UNIVERSITY OF KWAZULU-NATAL

Analysis of departmental contracts within the KwaZulu-Natal Health Department: A supply chain management perspective

By

Nabeel Ebrahim Amoo

209510781

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School of Business Management, Information Technology and Governance

Supervisor: Professor D. Mahadea

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I Nabeel Ebrahim Amoo declare that:

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Abstract

Analysis of departmental contracts within the KwaZulu-Natal Health Department: A supply chain management perspective

The South African healthcare system is riddled with constraints, preventing adequate healthcare and service delivery. Post apartheid, efforts have been made to fix the problems, however the public healthcare system is still plagued with massive service delivery failures. The government plans to implement a multibillion-rand, National Health Insurance (NHI), to improve affordability and accessibility to healthcare. President Ramaphosa signed the NHI Bill into law on May 15, 2024, despite various objections to this measure. Supply Chain Management in public healthcare has been identified as a critical component directly impacting service delivery. All procurements and contracting of goods and services within the public healthcare sector have to undergo the legislated supply chain process. This study aimed to gain an understanding of the problems affecting supply chain management and service delivery, from the key role players, identified as managers and supervisors, within the KZN Health Department. This study specifically examines the challenges of departmental contracts as perceived by supply chain managers, on the basis of data collected, by means of an online questionnaire, from a representative sample of 90 health managers. Both parametric and non-parametric statistical approaches were applied for data analyses, in particular Principal Component, Anova and multivariate regression, using SPSS.

The results show that perceptions of managers regarding the challenges of Departmental contracts tend to vary amongst managers and supervisors, in terms of their work experience, race and directorate within Supply Chain Management that they work, and the institution that they are from. The perceptions on the implementation of NHI do not differ across categories of gender, age and education. However, race (p-value=0.001) has a significant effect on the implementation of NHI, with Africans tending to have a more positive perception than other ethnic groups. The regression results indicate that satisfaction with procurement is significantly and positively influenced by contracts performance.

This study provides recommendations to manage the challenges of departmental contracts, improve service delivery and aid in the rollout of the NHI.

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Acronyms used

KZN: KwaZulu-Natal
NHI: National Health Insurance
NHRD: National Health Research Database
NT: National Treasury
PCA: Principal Component Analysis
PT: KZN Provincial Treasury
PFMA: Public Finance Management Act
SA: South Africa
SCM: Supply Chain Management
SPSS: Statistical Package for Social Sciences

Chapter 1

1.1 Introduction

The public healthcare sector in South Africa is one of the biggest within the public sector industry and its budget and expenditure is meant to cater to provisioning quality healthcare services to all its citizens (Daggar, Sweeney & Johnson, 2007; Adusei, 2018; Maphumulo and Bhengu, 2019). According to D'souza and Sequeira (2012), providing proper public healthcare services is crucial for any country's service delivery, economic survival, and optimal functioning. The South African economy operates a dual system: the public healthcare sector provides services to approximately 80% of South Africans, whilst the private healthcare system caters to roughly 15% and the remaining 5% is served by the military, mines' healthcare services, and other independent private company general practitioners (Burger & Christian, 2020). Steyn and Wouters (2012) note that South African public healthcare varies significantly from basic primary healthcare to specialized services in both public and private sectors. Despite expectations for equal quality of services, management issues often prevent this parity (Steyn and Wouters, 2012; Adusei, 2018; Maphumulo and Bhengu, 2019). Maphumulo and Bhengu (2019) add that there is fragmentation and a lack of uniformity in service delivery between the two sectors. Historically, this has been evident in the racially segregated facilities of the apartheid era, which created disparities based on race, socioeconomic status, and geographic location. Post-apartheid reform initiatives by government aimed to address these issues through enhanced management skills and strategies, targeting past problems, like underdevelopment, discrimination, and disempowerment.

Despite the efforts by the national and provincial Departments of Health to address complexities and strengthen public sector healthcare, the healthcare system remains inequitable and inaccessible to millions (Human, 2010; Adusei, 2018). Although the South African government spends approximately 273 billion rands annually on healthcare, making up 12,2% of its budget expenditure, via a legislated supply chain management process, health monitor groups deem its healthcare provision performance to be below average compared to global standards (News24, 2021; UNICEF South Africa Report, 2022). This flags supply chain management as a root cause to poor service delivery and raises questions about the principle of strategic public sector health sourcing.

1.2 Background

Supply Chain Management in public healthcare is central to the post-apartheid financial management development and reform process within the South African public healthcare industry (Mkhize, 2004; Adusei, 2018; Fourie & Malan, 2020). Supply Chain Management is tasked with planning, managing, coordinating, and controlling the flow of critical deliverables and functions, including medicine, medical equipment, information, medical consumables, services, and finance from suppliers to health facilities. Effective management and execution depend on well-orchestrated supply and demand processes, as well as the use of strategic sourcing to contract for all goods and services required in the healthcare sector (Adusei, 2018). This highlights the paramount importance of an effective supply chain management process to manage the complexities within the sector. However, within public healthcare in South Africa we find a below par performing supply chain management process, resulting in poor quality contracted goods and services and contracted goods and services not being on time to meet expectations and demand, which obviously constraints, hampers and prevents the implementation of Departmental Health goals in terms of service delivery (Steyn and Wouters, 2012; Adusei, 2018; Maphumulo and Bhengu, 2019).

1.3 Rationale of the study

Building on this setting, this dissertation aims to gain an insight into the perceptions and opinions of the supply chain experts who are tasked with procuring almost all items for the health sector and managing the complexities in healthcare. Further than understanding their perceptions on departmental contracts' challenges and benefits, this research aims to get their opinions on the key inhibitors to service delivery, and whether the current healthcare environment is conducive to the implementation of the NHI. A key part of the research would be identifying how do the opinions to the various research questions differ amongst supply chain managers and supervisors, with particular interest in identifying if these perceptions differ terms of demographics. The research questions and research objectives will be covered explicitly in the methodology chapter.

1.4 Merit to the research and proposed contribution

Firstly, by understanding and analysing the critical challenges faced by contract management and supply chain management (SCM) in the healthcare sector, the study will aid in improving service

delivery. Further, this can also be a platform that can assist in successfully rolling out the NHI scheme, by having a holistic understanding of what contract management constraints needs to be addressed for successful implementation. Although much research is done on public healthcare in the KZN Health Department, there is limited focused-on contract and supply chain management issues, whilst virtually no research guiding what needs to be addressed for the successful rollout of the multi-billion-rand NHI scheme from a contract management and supply chain management perspective. This is a research gap identified by this dissertation. This is verified not only by researching papers, studies and books, but also - from the National Health Research Database (NHRD), that grants permission for any original research to be undertaken within the Health Department. When permission is granted by the NHRD, researchers are advised of previous studies relating to their field of study, whilst a request is also made to researchers to submit copies of their research for their database. There is currently no research analysing supply chain managers perceptions of contracts within the KZN Health Department nor research on their opinions on the implementation of The NHI (National Heath Research Database, 2024)

Despite various initiatives by Government and Treasury to address service delivery, there has been a significant deterioration in healthcare services and products at public hospitals in South Africa, and more so in the Kwa-Zulu Natal (KZN) province (Steyn and Wouters, 2012; Maphumulo and Bhengu, 2019; Fourie and Malan 2020). This clearly implies that either previous studies' findings and recommendations were never addressed, or that there are deeper rooted issues and worsening constraints in contract and supply chain management that are yet to be addressed. These major problems have been mentioned and supported in studies by Van Zyl (2006), Matthee (2006) and Burger and Christian (2020). They all have found that non-compliance to Supply Chain Management policy was due to lack of skills, capacity and knowledge of the workforce to be able to fully implement Supply Chain Management across various spheres of government. This provides credibility to the research as it is taking on a topic of current relevance and moral significance. Furthermore, this research underpins the need for better contract and supply chain management within healthcare for improved health outcomes.

1.5 Research problem

The Supply Chain Management and the contract management process is identified as the root cause of poor-quality products and services in the public healthcare system, contributing to an

ineffective service delivery (Fourie & Malan, 2020). Supply Chain Managers and management in healthcare are constantly under scrutiny regarding this poor service delivery and inadequate care. Despite there being significant coverage in the forms of research, implementation of legislative guidelines by Treasury and media publicity, there is still an ongoing deterioration in the public healthcare sector (Adusei, 2018; Maphumulo and Bhengu, 2019). Further managers in public healthcare needs to re-evaluate the present obstacles pertaining to service delivery and the successful implementation of the e-health strategy, through both supply chain and contract management. This strategy is an initiative to enable the smooth roll out of the National Health Insurance. In order for such a large investment of the taxpayer's money to not be a fruitless and wasteful expenditure, an adequate and effective governance and supply chain management structures should be developed, by understanding and addressing the current obstacles. This can enable the oversight of the implementation of e-health systems in Kwa-Zulu Natal, whilst dealing with the deteriorated structures within healthcare.

Public sector procurement within the healthcare sector is at the epicentre of inadequate service delivery and healthcare provision. This procurement system has been identified as a root cause of healthcare delivery problems. This dissertation aims to understand the perspective of those professionals working in procurement in The KZN Health Department, and the feasibility of implementing the NHI. The study is guided by the following research questions and objectives**:**

1.6 Research questions

1. How do perceptions of departmental contracts differ between demographics of SCM managers and supervisors in KZN?

2. What are the critical challenges of departmental contracts faced by managers and supervisors?

3. How does the perceived critical challenges of departmental contracts differ between managers and supervisors of different demographics?

4. How does the opinion of the preparedness of the department to successfully implement the NHI differ amongst managers and supervisors of different demographics?

5. To gain an understanding of the service delivery in healthcare within KZN.

6. To examine if the perception of service delivery differs between managers and supervisors of different demographics.
7. What is the level of satisfaction of departmental contracts as per SCM managers and supervisors in KZN.
8. What factors most strongly impact satisfaction of departmental contracts?

1.7 Research objectives

1. Identify how the perception of departmental contracts differs in terms of demographics amongst managers and supervisors in KZN.
2. Identify the critical challenges of departmental contracts faced by managers and supervisors.
3. Identify how the opinions of departmental contracts challenges differ in terms of demographics of managers and supervisors.
4. Analyse the various demographic perceptions of managers and supervisors regarding the preparedness of the health department to successfully implement NHI.
5. Analyse the perceptions of service delivery.
6. Analyse the different demographic opinions of factors affecting service delivery.
7. Analyse the levels of satisfaction of departmental contracts.
8. Identify the factor/s that impact the level of satisfaction of departmental contracts.

1.8 Brief overview of methodology utilised in the research

A questionnaire was chosen as the research data collection tool, as it allowed us the best way to structure and streamline the research questions, in a clear and concise manner. The questionnaire was structured such that we could use descriptive and inferential statistics.

Statistical Package for the Social Sciences (SPSS) is used to analyse the data and compute the results of this research. The statistical approaches used, include principal component analysis and regression analyses.

1.9 Format of the study

The study consists of five chapters. Chapter one includes an outline of the study, and briefly highlights the critical role of supply chain management in public healthcare. The chapter

provides the rationale for the study, problem statement as well as the research questions, and objectives.

Chapter two is a discussion on what the literature and studies say about the dynamics of healthcare globally and in a South African context, before moving onto to the public healthcare sector and the critical role that supply chain management plays within the sector. The NHI rollout will also be discussed.

Chapter three provides this study's research methodology and design. The chapter discusses the sampling design as well as the data collection method selected. The data analysis methods, reliability and validity methods, ethical considerations and limitations to the study are also covered.

Chapter four contains the results of the data collection process and the analysis of the results. It is divided into descriptive and inferential statistics of managers and supervisors' perceptions.

Chapter five provides a summary of results, conclusion and recommendations based on the analysis that was completed in chapter four. This section provides recommendations to the Kwa-Zulu Natal Department of Health, relating to contracts management and NHI, for an improved health care delivery.

