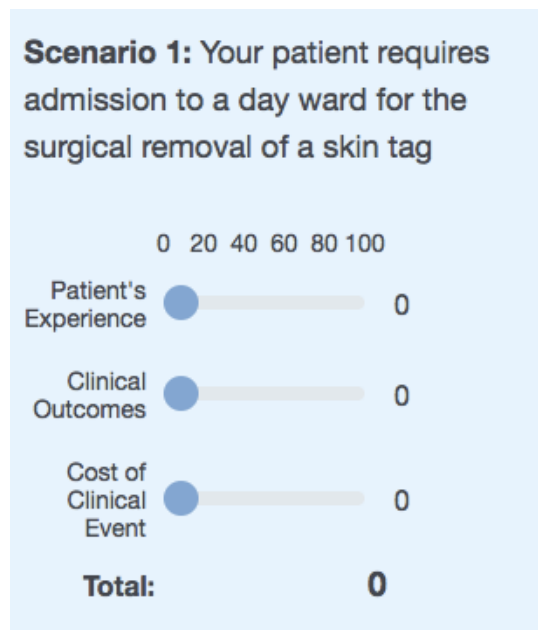
functionality by the researcher and failure to select a response prohibited the continuation of the survey.

**Figure 6** Screenshot (screen view as accessed via mobile device) of sliding scale functionality used for General and Clinical Scenario value perspective sections.

**Scenario 1: Your patient requires admission to a day ward for the surgical removal of a skin tag**



**Figure 7** Screenshot (screen view as accessed via mobile device) of sliding scale functionality indicating that this was a compulsory question and failure to select a response prohibited the continuation of the survey.



Please add up the choices to 100.



**Scenario 2:** Your patient requires admission to a general ward for the surgical repair of an inguinal hernia.

Clinical Outcome	0 - 100
Cost of the Clinical Event	0 - 100
Patient's Experience	0 - 100

**Scenario 3:** Your patient requires admission to an intensive care unit for abdominal surgery for the treatment of metastatic hepatic carcinoma.

Clinical Outcome	0 - 100
Cost of the Clinical Event	0 - 100
Patient's Experience	0 - 100

**Scenario 4:** Your patient requires admission to a day ward for control of hyperglycaemia.

Clinical Outcome	0 - 100
Cost of the Clinical Event	0 - 100
Patient's Experience	0 - 100

**Scenario 5:** Your patient requires admission to a general ward for a community acquired pneumonia for oxygen therapy.

Clinical Outcome	0 - 100
Cost of the Clinical Event	0 - 100
Patient's Experience	0 - 100

**Scenario 6:** Your patient requires admission to an intensive care unit for a myocardial infarction with cardiogenic shock.

Clinical Outcome	0 - 100
Cost of the Clinical Event	0 - 100
Patient's Experience	0 - 100

Thank you for your time!

**Note:** All 6 clinical scenario questions were made compulsory questions on the Qualtrics design functionality by the researcher and failure to select a response at each of the 6 prohibited the continuation of the survey. A sliding scale functionality was used for all 6 questions to ensure ease or allocation of points (as per Figures 5, 6 and 7) and that all 100 points were allocated for each scenario.

For every clinical scenario question, the three factors (Clinical Outcome, Cost of Clinical Event, and Patient's Experience) appeared in a randomised sequence, thereby assuring that the same factor did not always appear last in the sequence of options provided to the participant. The survey as outlined in this appendix does not demonstrate this randomisation as it is only visible when the survey is run in its live format by accessing the survey link.

Following completion of the six scenario-based questions the participant was thanked for his or her time and allowed to exit the survey. Upon completion of the survey, participants were prompted again to forward the survey to other potentially willing participants in line with the snowball sampling technique.

## Appendix B: Ethical approval from the GIBS Research Ethics Committee (GIBS REC)

**Gordon  
Institute  
of Business  
Science**  
University  
of Pretoria

31 May 2017

Anchen Laubscher

Dear Anchen Laubscher,

*Please be advised that your application for Ethical Clearance has been approved.*

*You are therefore allowed to continue collecting your data.*

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

*Kind Regards*

GIBS MBA Research Ethical Clearance Committee

## Appendix C: Ethical Approval from the University of Pretoria Human Research Ethics Committee (UP HREC)

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

18/07/2017

### Endorsement Notice

**Ethics Reference No: Temp2017- 00651**

**Title:** Factors that influence decision-making in healthcare delivery: Examining the difference in value perspectives between multiple stakeholder groups

Dear Dr Anchen Laubscher

The **New Application** as supported by documents specified in your cover letter dd 18/07/2017 for your research received on the 18/07/2017, was approved by the Faculty of Health Sciences Research Ethics Committee on the 18/07/2017.

Please note the following about your ethics approval:

- Please remember to use your protocol number (**Temp2017- 00651**) 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**

*\*\* Kindly collect your original signed approval certificate from our offices, Faculty of Health Sciences, Research Ethics Committee, Tswelopele Building, Level 4-60*

**Dr R Sommers; MBChB; MMed (Int); MPharmD, 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, Gezina, Pretoria