Chapter 2: Literature review

Before addressing the perceptions of KwaZulu-Natal supply chain management managers and supervisors towards contracted goods and services in healthcare, the chapter covers a picture of the dynamics that supply chain managers and supervisors in KwaZulu-Natal healthcare are faced with, on a macro and micro level, using the literature available. The chapter thus initially discusses what the literature and previous studies say about the dynamics of healthcare globally and in a South African context, before moving onto to the public healthcare sector and the critical role that supply chain management plays within the sector. The chapter to closes off with the most trending topic in the South African Healthcare sector, which is the NHI. The NHI scheme is set to be rolled out in South Africa, despite significant issues having been raised at the macro and micro level.

This chapter will be broken down into the following sections:

2.1 Healthcare Economics

2.2 Dynamics of healthcare globally

2.3 Dynamics of the South African healthcare sector

2.4 Critical role of Supply Chain Management in Public Healthcare and its challenges

2.5 NHI implementation rollout

2.6 The relevance of the literature to this study

2.7 Conceptual Framework

2.1 Healthcare economics

Providing accessible quality healthcare for all is one of the objectives of the KwaZulu Natal Department of Health. Healthcare Economics is an applied field of study that allows for the systematic and rigorous examination of the problems faced in promoting health for all. This shows their direct relationship in terms of their need to understand challenges preventing healthcare for all. Utilizing the economic theories of consumer, producer and social choice, health economics studies the behavior of individuals, health care providers, public and private organizations, and governments in decision-making. Healthcare economics examines the allocation of resources within the healthcare sector, focusing on the supply and demand of

healthcare services, cost-effectiveness, and economic behavior. Supply and demand are fundamental concepts in healthcare economics, determining the availability and utilization of healthcare services. The supply of healthcare services is influenced by factors, such as the availability of healthcare professionals, medical facilities, and technology. Supply-side constraints can lead to shortages and impact the quality of care. The demand for healthcare services is driven by factors such as population demographics, disease prevalence, and healthcare accessibility. High demand can strain healthcare resources and impact service delivery (Murray & Frank, 2013; Phelps, 2019; Barbu, 2023).

Cost-effectiveness analysis is often used to evaluate the economic efficiency of healthcare interventions. It helps in determining the best use of limited resources to achieve maximum health benefits. Understanding the economic behavior of healthcare providers and patients is crucial for developing effective healthcare policies. Weeks (2013) declares that traditional healthcare patterns, which are reactive in nature, have become less effective in handling complex issues or situations. The new healthcare dispensation promotes change, emphasizing healthy lifestyles and preventive services over curative ones (Weeks, 2013; Peters, 2018; Liu & Panagiotakos, 2022). The International Association for Management of Technology reports that recent healthcare systems have become more complex with various systems within the healthcare structure.

Healthcare economics is a concern globally for all countries and the factors to be considered will depend on the environment. Hence, we move on to understanding the healthcare environment dynamics globally and in a South African context to see what factors are affecting quality healthcare for all.

2.2 Dynamics of healthcare globally

We aim to understand the global position of the healthcare environment to gauge the dynamics of the macro environment in relation to our study. An effective management programme suited for crucial healthcare systems has yet to be confirmed by any country. The capabilities and presentation of healthcare structures are not constant between countries (World Health Organisation, 2022). Murray and Frenk (2013) found that growing a healthcare performance structure starts with determining the system's limits and the crucial managerial activities to maintain or improve health. This was supported in studies by Shiffman, 2014 and Hanefeld and

Walt, 2015. The healthcare sector is moving towards servitization, which is important for manufacturing and service industries.

Like other sectors, healthcare management is affected by globalization and related issues. These hindrances affect stakeholders within the organization, resulting in major losses. The healthcare network has become more complex due to constant growth in innovation, making healthcare diagnosis and treatments more patient-specific (Mottermeyer, Njuguna, & Alcock, 2011 ; Hassan et al, 2021 ; Barbu, 2023). Managers in the healthcare sector need to lower costs and modify their environment to remain cost-effective for patient needs and competitive against other industries. The combination of services and products has become crucial in maintaining economical goods for patients, while meeting their demands (Shiffman, 2014 ; Hanefeld and Walt, 2015; Phelphs 2019). There are different opinions on good quality healthcare services. The World Health Organization (2022) states that to provide the best care to a patient, both expectation and service need to be delivered. For healthcare system managers, quality means ensuring successful and inexpensive care is given. When materials are restricted, this might involve rationing healthcare. From a management perspective, quality means constantly improving and structuring healthcare systems to meet patients' needs (IHME, 2017 ; Peters, 2018 ; Liu & Panagiotakos, 2022).

Technology as a support system in healthcare is crucial for the industry's improvement and evolution. The industry must deal with unknown forces and stakeholders' expectations, service providers, governments, management, and other key role players (IBM Corporation, 2018). This expansion has intensified in the 21st century, achieved while meeting maturing hopes and improving performance within the healthcare component. It also improves cooperation and provides a more data-driven stage for decision-making. IBM Corporation (2018) noted that technology is a crucial enabler, significantly improving healthcare standards, reducing costs, and bettering service access. Healthcare relies on technology for productivity over time. Different terms and ideas connect technology to healthcare management support structures, including electronic health (e-health), telemedicine, healthcare information, and telehealth (Hassan et al, 2021). Weeks (2012), Murray & Frank, (2013) and Phelps, (2015), (2019) suggest that clinical devices constitute healthcare technology. The World Health Organisation concurs, concluding

that healthcare technology includes medications, surgical and medical methods and devices, and the intellect used in disease prevention, treatment, diagnosis, and rehabilitation.

Three crucial areas symbolize healthcare technology: context, people, and systems. According to Weeks (2012), healthcare is the context here. The International Association for Management of Technology suggests that context in healthcare is the framework and structure that the system assumes relevance. It implies that the system needs are determined by context, requiring intellect, skills, and culture to achieve effective outcomes. Productive healthcare services and systems need comprehensive and inexpensive care for patients, from prevention, diagnosis, and treatment of diseases to rehab. Reports from Hassan (2021) find that healthcare science depends on laws that make up an environment conducive to research, development, and legal operations. The government plays a crucial role in the legal framework of healthcare, ensuring ethical and legal environments for healthcare professionals to operate effectively (Abimbola et al, 2021). Liu & Panagiotakos, (2022) stated that governments worldwide are continuously involved in healthcare reforms due to significant expenses and the chunk of the counties GDP that healthcare consumes.

Global Healthcare Challenges

Globally, healthcare systems face unparalleled changes. Atallah, Lo, and Yang (2012); KPMG (2020) and Deloitte (2022) identify major global healthcare challenges, including population aging, chronic diseases, expense and quality, accessibility to care and technology. The United Nations reports unprecedented aging rates, with the population aged 60 and above expected to triple by 2050, particularly in developing countries (Atallah et al., 2012). The shift in population dynamics increases the strain on healthcare systems and expenses, especially in welfare-providing nations (Deloitte, 2022).

The UN world population stats state that the present age population rates are unparalleled in the history (Atallah et al, 2012). In support of this, Deloitte (2022), states that over the last 50 years, the global population age 60 and higher has tripled and it is anticipated that in the next 50 years, to increase by more than threefold and reach 2 billion by the year 2050. This is based on the rate of growth and the projection of the population globally. This massive incline is most likely to happen in the developing countries. Atallah et al. (2012:3) states that the shift in population occurs by a loss of fertility and mortality rates, where the old and young dynamic is changing

throughout the world. The massive rise in elderly rates puts a huge constraint on healthcare systems globally.

The spread of chronic diseases within elderly populations such as diabetes, hypertension, cancer, stroke and mental disorder is an escalating trend. Atallah et al. (2012) and Mohrman et al. (2012) state that this shift has placed a massive constraint on healthcare services, thus increasing overall expenses in all the countries, especially for the countries in which their governments offer welfare, such as National Healthcare Welfare. In order to address the issues of age-related care and in order to prevent chronic diseases, Deloitte (2022) suggests that countries worldwide should be working individually and in co-operation to improve their wellness and prevention programs. Further, the World Health Organization has also created a global awareness campaign about chronic diseases and prevention against them.

Reports from Sustainia (2014) , IBM (2016) and Deloitte (2022) declare that the expense of healthcare worldwide has had a massive increase on taxpayers. It is suggested that the feasibility of healthcare systems globally has been risked and that cost-effective care is almost impossible. Majority of countries worldwide are constantly trying to better their quality of healthcare. However their healthcare organizations are battling to decrease or contain the increases in cost. This is now a global phenomenon, thus making poor countries more at risk (Mohrman et al., 2012). Private and public funding structures in healthcare worldwide are under financial stress (Deloitte, 2022).

Adusei, (2018); Abimbola et al (2021) and Hassan, (2021) also noted that the increase in health care expenses and spending does not always results improved healthcare provision, even in more developed countries. Worldwide, countries still have to deal with the quality of unreliable care. Measures to govern healthcare costs include incentive models for physicians, evidence-based treatments, drug price cuts, and the use of generic drugs and m-health applications (Adusei, 2018; Abimbola et al 2021 and Hassan, 2021).

Deloitte (2022) reports that an estimated one billion people do not have access to healthcare facilities. Expenses and the demand for services within healthcare continue to rise, thus making accessibility to care more challenging on a global scale (Peter, 2018). Many healthcare management systems have demand versus capacity concerns, which extends health care waiting times, and in many cases access ends up being denied. Although there have been many efforts by

countries to improve their healthcare structures and systems, these structures and systems still face the massive challenge of accommodating the increase in demand for healthcare services, resulting in shortages in the workforce, limitations in infrastructure, cost and patient locations (Peter, 2018 ; Abimbola et al, 2021).

While technology is vital for healthcare functionality, developing and implementing new technological innovations is expensive, raising overall healthcare costs (Deloitte, 2013, 2014, 2022; Mohrman et al., 2012). The Economist Intelligence Unit (2016) notes that the rise in costs is associated with developing new treatments, technologies, medical devices, pharmaceuticals, as well as the increased cost associated with new legislations and health and safety standards.

Despite high costs, healthcare technology is crucial for improving care quality and efficiency. However, it also generates vast amounts of administrative and clinical data, raising concerns about data integrity, availability, and confidentiality (Deloitte, 2013; 2014; 2022). Moreover, developing markets often lack reliable and efficient technology infrastructure. Healthcare leaders are leveraging health information technology and innovation to improve the quality of healthcare provision, minimize costs, and enhance patient satisfaction. The rapid evolution of medical technology and the availability of high-tech diagnostic and therapeutic equipment, coupled with changing doctor practices, have transformed healthcare delivery, emphasizing the need for robust IT infrastructure in the delivery of health care (Liu & Panagiotakos, 2022).

2.3 Dynamics of the South African healthcare sector

South African healthcare consists of a two-part system: a huge, publicly funded sector providing health services to a large share of the population, and a rapidly growing but considerably smaller private sector catering to a small percentage of the population. Despite 80% of South Africans use public healthcare, the government only covers 40% of the healthcare expenditure relative to GDP (Burger and Christian, 2020). Deloitte (2022) states that government spending is 48%, while the private sector accounts for 52%. Although the difference in expenditure is minor, only 17% of South Africans access private health services through medical aids, which most cannot afford. Significant issues plague the South African healthcare system, including deepening disparities and inequalities. Post-apartheid, discrepancies in resource allocation, access to healthcare services, and care quality persist. These disparities remain prevalent between the public and private sectors, provinces, urban and rural areas, socioeconomic classes, and between

races and genders, adversely impacting healthcare access (Coovadia et al., 2009; Schaay et al., 2011; Ataguba et al., 2012; Maphumulo & Bhengu, 2019; Abrahams 2021).

Benatar (2018) attributes these issues to continuous free market policies, rapid urbanization, migration, corruption, and poor public service management by the ANC-led government, as well as inadequate economic advancement, HIV/AIDS prevalence, and the aging population with increasing chronic diseases. Benatar (2018) reports that South Africa has the largest population living with HIV/AIDS globally and the largest antiretroviral treatment program. Burger & Christian, (2020) and Abrahams (2021) supports the finding by Benatar. This places significant financial strain on healthcare facilities, compounded by a shortage of healthcare professionals. Key resource issues include shortages, misdistribution, and inadequate skills of healthcare professionals. These challenges hinder the government's ability to deliver major healthcare programs and ensure healthcare accessibility for all (Ataguba et al., 2012; Maphumulo & Bhengu, 2019; Burger & Christian, 2020).

IAMT 2016 Conference and Deloitte (2022) states that the private healthcare industry is robust, sophisticated and well financed, whilst the public sector is poorly resourced and lacks basic infrastructure and technology. Deloitte (2022) further found that medical aid and associated costs of healthcare within the private healthcare industry of South Africa is among the highest worldwide. Further it was revealed that the private healthcare sector in South Africa uses a curative approach to healthcare rather than the preventative approach. The preventative approach is the cheaper and better health promoting approach.

The private healthcare industry in South Africa is robust and globally recognized for advanced insurance management (Burger and Christian, 2020; Maphumulo and Bhengu, 2019). However, the ANC-led government's socialist policies contrast with the legacy of apartheid-favored healthcare facilities. This failure to consolidate healthcare systems leads to structural fragmentation, unequal resource distribution, and varying care quality (Van der Merwe, 2014; Maphumulo and Bhengu, 2019). Van der Merwe (2014) notes that South Africans on medical aids pay significantly more for high-tech medical procedures compared to many developed countries. Studies by Ataguba et al. (2012), Maphumulo and Bhengu, (2019) and Burger and Christian, (2020) conclude that escalating private healthcare expenses are becoming unaffordable

for many medical aid members, resulting in cost-related shifting to the overburdened public sector.

Several government initiatives aim to transform public and private healthcare sectors, improve service delivery, and address inequalities. These include the Reconstruction and Development Programme (RDP), public-private partnerships (PPPs), the National Health Act of 2003, the Health Charter, and the National Health Insurance (NHI) scheme (Maphumulo and Bhengu, 2019; Fourie and Malan, 2020)

2.4 Critical role of supply chain management in public healthcare and its challenges

Supply Chain Management (SCM) is a critical component of the public healthcare system, ensuring the efficient procurement, distribution, and utilization of medical supplies and services. Effective Supply Chain Management can directly improve healthcare delivery, reduce costs, and enhance patient outcomes (Adusei, 2018; Maphumulo and Bhengu, 2019). It encompasses the management of the flow of goods, information, and finances involved in the production and delivery of products and services from supplier to consumer (Adusei, 2018). SCM is a process and system in public healthcare that literally procures every item that is required by any hospital with the exception of human resources which highlights and emphasizes the absolute significance of the process in service delivery (Adusei, 2018). In healthcare, SCM ensures the availability of medical supplies, equipment, and pharmaceuticals, which are essential for patient care. Departmental contracts are a means for obtaining goods and services via the legislated SCM process. This can be once-off purchases or 3-year contracts. For 3-year contracts the process is done once and thereafter orders can be placed directly with the awarded supplier for that period of the contract (Burger & Christian, 2020).

SCM in the public sector builds on South Africa's constitution section 217, which mandates that when an organ of state contracts for goods and services, it must do so in a system that is fair, equitable, transparent, competitive, and cost-effective. This is further developed in the Public Finance Management Act (PFMA) and various financial management systems, accounting reforms and National Treasury regulations provide detailed guidelines for SCM processes, including procurement, contract management, and risk management. These regulations ensure that SCM practices are consistent and transparent across all government entities. Ismay (2008) stated that SCM was developed in the public sector in 2003 to move from a rule-based system to

an integrated SCM system, promoting the new public management model and improving financial management and procurement value.

Supply Chain Management Process and Policy Framework

The SCM policy framework in South Africa aims to promote uniformity and consistency in SCM processes across government, facilitate the standardization of procurement legislation and policies, and devolve responsibility and accountability for SCM functions to accounting officers and authorities. The framework includes in order of processes, Demand Management, Acquisition Management, Contract Management, Logistics Management, Disposal management, risk, and performance management (National Treasury, 2015; KZN Provincial Treasury, 2018; Department of Health KZN SCM Delegations, 2022)

Demand Management involves forecasting and planning for the procurement of medical supplies based on anticipated needs. It ensures that healthcare facilities have the necessary supplies to meet patient demand. This process involves careful planning and setting goals to meet the department's needs. It includes identifying sourcing strategies, conducting market analysis, and compiling relevant specifications to gain technical benefits (National Treasury, 2015; KZN Provincial Treasury, 2018; Department of Health KZN SCM Delegations, 2022).

Acquisition Management involves the procurement of goods and services through competitive bidding and other procurement methods. It ensures that healthcare facilities obtain the best value for money. This process manages bids and quotations, establishes the total cost of ownership, and evaluates tenders according to published criteria. It ensures compliance and allocates points for price and preference based on departmental goals (National Treasury, 2015; KZN Provincial Treasury, 2018; Department of Health KZN SCM Delegations, 2022).

Contract Management involves overseeing and managing contracts with suppliers to ensure that they meet their obligations. It includes monitoring supplier performance and managing contract renewals and terminations. This involves ensuring compliance with service delivery, proper execution of contracts, and achieving value for money. It includes updating the contracts register, resolving issues, and monitoring internal and external risks (National Treasury, 2015; KZN Provincial Treasury, 2018; Department of Health KZN SCM Delegations, 2022).

Logistics Management: involves the storage, distribution, and transportation of medical supplies. It ensures that supplies are delivered to healthcare facilities in a timely and efficient manner. This includes managing inventory levels, re-order levels, stock coding, placing orders, stores and warehouse management, and supplier performance management. Risk management involves identifying and avoiding risks within the SCM system to prevent irregular or unauthorized expenditure (National Treasury, 2015; KZN Provincial Treasury, 2018; Department of Health KZN SCM Delegations, 2022).

Risk, and Supply Chain Performance Management involves monitoring and evaluating the performance of the supply chain to identify areas for improvement. It includes tracking key performance indicators (KPIs) and implementing corrective actions as needed (National Treasury, 2015; KZN Provincial Treasury, 2018; Department of Health KZN SCM Delegations, 2022).

Bid Committees and Their Respective Roles

Bid specification committee requires a minimum of 4 manager responsible for the function including external specialist advisors (cross-functional principle). The committee compiles an appropriate specifications or terms of reference. This would include the requirements, conditions of supply and delivery, the evaluation criteria that will be used (National Treasury, 2015; KZN Provincial Treasury, 2018; Department of Health KZN SCM Delegations, 2022).

Bid evaluation committee comprises of a minimum of 4 member with an SCM manager and supervisor and technical experts from department requiring the good/service. Committee will evaluate bids in accordance with the prescribed criteria of the Preferential Procurement Policy Framework Act, evaluate tenderers tax matters and provide a recommendation of award of the bid (National Treasury, 2015; KZN Provincial Treasury, 2018; Department of Health KZN SCM Delegations, 2022).

Bid adjudication committee requires a minimum of 4 managers, which should include the Chief Financial Officer and a technical expert who is an official to ensure compliance with the specification. The Head of Department must appoint the chairperson and members to award the bid. The recommendation made by the bid evaluation committee is utilised and considered

however the final award is at their discretion (National Treasury, 2015; KZN Provincial Treasury, 2018; Department of Health KZN SCM Delegations, 2022).

Key Role Players in Public Procurement

Various role players are involved in the procurement process in the public sector in SA. Some of mentioned below.

National Treasury: Introduces and oversees SCM implementation, develops regulations, issues guidelines and bid documents, sets reporting standards, and monitors policy outcomes.

Provincial Treasuries: Assist departments with SCM implementation, provide advice, build capacity, coordinate training, and monitor policy outcomes.

Accounting Officers: Establish SCM units, compile and implement SCM policies, develop internal procedures, ensure training and skill development, and report to the national treasury.

Chief Financial Officer: Recruit, select, develop, and manage skills to build effective SCM units, provide training, and develop managers and supervisors to operate SCM activities.

(National Treasury, 2015; KZN Provincial Treasury, 2018; Department of Health KZN SCM Delegations, 2022)

Public Procurement Challenges

Despite significant efforts by the National Treasury to improve and capacitate managers with relevant competencies, management execution remains an ongoing constraint (Ambe, 2009; Fourie & Malan, 2020). There is glaring deficiencies in applying prescribed management control, policies, procedures and strategic sourcing, thus creating increasing pressure and scrutiny around public sector management (Fourie & Malan, 2020). This pressure stems from service providers, the public, and a vocal media concerned about public sector management.

The following are identified by National Treasury as the biggest constraints regarding Public Healthcare Procurement:

Non-compliance to Supply Chain Management Policy and regulations are not being adhered to either resulting in irregular expenditure and or unauthorised expenditure. The literature findings,

that non-compliance to policies, legislations and regulations can be attributed to lack of understanding of the Supply Chain Management prescripts, legislations and policies, inadequate Supply Chain Management skills, qualifications and competencies, lack of application of Supply Chain Management Legislation as well as the absence of a stricter regulatory culture. These major problems have been mentioned and supported in studies by Van Zyl (2006), Matthee (2006) and Burger and Christian (2020). They all have found that non-compliance to Supply Chain Management policy was due to lack of skills, capacity and knowledge of the workforce to be able to fully implement Supply Chain Management across various spheres of government.

Strategic procurement focuses on cost effectiveness and value for money. This principle is dependent on specialised capabilities and skills to ensure that the procurement requirements are correctly identified and determined, the appropriate contract and sourcing strategies are developed, contracts are effectively managed to achieve what is required and obtain the best outcome at the correct time, place and price. The first process in public Supply Chain Management is the demand management process and is therefore key to the procurement process. It outlines and defines the decision-making process, which enables public entities and departments to procure at the correct time, place and cost. In contradiction most public and entities in SA display major shortcomings in terms of procurement planning and linking demand to budget. This is attributed to limited skills and capacity as well as extremely poor management and planning (Burger & Christian, 2020).

Departments display inadequate and inconsistency in terms of risk management structures resulting in irregularities in the Supply Chain Management process. The findings of the literature point out that there is a lack of internal control and risk mitigation procedures resulting in ineffective utilisation of Supply Chain Management legislations, policies and procedures. This has opened the door to fraud and corruption and other administrative malpractices within government entities impeding Supply Chain Management goals and objectives (Fourie & Malan, 2020). These inadequate monitoring and evaluation measures and structures are linked to the absence and or a poor control environment, resulting in public entities being put in a difficult position to implement Supply Chain Management as required by the legislation. According to Business Day (2011), government entities have spent millions whilst contravening legislated

Supply Chain Management laws and regulations resulting in these entities notching up irregular, unauthorised, fruitless and wasteful expenditure.

Ethics and conflict of interest greatly affects Supply Chain Management, and the literature suggests that there is enormous authority thrown around by some chief financial officers and lack of proper consultation with other senior officials. Whilst the National Treasury Guide to Accounting Officers prescribes a standard approach towards Supply Chain Management procedure, the use of power, coupled with corruption and politics blatantly overpowers the legislation due to poor risk management and accountability structures spoken about prior. This creates differentiation in approaches with Supply Chain Management and a lack of standardisation (Fourie & Malan, 2020).

Adequate capacity in the form of appropriate structures and skilled and professional Supply Chain Management personnel is key success factors for proper Supply Chain Management implementation. In some most public department, the suitability of Supply Chain Management personnels' skills and ability are far below an acceptable standard. The studies conducted by Ambe (2006), Migiro and Ambe (2008) and Fourie & Malan, (2020) found that many Supply Chain Management workers in the South African public sector have been to numerous trainings and workshops on public procure and Supply Chain Management, but still lack the appropriate knowledge for proper implementation. This may imply a waste of resources and taxpayers' money.

2.5 Implementation of the NHI

The National Health Insurance (NHI) scheme aims to overhaul the South African healthcare system to provide universal health coverage. Signed into law on May 15, 2024, by President Cyril Ramaphosa, the NHI intends to address issues of affordability and accessibility to healthcare for all citizens, irrespective of their socio-economic status. This rollout however is to take place under the current economic environment and conditions in public healthcare, most notably with the background of poor public service delivery, poor and deteriorating infrastructure, outdated technology and most importantly an extremely poor functioning public supply chain management system that will be required to procure everything that the NHI requires for its rollout and implementation (Nicol et al, 2021).

According to the World Health Organization (2019), many countries have adopted universal health coverage policies to improve public health outcomes and reduce health disparities. South Africa's NHI is part of this global trend, aligning with international accords on desirable health system reforms (Day and Zondi, 2021).

The primary objectives of the NHI include:

1. Ensuring that every South African has access to essential health services.
2. Protecting individuals from financial hardship due to health expenditures.
3. Providing equal access to healthcare services regardless of geographic location or socio-economic status.

(Day and Zondi, 2021)

The essential objective of the NHI project in South Africa is to ensure that all citizens have a form of financial risk protection against any health crisis they may endure. It is being created so that all citizens, can have receive universal quality healthcare services. The NHI aims to develop social solidarity via a universal fund. This fund would procure health goods and services on behalf of the entire population. This would aid overall healthcare in South Africa in terms of controlling the continuous rising cost of healthcare products and services, whilst assisting the public healthcare sector to improve service delivery and overall performance when administering healthcare (Day & Zondi, 2019 Nicol et al, 2021; Gani, 2023).

Despite the NHI system portraying an image of being a crucial step towards an equitable healthcare system, the literature also indicates that some huge issues which could derail the successful implementation of the scheme. The ruling ANC government lacks a robust governance and accountability mechanism particularly in health procurement, consequently it is believed that the single payer NHIF will fail the scheme (Day & Zondi, 2019 Nicol et al, 2021; Gani, 2023).

Network access, connectivity and bandwidth issues are some of the major inhibitors facing the e-health implementation, and as a result could constraint the successful implementation of the NHI project. However, connectivity is a tip of the iceberg in terms of infrastructural and facility challenges. Even if there is enough money to procure the new technologies, the infrastructure

and technologies to support such are outdated, requiring an overhaul of the entire infrastructure or system (Nicol et al, 2021).

The literature study reveals that the NHI scheme requires additional skilled staff to enable successful implementation, but there is a shortage of such personnel. Most public hospital personnel, particularly in rural areas, are not suitably skilled or lack the capabilities required. As mentioned earlier, the literature pointed out that lack of strategic sourcing is a direct result of supply chain employees in public sector not being skilled enough. This in itself is a major red flag as all procurement for the NHI will be done via the public sector supply chain process (Nicol et al, 2021).

Socio-Economic Impacts

The NHI is expected to have significant socio-economic impacts:

- Economic Growth: Improved public health can lead to increased productivity and economic growth.
- Social Solidarity: Creating a single fund for all citizens promotes social solidarity and reduces health inequities

(Day and Zondi, 2021).

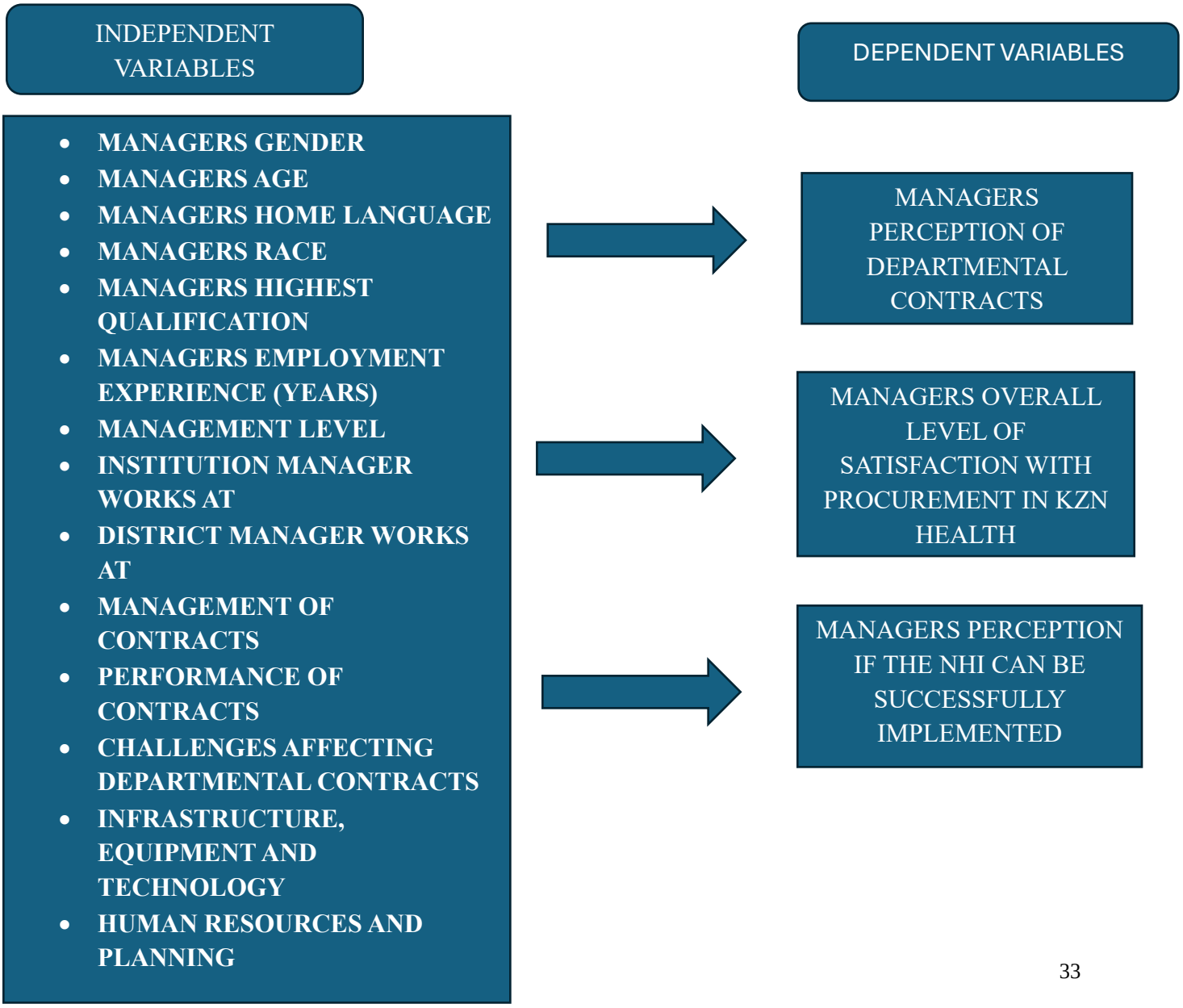
2.6 Conclusion

This chapter aimed to direct and position the reader on the relevance of this research topic. It discussed globally and locally what were the common but critical challenges affecting healthcare. Both point to strategic procurement within the healthcare sectors to battle the rising cost of healthcare resulting from factors such as increases in prices of commodities, increase in populations, increases in diseases and increases in new technologies. In South Africa, the research all points to Supply Chain Management as a key role player in poor service delivery within the healthcare sector. It points out that there is a lack of strategic procurement when contracting for goods and services.

Lastly the NHI is the latest multibillion rand project the government intends to roll out in healthcare. However, the literature paints a bleak picture in terms of the global healthcare market and the South African public healthcare Supply Chain Management directorate that will

be tasked with strategic procurement for the roll out. This gives rise and relevance to the topic of this dissertation, which aims to gain an insight into KwaZulu-Natal Health Supply Chain managers' opinions regarding the departmental contracts they develop for goods and services in healthcare and their levels of satisfaction. The research aimed to build on and further the understanding of the challenges and complexities that KZN Health Department managers face, and a conceptual framework is presented below. The research questions underpinning this study were set in the introductory chapter. The next chapter covers the methodology to be used to address the questions.

2.7 Conceptual framework



Chapter 3: Methodology

The narrative of chapters 1 and 2 set the tone of a below par performing supply chain management system in the health sector, resulting in poor quality contracted goods and services which constraints the implementation of Departmental health goals in terms of service delivery.

This chapter will set out the research questions and objectives, before detailing the strategic nature we will go about obtaining data and analyzing the data to answer he research questions and fulfill the research objectives.

This dissertation research has the following research questions and objectives:

3.1 Research questions

1. How do perceptions of departmental contracts differ between demographics of SCM managers and supervisors in KZN?
2. What are the critical challenges of departmental contracts faced by managers and supervisors?
3. How does the perceived critical challenges of departmental contracts differ between managers and supervisors of different demographics?
4. How does the opinion of the preparedness of the department to successfully implement the NHI differ amongst managers and supervisors of different demographics?
5. To gain an understanding of the service delivery in healthcare within KZN
6. To see if the perception of service delivery differs between managers and supervisors of different demographics.
7. What is the level of satisfaction of departmental contracts as per SCM managers and supervisors?
8. What factor/s most strongly impact satisfaction of departmental contracts?

3.2 Research objectives

1. Identify how the perception of departmental contracts differs in terms of demographics amongst managers and supervisors in KZN.
2. Identify the critical challenges of departmental contracts faced by managers and supervisors.

3. Identify how the opinions of departmental contracts challenges differ in terms of demographics of managers and supervisors.
4. Analyse the various demographic perceptions of managers and supervisors regarding the preparedness of The Department to successfully implement NHI.
5. Analyse the perceptions of service delivery.
6. Analyse the different demographic opinions of factors affecting service delivery.
7. Analyse the levels of satisfaction of departmental contracts.
8. Identify the factor/s that impact the level of satisfaction of departmental contracts.

3.3 About the research

The research is of a deductive nature and will utilise a top-down approach, whereby we will pose certain statements regarding Departmental contract benefits and challenges, inhibitors of service delivery, and then test the responses to see how it differs between various demographics, such as experience, age, race, component of SCM that the respondent works and even the location of respondents, when observing the data. Further, we aim to view the opinions if they feel that the NHI can be implemented successfully and a measure of their level of satisfaction with SCM contracts. Therefore, this study tends to be confirmatory in approach and will adopt a mixed approach in terms of quantitative and qualitative research.

The research will be a form of ethnographic approach as we will observe and capture the experiences and perceptions of SCM supervisors and managers in their so-called natural environment which is their office spaces which is an uncontrolled environment setting. We will use the cross-sectional timeline research approach as we are merely observing the current perception of SCM managers and supervisors towards departmental contracts, inhibitors of service delivery and their perception if NHI is viable under the present time and conditions.

3.4 Sample strategy

The sample initially consisted of 150 managers and supervisors, drawn through a form of purposive expert sampling. In effect, these 150 decision-makers constituted the population as they are the managers in the KZN health department who are responsible for procurement. A questionnaire was sent to each of the 150 managers via KZN Health Department email on the 18

January 2024, and this was followed by an e-reminder a month later. However, only 90 managers responded. The effective response rate is thus 60%. The reason why supervisors and managers were targeted was due to the legislated level of experience and legislated qualification required for people to have such positions in government. This means that the opinions of the respondents come from a managerial admin position of knowledge and experience in the field. Supervisors have to work a minimum of 3 years in a junior position before becoming a supervisor, whilst managers have to work a minimum of 3 years as a supervisor before becoming a manager. Both positions require a diploma in Supply Chain as a minimum. This brings credibility to the selected sample size as well as the research.

3.5 Research method

A questionnaire was chosen as the research tool, as it allowed us the best way to structure and streamline the research questions in a clear and concise manner. The questionnaire utilised did not take up a lot of time to complete. This is important, given the pressures and time constraints that supply chain supervisors and managers face. The demographics section, which collects basic information about the respondents, allows us to have an understanding of the nature of the respondents. Differences in perceptions across different demographic categories will also be analysed.

The questionnaire has 6 sections:

1. Demographics
2. Efficiency and functionality of Departmental contracts
3. Challenges of Departmental contracts
4. Implementing NHI under current Supply Chain Management structure
5. Factors relating to poor service delivery
6. Level of satisfaction of managers and supervisors

The demographics section merely required respondents to tick the applicable box. When answering the research questions in sections 2 to 5 respondents merely had to indicate their opinions on a Likert-type scale of 1 to 5, 1 being strongly disagree and 5 being strongly agree.

Section 6 required respondents to indicate their level of satisfaction toward a few factors and a few short open-ended questions.

The questionnaire was structured such that we could use descriptive and inferential statistics which will be discussed under the statistical analysis in this chapter. The questionnaire is attached in the appendix, for ease of reference.

In terms of accessibility Supply Chain Managers and Supervisors from every hospital, clinic and head office in KZN were given a questionnaire physically, and a survey was made further available online on the department's website for those who find it easier to complete online than manually. Respondents were given a period of 4 weeks to submit their questionnaires back which also granted them ample time to comfortably provide honest and thought-out responses. Majority of Supply Chain Activities for all hospitals, clinics and institutions is facilitated at a Head Office level in Kwa-Zulu Natal, meaning the majority of SCM supervisors and managers are from head office. However, although SCM staff is present at hospitals, not every hospital has SCM supervisors or managers. These staff report directly to the finance manager. In saying that, all supervisors and managers in SCM were targeted irrespective of their location. The KZN Department of Health has approximately 150 managers and supervisors working in Supply Chain Management. These constitute the population. To these managers, a questionnaire was sent via KZN Health Department email, on the 18 January 2024 for data collection, as mentioned earlier. However, only 90 responded, giving an effective response rate of 60 percent, thus adequately making the sample representative. The questionnaire development, responses and data extraction were overseen by Professor Mahadea, who supervised this study.

3.6 Statistical analysis

We had 90 respondents who completed the survey properly and in totality, as well as a few spoilt or incomplete surveys. Although the sample size seems small, it is 60 percent of the population of supervisors and managers. Statistical Package for the Social Sciences (SPSS) is a tool for used to analyse complex statistical data and will be used to aid compute the results of this research. This research used SPSS version 28 to compute the results.

The statistical analyses for the study are explained below.

Descriptive statistics will be used in the form of frequency tables, means and standard deviations. This will give us information about the sample, like how many respondents of different categories of demographics participated. It will also indicate how positively or negatively the sample responded to the different research questions in terms of numbers and frequency. Questions were grouped and listed together under sections efficiency and functionality of Departmental contracts, challenges of Departmental contracts, implementing NHI under current Supply Chain Management structure, factors relating to poor service delivery and level of satisfaction of managers and supervisors. The reliability analysis was done to these groups/lists in the form of the Cronbach Alpha, which was used to measure how closely the related items under each section was, and the suitability of the data.

Inferential statistics will be done as follows:

1.Tests for effects of demographics on the construct perception of departmental contracts

Principal Component Analysis will be used to generate latent variables to represent various constructs according to the questionnaire items. Kaiser-Meyer-Olkin Measure (KMO) will be used to validate the validity of using principal component based latent factors (variables). The KMO was significant under this construct which means that it is worthwhile carrying principal components analysis. This and the fact that the data is normally distributed allowed us to use a One-way ANOVA test to determine any differences in terms of demographics. Full results will be discussed in the next chapter.

2. Tests for effects of demographics on the perception of contract performance

Principal Component Analysis will be used to generate latent variables to represent various constructs according to the questionnaire items. Kaiser-Meyer-Olkin Measure (KMO) will be used to validate the validity of using principal component based latent factors (variables). The KMO was significant under this construct, which means that it is worthwhile carrying principal components analysis. This and the fact that the data is normally distributed allowed us to use a One-way ANOVA test to determine any differences in terms of demographics. Full results will be discussed in the next chapter

3. Tests for effects of demographics on the perceived challenges affecting departmental contracts

There were 9 items measuring challenges, which were subdivided into groups determined by principal component analysis. The groups were service provider and planning challenges, technology, legal and cost challenges and human resources challenges. Three variables were created to represent this construct. All 3 KMO's were less than the significance indicator of 0.7. The normality tests for the three sub-constructs of challenges affecting departmental contracts show a significant departure from normality on all three (both the Kolmogorov-Smirnov and the Shapiro-Wilk statistics have p-values less than 0.05). Under the violation of the normality assumption, ordinary ANOVA tests would not be valid; hence nonparametric Kruskal-Wallis tests will be carried out to determine any differences in perception in terms of demographics. Full results will be discussed in the next chapter.

4. Tests for effects of demographics on the perceived preparedness to implementing the NHI under current SCM structure

Principal Component Analysis will be used to generate latent variables to represent this construct according to the questionnaire items that fall under it. Kaiser-Meyer-Olkin Measure (KMO) will be used to identify the suitability of data for factor analysis. The KMO was significant under this construct. This and the fact that the data is normally distributed allowed us to use a One-way ANOVA test to determine any differences in perception in terms of demographics. Full results will be discussed in the next chapter.

5. Tests for effects of demographics on the perceived factors relating to Poor service delivery

There are ten items of perceived factors relating to poor service delivery and these are categorised into two sub-groups, that is, infrastructure, equipment and technology, and human resources planning. Principal component analysis of these items produced coefficients Two latent variables, representing each of the two constructs of perceived factors relating to poor service delivery were generated. The KMO's were less than the significance indicator of 0.7. The normality tests for the sub-constructs show a significant departure from normality on all three (both the Kolmogorov-Smirnov and the Shapiro-Wilk statistics have p-values less than 0.05). Under the violation of the normality assumption, ordinary ANOVA tests would not be valid;

hence the nonparametric Kruskal-Wallis tests will be carried out to determine any differences in perception in terms of demographics. Full results will be discussed in the next chapter.

6. Measurement of overall satisfaction with current procurement, goods and services and general service quality

The research questionnaire that was developed utilised a unipolar rating scale which was used as a satisfaction thermometer. Respondents are asked to select the percent satisfied they are, from not at all satisfied (1-20% satisfied) to extremely satisfied (80-100% satisfied), which takes up 5 points on the scale. This was done for questions on level of satisfaction with current processes, level of satisfaction with goods, and level of satisfaction with services. To assess the general level of satisfaction with current procurement of goods and general service quality, a latent variable based on the three items that measured satisfaction was created. In order to evaluate the effects of the perceptions on the various constructs on overall satisfaction to current procurement, regression analysis will be used. A regression model with overall satisfaction as the response variable and all the other constructs as predictor variables was fitted. The predictor variables analysed under this regression were developed from the different section headings in the questionnaire and will be covered in detail in preceding sections of the regression under chapter 4. The principal components and the internal consistency of the items that make up these predictor variables will be evaluated using Cronbach Alpha statistics. The predictor variables include:

- Contracts Management
- Contracts Performance
- Service provider and planning challenges; Technology, policy and cost challenges; Human resources challenges
- Implementation of the NHI under current SCM structure
- Infrastructure, equipment and technology and Human resources planning

Full results will be discussed in the next chapter.

3.7 Ethical consideration

This research study aims to point out and identify critical challenges experts in the field of public healthcare procurement are facing with and their expert opinion on the preparedness of the Health Department to implementing the NHI. These opinions of managers and supervisors can be used to identify and mitigate risks in the supply chain process, that hamper service delivery, as well as their opinions on what needs to be addressed, in order for successful implementation of the NHI. It is in no way going to prejudice, defame, blame or bring disrepute to any persons or the Department during the research. Information that is privy to the Department will be kept that way. There is no risk or costs involved to the respondents.

Further, ethical clearance was granted by The University of Kwa-Zulu Natal, the National Health Research Database and The Chief Director of Supply Chain Management KZN Health to undertake this research within the Department and to interview respondents (letters in the appendix).

3.8 Limitations of the study

The main challenge or limitation seems to be that managers may be scared or hesitant to participate as they may feel that their honesty might either risk their jobs or result in disrepute being brought to the Department or themselves. Further there is very limited research with regards to Management opinions of Departmental contracts, public supply chain management issues, service delivery and the NHI.

Chapter 4: Results

4.1 Introduction

This chapter presents and discusses the findings, from the respondents who completed the questionnaire that relates largely to contract management and NHI. The findings are broken down into two components, namely descriptive statistics and inferential statistics, to firstly identify managers' and supervisors' opinions and perceptions, and secondly how these perceptions differ in terms of demographics.

4.2 Descriptive statistics

Background information

Background information about the study sample of managers and supervisors is broken down into two parts, namely, personal biographical information and work-related demographics.

Biographical Summary of respondents

Table 1 show that there was a fair balance in sample representation by males (43.3%) and females (56.7%), with the most represented age groups being 31 to 40 years (35.2%) and 41 to 50 years (33%). The majority of the study participants were Africans (55.6%), with Asians coming second (30%). This accounts for home languages being strongly represented by isiZulu and English which combined makes up 98,9% of respondents. The most common qualification amongst managers is a diploma, which is represented by 36,7% of managers.

Table 1. Biographical information.

Personal Demographic Variable		**Frequency**	**Percent**
1.Gender	Male	39	43.3%
	Female	51	56.7%
2.Age	20-30 years	7	8.0%
	31-40 years	31	35.2%
	41-50 years	29	33.0%

	51-60 years	18	20.5%
	61+ years	3	3.4%
3.Home Language	English	48	53.3%
	IsiZulu	41	45.6%
	Other	1	1.1%
4.Race	African	50	55.6%
	Asian	27	30.0%
	White	3	3.3%
	Coloured	10	11.1%
5.Highest Qualification	Grade 12	5	5.6%
	Diploma	33	36.7%
	Degree	23	25.6%
	Honours	23	25.6%
	Masters	5	5.6%
	Doctorate	1	1.1%

Employment demographic variables

Table 2 shows that there was a fairly even distribution of experience levels among the respondents, with the 6-10 years-experience category hiving the largest proportion of study participants (25.8%).

The sample respondents also indicate higher levels of lower managers, which is due to there being more lower-level management posts than middle and upper level management posts, which sort of mirrors the departmental organogram. Supervisors have been grouped into the category of lower management which increases the overall total of lower level managers.

The data show that most respondents were from Head Office (77,5%) based in Pietermaritzburg and therefore District uMgungundlovu (79,9%) represents the largest responsive district.

SCM Contract Logistics, Compliance management (40,5%) represented the largest component in terms of job description within the sample. This could be attributed to it being a larger component than Demand Management, Acquisition Management and Asset Management.

Table 2. Employment demographic information.

Employment Demographic Variable		**Frequency**	**Percent**
6.Employment Experience (years)	0-5 years	5	5.6%
	6-10 years	23	25.8%
	11-15 years	14	15.7%
	16-20 years	16	18.0%
	21-25 years	9	10.1%
	26-30 years	9	10.1%
	30+ years	13	14.6%
7.Management Level	Lower Management	50	56.8%
	Middle Management	32	36.4%
	Upper Management	6	6.8%
8.Institution	Head Office	69	77.5%
	Hospital/CHC	20	22.5%
9.District	uMgungundlovu	67	77.9%
	EThekwini	12	14.0%
	Ilembe	2	2.3%
	Ugu	2	2.3%

	UMzinyathi	1	1.2%
	UThukela	1	1.2%
	Harry Gwala	1	1.2%
10.How do you hear about updates regarding Departmental contracts?	Emails	18	20.2%
	Colleagues	11	12.4%
	Departmental website	46	51.7%
	All above	14	15.7%
11.Job description	SCM Demand Management	25	31.6%
	SCM Acquisition Management	15	19.0%
	SCM Contract Logistics, Compliance management	32	40.5%
	SCM Asset Management	7	8.9%

Analysis of efficiency and functionality of departmental contracts

There are fourteen items under efficiency and functionality of departmental contracts of which seven address the management of contracts. The other seven items generally address the performance of contracts. The analysis of these two item groupings is carried out in the sections that follow.

Analysis of contracts management issues

Descriptive statistics of the views of respondents on contracts management are presented in Table 3 below. The results show that most of the respondents were of the view that procurement is easier when contracts are in place (93.2%), while only 23.6% believe that departmental contracts are timeously awarded. This shows that there are delays in the awarding of contracts which, when awarded at the right time, make procurement easier. The Cronbach alpha indicates a scale reliability, and how closely related items grouped together are. In this case, a Cronbach's alpha value of 0.76 indicates an acceptable and a reliable measure.

Table 3. Descriptive statistics of issues about management of contracts.

Management of Contracts		Strongly Disagree/ Disagree	Neutral	Agree/ Strongly agree	Mean	Std. Dev
12. The specifications for contracts are drafted efficiently at the outset of the supply chain process.	Count	7	12	70	3.93	0.90
	%	7.9%	13.5%	**78.7%**		
13. Procurement is easier when contracts are in place.	Count	3	3	82	4.50	0.82
	%	3.4%	3.4%	**93.2%**		
14. Contract information is easily accessible	Count	12	12	64	3.82	0.94
	%	13.6%	13.6%	**72.7%**		
16. The departmental contracts are competitive.	Count	17	25	48	3.39	1.12
	%	18.9%	27.8%	**53.3%**		
19. The departmental contracts are timeously awarded.		47	21	21	2.55	1.12
		52.8%	23.6%	**23.6%**		
23. Competent and capable companies are awarded contracts.	Count	24	34	32	3.04	1.02
	%	26.7%	37.8%	**35.6%**		
25. Contract management needs to improve service delivery and patient care.	Count	3	8	76	4.21	0.75
	%	3.4%	9.2%	**87.4%**		
Cronbach's Alpha					**0.760**	

Analysis of contracts performance issues

Descriptive statistics of the views of respondents on contracts performance are presented in Table 4 below. The results show that most of the respondents were of the view that Departmental contracts aid in achieving service delivery (80.9 %), while only 31.5 % believe that service providers are able to timeously deliver contracted items. This shows that departmental contracts perform well in achieving service delivery, particularly when service providers awarded have capacity and capability to timeously deliver. The Cronbach alpha indicates a scale reliability and how closely related items grouped together are. In this case a Cronbach value of 0,898 (Table 4) indicates a good measure.

Table 4. Descriptive statistics of issues about performance of contracts.

Performance of Contracts		Strongly Disagree/ Disagree	Neutral	Agree/ Strongly agree	Mean	Std. Dev
15. The departmental contracts achieve value for money	Count	23	34	32	3.11	1.15
	%	25.8%	38.2%	**36.0%**		
17. The departmental costs are effective	Count	26	25	35	3.10	1.13
	%	30.2%	29.1%	**40.7%**		
18. The departmental contracts are able achieve economies of scale.	Count	22	32	35	3.13	1.07
	%	24.7%	36.0%	**39.3%**		
20. Departmental contracts aid in achieving service delivery.	Count	6	11	72	3.91	0.87
	%	6.7%	12.4%	**80.9%**		
21. End users are satisfied with the products of departmental contracts	Count	17	33	39	3.24	0.90
	%	19.1%	37.1%	**43.8%**		
22. Current procurement is adequate to meet demand for patient care.	Count	24	26	40	3.21	1.05
	%	26.7%	28.9%	**44.4%**		

24. Service providers are able to timeously deliver contracted items.	Count	35	26	28	2.84	1.10
	%	39.3%	29.2%	**31.5%**		
Cronbach's Alpha					**0.898**	

Analysis of challenges affecting departmental contracts

Descriptive statistics of the views of respondents on constraints impeding Departmental contract objectives are presented in Table 5 below. The results show that most of the respondents were of the view that the challenges listed in the table below create challenges for Departmental contracts as none of the factors were below 50%. Poor planning (82.2%) and the rising cost of healthcare (82%) represented the highest percentage perceptions of contract challenges. This indicates that all issues listed below need to be addressed, with particular attention to improving planning and curbing or managing the rising cost of healthcare. The Cronbach alpha indicates a scale reliability and how closely related items grouped together are. In this case 0,774 indicates a reliable measure.

Table 5. Descriptive statistics of challenges affecting departmental contracts.

Challenges affecting departmental contracts		Strongly Disagree/ Disagree	Neutral	Agree/ Strongly agree	Mean	Std. Dev
26. Legislation is a major challenge.	Count	21	24	45	3.36	0.98
	%	23.3%	26.7%	**50.0%**		
27. Rising cost of healthcare products is a major challenge	Count	7	9	73	4.01	0.87
	%	7.9%	10.1%	**82.0%**		
28. Rising cost of technology is a major challenge	Count	7	11	72	3.94	0.81
	%	7.8%	12.2%	**80.0%**		
	Count	8	17	64	3.81	0.88

29. Constant evolution to technology is a major challenge	%	9.0%	19.1%	**71.9%**		
30. Human resource capacity is a major challenge	Count	4	16	69	4.13	0.91
	%	4.5%	18.0%	**77.5%**		
31. Human resource capability is a major challenge	Count	5	15	70	4.09	0.87
	%	5.6%	16.7%	**77.8%**		
32. Service provider capacity and capability is a major challenge	Count	6	24	60	3.82	0.86
	%	6.7%	26.7%	**66.7%**		
33. Service providers willingness to do work or deliver to rural areas is a major challenge	Count	7	35	48	3.64	0.92
	%	7.8%	38.9%	**53.3%**		
34. Poor planning is a major challenge	Count	2	14	74	4.21	0.79
	%	2.2%	15.6%	**82.2%**		
Cronbach's Alpha					**0.774**	

Analysis of views on implementing the NHI under current structure

Descriptive statistics of the views of respondents on the implementation of the NHI under the current structure of the Department is represented under table 6 below. The results show that most of the respondents were of the view that the Department is NOT in a position, in terms of infrastructure, systems, resources and staffing, to implement the NHI. The results are unanimous. Most respondents believe the Department does not have adequate human resource capability to implement the NHI (62.5%). The Cronbach alpha indicates a scale reliability and how closely related items grouped together are. In this case the Cronbach value is very high, at 0,961 (Table 6) indicating a very good measure.

Table 6. Descriptive statistics of views about the implementation of the NHI under current structures.

Challenges affecting departmental contracts		Strongly Disagree/ Disagree	Neutral	Agree/ Strongly agree	Mean	Std. Dev
35. The department has adequate resources for implementation of the NHI	Count	55	24	11	2.29	1.05
	%	61.1%	26.7%	**12.2%**		
36. The department has adequate infrastructure for the implementation of the NHI	Count	53	22	15	2.33	1.09
	%	58.9%	24.4%	**16.7%**		
37. The department has adequate human resource capacity to implement the NHI	Count	56	19	15	2.28	1.07
	%	62.2%	21.1%	**16.7%**		
38. The department has adequate human resource capability to implement the NHI	Count	55	20	13	2.28	1.03
	%	62.5%	22.7%	**14.8%**		
39. The department has appropriate systems to implement the NHI	Count	55	23	11	2.27	1.06
	%	61.8%	25.8%	**12.4%**		
40. The department has the right culture to manage the change to the NHI	Count	49	26	14	2.35	1.10
	%	55.1%	29.2%	**15.7%**		
Cronbach's Alpha					**0.961**	

Analysis of factors relating to poor service delivery

Poor service delivery in the health department can be multi-causal. There are two dimensions to the factors relating to poor service delivery in this study. These are infrastructure, equipment and technology, and human resources and planning factors. The descriptive statistics of these dimensions are discussed in the following sub-sections.

Analysis of infrastructure, equipment and technology in relation to poor service delivery

Descriptive statistics of views of respondents on of infrastructure, equipment and technology in relation to poor service delivery is represented under table 7 below. The results indicate that most of the respondents were of the view that the lack of infrastructure, equipment and technology results in poor service delivery. The results are unanimous. Most respondents believe the lack of infrastructure results greatly in inadequate service delivery (74.4%). The Cronbach alpha indicates a scale reliability and how closely related items grouped together are. In this case 0,835 indicates a good measure.

Table 7. Descriptive statistics of Infrastructure, equipment and technology in relation to poor service delivery.

Infrastructure, equipment and technology in relation to poor service delivery		Strongly Disagree/ Disagree	Neutral	Agree/ Strongly agree	Mean	Std. Dev
41. Outdated technology is the reason for poor service delivery	Count	14	13	63	3.79	1.05
	%	15.6%	14.4%	**70.0%**		
42. Lack of infrastructure is the reason for poor service delivery	Count	10	13	67	3.83	0.91
	%	11.1%	14.4%	**74.4%**		
43. Lack of facilities is the reason for poor service delivery	Count	12	19	59	3.69	0.98
	%	13.3%	21.1%	**65.6%**		
44. Lack of equipment and resources is the reason for poor service delivery	Count	11	15	64	3.79	0.98
	%	12.2%	16.7%	**71.1%**		
47. Lack of financial resources is the reason for poor service delivery	Count	12	13	65	3.92	1.04
	%	13.3%	14.4%	**72.2%**		
Cronbach's Alpha					**0.835**	

Analysis of human resources and planning in relation to poor service delivery

Descriptive statistics of views of respondents on human resources and planning in relation to poor service delivery is represented under table 8 below. The results indicate that most of the respondents were of the view that the various human resources issues listed below resulted in poor service delivery. The results are unanimous. Most respondents believe the poor work culture (86.7%) and poor planning (85.6%) were the main contributors in terms of human resources that impeded service delivery. The Cronbach alpha indicates a scale reliability and how closely related items grouped together are. In this case 0,686 indicates a fairly reliable measure. Although poor work culture and poor planning were identified as the main human resources issues hampering service delivery, all human resources factors mentioned below have high percentage responses, confirming these factors impede service delivery. About 73% of the respondents believed that lack of human resource capacity contributed to poor service delivery. Another 74% attributed poor service delivery to fraud and financial mismanagement, and these are linked to corruption, as also highlighted by the Zondo commission.

Table 8. Descriptive statistics of human resources and planning in relation to poor service delivery.

Human resources and planning in relation to poor service delivery		Strongly Disagree/ Disagree	Neutral	Agree/ Strongly agree	Mean	Std. Dev
45. Lack of human resource capacity is the reason for service delivery	Count	13	11	66	3.87	1.05
	%	14.4%	12.2%	**73.3%**		
46. Lack of human resource capability is the reason for poor service delivery	Count	7	12	71	3.99	0.89
	%	7.8%	13.3%	**78.9%**		
48. Poor work culture is the reason for poor service delivery	Count	2	10	78	4.21	0.81
	%	2.2%	11.1%	**86.7%**		
	Count	3	10	77	4.22	0.78

49. Poor planning is the reason for poor service delivery	%	3.3%	11.1%	**85.6%**		
50. Fraud and financial mismanagement is the reason for poor service delivery	Count	6	17	64	4.11	1.03
	%	6.9%	19.5%	**73.6%**		
Cronbach's Alpha					**0.686**	

Analysis of overall satisfaction with goods and services from the procurement process

The research questionnaire utilized a unipolar rating scale for satisfaction. Respondents are asked to select their level of satisfaction in percentage terms, on a scale, from not at all satisfied (1-20% satisfied) to extremely satisfied (80-100% satisfied), which takes up 5 points on the scale. Descriptive statistics of views of respondents on overall satisfaction with goods and services from the procurement process is represented under table 9 below. The health department not only procures medical equipment and medicines. It also procures security, cleaning and catering services from different service providers. The results indicate that most of the respondents expressed higher levels of satisfaction with the quality of medical products, as the majority fell in the ranges of 60 to 100 %; however, the results also show lower overall levels of satisfaction with the procurement of general services, like catering and cleaning, as majority of respondents viewed them below the ranges of 60-100%, which is below a satisfactory level. The Cronbach alpha indicates a scale reliability and how closely related items grouped together are. In this case 0,782 indicates a good measure.

Table 9. Descriptive statistics of overall satisfaction with goods and services from the procurement process.

Level of satisfaction with procured goods and services		**1-20%**	**21-40%**	**41-60%**	**61-80%**	**81-100%**
54. Overall, indicate (as a manager) your measure of satisfaction with current procurement processes	Count	3	12	32	27	8
	%	3.7%	14.6%	39.0%	32.9%	9.8%

55. Overall, indicate as a manager your measure of satisfaction with the quality of medical goods and consumables procured by the Department	Count	3	10	22	40	8
	%	3.6%	12.0%	26.5%	48.2%	9.6%
56. Overall, indicate as a manager your measure of satisfaction with the general services like security, cleaning, catering and waste removal.	Count	5	14	25	29	3
	%	6.6%	18.4%	32.9%	38.2%	3.9%
Cronbach's Alpha					**0.782**	

Challenges, constraints and benefits of departmental contracts

A departmental contract is a means for obtaining goods and services via the legislated SCM process. This can be once-off purchases or 3-year contracts. For 3-year contracts the process is done once and thereafter orders can be placed directly with the awarded supplier for that period of the contract.

Below table 10 represents open answer questions, whereby respondents were asked to identify other challenges and constraints they might have with regard to departmental contracts. Delays in the legislated SCM process resulting in poor service delivery, bottlenecks and poor supply and delivery of goods and services (24.2%), as well as lack of monitoring and risk management of SCM processes and contracts (21.2) were the most common responses identified by managers and supervisors

Table 10. Other challenges regarding Departmental Contracts.

51. In your opinion are their other challenges regarding Departmental Contracts other than those mentioned above?	**Count**	**Percentage**
Delays in the legislated SCM process resulting in poor service delivery, bottlenecks and poor supply and delivery of goods and services.	16	24.2%

Lack of monitoring and risk management of SCM processes and contracts.	14	21.2%
Lack of ethics within SCM	5	7.6%
Outdated technology or lack of technology used within SCM	4	6.1%
Incompetent service providers were awarded tenders or contracts	3	4.5%
Politics is another constraint inhibiting proper awarding of contracts	2	3.0%
None	16	24.2%
Aging workforce of professionals	1	1.5%
Lack of communication and collaboration between components in SCM, end users and other role players.	1	1.5%
Constraints sometimes limit good tenders	1	1.5%
We do not capitalize on our buying power	1	1.5%
Willingness to get training in contracts management	1	1.5%
Yes	1	1.5%

Table 11 below represents open answer questions, whereby respondents were asked to identify other challenges preventing departmental contracts achieving high quality patient care. Other than none, budgets constraints (13.6%) and incompetent service providers being awarded (15.2%) were the most common responses identified by managers and supervisors.

Table 11. Other challenges preventing departmental contracts achieving high quality patient care.

52. In your opinion are there any other constraints that prevent Departmental contracts achieving high quality patient care?	**Count**	**Percentage**
Flaws in the legislated SCM system and process resulting in delays, bottlenecks and poor quality goods and services	8	12.1%
Corruption inhibits service delivery	1	1.5%
Budget constraints hamper effective service delivery	9	13.6%
Award of contracts are made to incompetent service providers who do not have capacity or capability to render services or goods	10	15.2%
Poor management with SCM	6	9.1%
Lack of monitoring and risk management within SCM results in poor service delivery	6	9.1%
Poor communication and collaboration between SCM units within the SCM process	4	6.1%
None	18	27.3%
Pricing complications caused by rate of exchange with imported medical supplies	2	3.0%
Political interference impedes SCM from functioning properly	1	1.5%
Yes	1	1.5%

Below table 12 represents open answer questions, whereby respondents were asked to identify benefits of using the departmental contract system; most responses by managers and supervisors (67%) were that it is the easiest means of procurement for SCM in government in terms of

legislation. Another 13% perceived the benefit of economies of scale as the reason for contracting.

Table 12. Current benefits derived from using Departmental Contracts.

53. What are the current benefits of Departmental contract?	**Count**	**Percentage**
Economies of scale resulting in value for money and savings created for the department	9	12.9%
Easiest means of procurement for SCM in government in terms of legislation	47	67.1%
Compliance in terms of legislation is easily achieved when departmental contracts are in place due to the short process involved as the tender is usually awarded for a period of 3 to 5 years. This mitigates risks	8	11.4%
None	3	4.3%
Long term contracts	1	1.4%
Long term sustainability	1	1.4%
Manage risk and monitor contracts quality and time to completion	1	1.4%

Feasibility of the NHI under existing constraints to health procurement contracts

The government intends to implement NHI. The current Minister of Health is having various country-wide shows about implementing NHI, amidst serious institutional objections. Table 13 below represents open answer questions, whereby respondents were asked about their stance on the implementation of the NHI. The majority said no citing reasons of corruption, lack of resources and cultural differences as the reasons. Those that responded yes felt that if proper structures are in place and managed correctly it may improve healthcare in terms of quality and accessibility for all (35.3%)

Table 13. Will the NHI be a success and if so why or why not.

57.Considering existing constraints to health procurement contracts, do you think NHI will improve health care delivery in SA? For both yes or no, kindly state on what grounds?	**Count**	**Percentage**
No corruption will hamper and or wreck the implementation of the NHI	6	8.8%
The lack of financial, technological and human resources and capacities will not allow the NHI to be a success	26	38.2%
No	7	10.3%
Yes if proper structures are in place and managed correctly it will improve healthcare in terms of quality and accessibility for all	24	35.3%
No the cultural differences between public and private facilities and expectations differences will not allow a successful merger during the NHI implementation	3	4.4%
No, it is taking too long to implement	1	1.5%
Yes, all service providers will be given work	1	1.5%

4.3 Inferential statistics

Tests for effects of demographics on the perception of departmental contracts

Perceptions of departmental contracts have two main constructs, namely contracts management and contracts performance. Principal components were used to generate latent variables to represent these constructs according to the questionnaire items that fall under each.

4.3.1 Effects of demographic variables on contracts management

The principal component coefficients of the 7 items of contracts management are presented in table 14 below. Item 25 (Contract management needs to improve service delivery and patient care) had a negative coefficient meaning that it runs opposite to the information contained in the

other six items. Item 25 was dropped from the construction of the latent variable to represent contract management and the final weights are presented in table 14.

Table 14. PCA of Contract Management

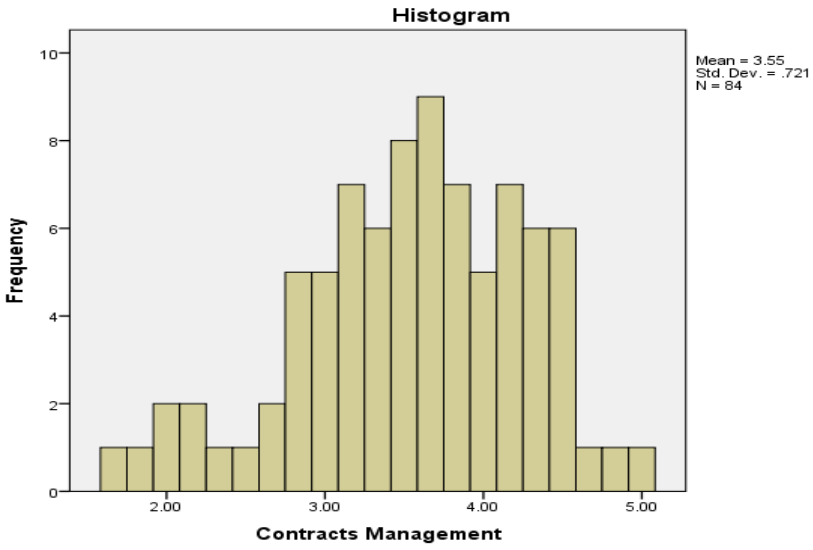
Contract management items	**Principal Component coefficient**	**Principal Component coefficient (without Q25)**
12. The specifications for contracts are drafted efficiently at the outset of the supply chain process.	0.787	0.801
13. Procurement is easier when contracts are in place.	0.503	0.491
14. Contract information is easily accessible	0.645	0.657
16. The departmental contracts are competitive.	0.797	0.803
19. The departmental contracts are timeously awarded.	0.759	0.754
23. Competent and capable companies are awarded contracts.	0.826	0.825
25. Contract management needs to improve service delivery and patient care.	-0.153	-
Kaiser-Meyer-Olkin Measure (KMO)		0.787

Since the weights of the principal component are all positive, the latent variable created to represent the construct of contracts management is a weighted average of the items therein. In order to align the latent variable with the scale of measurement used, the mean of the items in the

construct will be used. The KMO of 0.787 is significant, which implies the carrying PCA's was significant.

Test of normality of contracts management

The histogram of the latent variable scores for contracts management is presented in figure 1 below. The histogram shows that the latent variable for contracts management is normally distributed. This is also supported by the normality test which indicated that the variable does not significantly depart from normality (both the Kolmogorov-Smirnov and the Shapiro-Wilk statistics have p-values greater than 0.05.)



Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	Df	p-value	Statistic	df	p-value
Contracts Management	0.082	84	0.200	0.974	84	0.086

Figure 1

One-way ANOVA tests for contracts management versus demographics

The results in the table 15 below show that perceptions on the efficiency and functionality of departmental contracts management do not differ across categories of gender (p-value=0.817), age (p-value=0.329), highest qualification (p-value=0.530), management level (p-value=0.697), institution (p-value=0.182) and SCM section (p-value=0.936).

However, race has a significant effect (p<0.001) on perceptions on the efficiency and functionality of departmental contracts management. Africans (mean=3.81) and Coloureds (mean=3.75) tend to have a more positive perception of how contracts are managed while Asians (mean=3.08) are the most sceptical of how contracts are managed with Whites having a mean of 3.17. This could be attributed to low representation of these 2 groups in the sample.

Employment experience also represents a significant difference (p=0.014) in perception of how contracts are managed. Less experienced respondents less than 10 years' (mean=3.75) experience and those with between 10 and 20 years'(mean=3.75) experience have a more positive perception than manager with greater than 20 years' experience. This is probably due to the higher expectations and standard expected due to their years of experience.

Table15

Dependent variable: Contracts Management		**Descriptive statistics**			**ANOVA tests**		
		N	Mean	Std. Dev	F	df1, df2	p-value
Gender	Male	38	3.57	0.75	0.054	1, 82	0.817
	Female	46	3.53	0.70			
Age	20-30 years	7	3.93	0.53	1.163	3, 78	0.329
	31-40 years	28	3.63	0.70			
	41-50 years	26	3.53	0.75			

	51-65 years	21	3.37	0.77			
Race	African	44	3.81	0.57	7.826	3, 80	<0.001
	Asian	27	3.08	0.65			
	White	3	3.17	0.29			
	Coloured	10	3.75	0.97			
Highest Qualification	Grade 12	5	4.03	0.25	0.833	5, 78	0.530
	Diploma	32	3.57	0.82			
	Degree	19	3.33	0.76			
	Honours	22	3.58	0.61			
	Masters	5	3.50	0.61			
	Doctorate	1	3.83	-			
Employment Experience	<10 years	25	3.75	0.70	3.738	3, 79	0.014
	11-20 years	27	3.75	0.67			
	21-30 years	18	3.29	0.68			
	30+ years	13	3.15	0.71			
Management level	Lower	46	3.59	0.75	0.363	2, 79	0.697
	Middle	30	3.44	0.65			
	Upper	6	3.56	0.72			
Institution	Head Office	64	3.61	0.73	1.813	1, 81	0.182
	Hospital/CHC	19	3.36	0.68			
SCM section	Demand Management	23	3.64	0.66	0.140	3, 70	0.936

	Acquisition Management	14	3.51	0.93			
	Contract, Logistics, Compliance management	31	3.57	0.58			
	Asset Management	6	3.47	0.87			

4.3.2 Effects of demographic variables on contracts performance

The principal component coefficients of the 7 items of contracts performance are presented in the table 16 below. All items have positive coefficients which are very similar and the latent variable for this construct can be computed as an average of the 7 items in order to preserve the scale of the original items for ease of interpretation. The KMO of 0.711 is significant, which implies the carrying PCA's was significant.

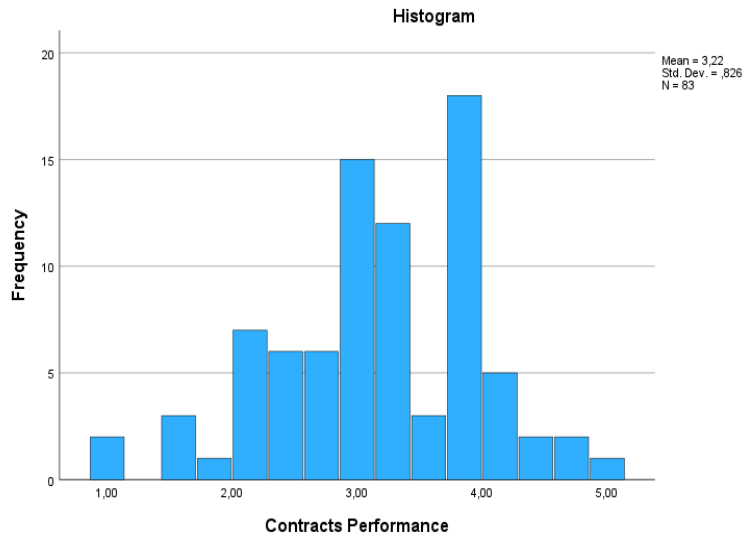
Table 16. PCA- Contract Performance

Contract performance	**Principal Component coefficient**
15. The departmental contracts achieve value for money	0.843
17. The departmental costs are effective	0.897
18. The departmental contracts are able achieve economies of scale.	0.865
20. Departmental contracts aid in achieving service delivery.	0.667
21. End users are satisfied with the products of departmental contracts	0.805
22. Current procurement is adequate to meet demand for patient care.	0.744

24. Service providers are able to timeously deliver contracted items.	0.679
Kaiser-Meyer-Olkin Measure (KMO)	0.711

Test of normality of contracts performance

Normality tests show that the data is normally distributed.



Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	p-value	Statistic	df	p-value
Contracts Performance	0.094	83	0.069	0.980	83	0.238

Figure 2

One-way ANOVA tests for contracts performance versus demographics

The results in table 17 below show that perceptions on the efficiency and functionality of departmental contracts management do not differ across categories of gender (p-value=0.414), age (p-value=0.660), highest qualification (p-value=0.274), management level (p-value=0.425), employment experience (p-value 0.169), institution (p-value=0.145) and section (p-value=0.985).

However, race has a significant effect (p=0.003) on the perceptions on the performance of departmental contracts. Africans (mean=3.44) and Coloureds (mean=3.47), whites (mean= 3.43) tend to have a more positive perception of how contracts perform while Asians (mean=2.73) tend to have a less positive perception of contract performance.

Table 17. Anova: Contracts Performance

Dependent variable: Contracts Performance		**Descriptives**			**ANOVA tests**		
		N	Mean	Std. Dev	F	df1, df2	p-value
Gender	Male	38	3.14	0.91	0.676	1, 81	0.414
	Female	45	3.29	0.75			
Age	20-30 years	6	3.55	0.66	0.535	3, 77	0.660
	31-40 years	29	3.17	0.79			
	41-50 years	28	3.30	0.90			
	51-65 years	18	3.11	0.84			
Race	African	46	3.44	0.64	5.110	3, 79	0.003
	Asian	26	2.73	0.79			
	White	1	3.43				
	Coloured	10	3.47	1.20			

Highest Qualification	Grade 12	5	3.91	0.26	1.297	5, 77	0.274
	Diploma	29	3.33	0.91			
	Degree	22	3.03	0.90			
	Honours	21	3.14	0.72			
	Masters	5	3.23	0.39			
	Doctorate	1	2.43				
Employment Experience	<10 years	25	3.38	0.75	1.722	3, 78	0.169
	11-20 years	29	3.37	0.83			
	21-30 years	15	3.04	0.93			
	30+ years	13	2.87	0.73			
Management level	Lower Management	46	3.28	0.81	0.865	2, 78	0.425
	Middle Management	30	3.07	0.83			
	Upper Management	5	3.46	0.53			
Institution	Head Office	62	3.31	0.81	2.165	1, 80	0.145
	Hospital/CHC	20	3.00	0.84			
SCM section	Demand Management	24	3.26	0.79	0.051	3, 69	0.985
	SCM Acquisition Management	13	3.27	1.13			
	Contract, Logistics, Compliance management	29	3.21	0.72			
	Asset Management	7	3.33	0.74			

4.3.3 Tests for effects of demographics on the perceived challenges affecting departmental contracts

There are 9 items measuring challenges that might be affecting departmental contracts. These can be subdivided into groups determined by principal component analysis. The results in table 18 below show that, using principal components, challenges can be subdivided into three categories, with suggested descriptions as follows: Service provider and planning challenges, Technology, legal and cost challenges, and human resources challenges. Three variables will be created to represent these constructs.

Table 18. PCA Perceived Challenges

Perceived challenges	Component 1	Component 2	Component 3
32. Service provider capacity and capability is a major challenge	0.816		
33. Service providers willingness to do work or deliver to rural areas is a major challenge	0.807		
34. Poor planning is a major challenge	0.794		
26. Legislation is a major challenge.		0.506	
27. Rising cost of healthcare products is a major challenge		0.842	
28. Rising cost of technology is a major challenge		0.895	
29. Constant evolution to technology is a major challenge		0.551	

30. Human resource capacity is a major challenge			0.878
31. Human resource capability is a major challenge			0.727
Kaiser-Meyer-Olkin Measure (KMO)	0.676	0.657	0.500
Proposed variable name	Service provider and planning challenges	Technology, policy and cost challenges	Human resources challenges

Test of normality of perceived challenges

The normality tests for the three sub-constructs of challenges affecting departmental contracts show a significant departure from normality on all three (both the Kolmogorov-Smirnov and the Shapiro-Wilk statistics have p-values less than 0.05). Under the violation of the normality assumption, ordinary ANOVA tests would not be valid. Hence, nonparametric Kruskal-Wallis tests will be carried out.

	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	df	p-value	Statistic	df	p-value
Service provider and planning challenges	0.177	87	0.000	0.944	87	0.001
Technology, policy and cost challenges	0.132	87	0.001	0.953	87	0.003
Human resources challenges	0.182	87	0.000	0.897	87	0.000

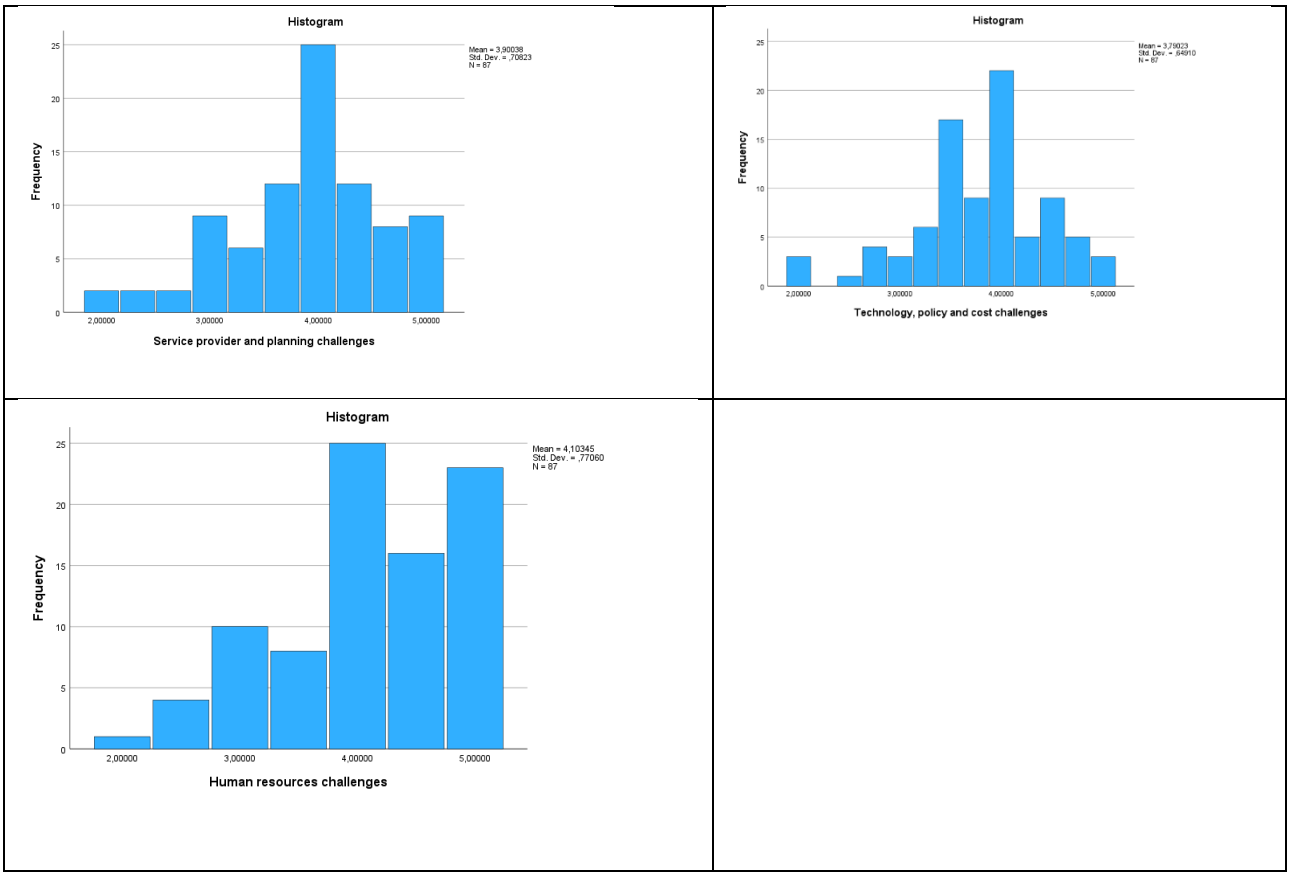


Figure 3

Non-parametric one-way ANOVA tests for challenges versus demographics

The Kruskal-Wallis is used in place of Anova because of lack of normality and results. The tables (19A-19H) below indicate that service provider and planning challenges differ significantly between males and females (H=6.229, df=1, p-value=0.013) (Table 19A), and between SCM sections (H=8.457, df=3, p-value=0.037), (Table 19H), whereas there is no significant differences in perceptions of other demographics such as age, race, education, employment experience, management level and institution.

Males (mean rank=53.23) are significantly more concerned with service provider and planning challenges than females (mean rank=39.59). However, technology, policy and cost challenges (H=1.610, df1=1, p-value=0.204) and human resources challenges (H=1.107, df=1, p-value=0.293) do not significantly differ between males and females.

Demand Management staff (mean rank=49,01) are significantly more concerned with service provider and planning challenges than other sections, whilst Asset Management staff (23.5) were less concerned with service provider and planning challenges as seen in results represented below.

Table 19 A. Test of effects of gender on perceived challenges affecting departmental contracts

Challenge	**Gender**	**N**	**Mean Rank**	**Kruskal-Wallis tests**		
				H	df	p-value
Service provider and planning challenges	Male	39	53.23	6.229	1	0.013
	Female	51	39.59			
Technology, policy and cost challenges	Male	38	48.41	1.610	1	0.204
	Female	50	41.53			
Human resources challenges	Male	39	48.18	1.107	1	0.293
	Female	50	42.52			

Table 19B. Test of effects of age on perceived challenges affecting departmental contracts

Challenge	**Age**	**N**	**Mean Rank**	**Kruskal-Wallis tests**		
				H	df	p-value
Service provider and planning challenges	20-30 years	7	50.57	1.808	3	0.613

	31-40 years	31	40.24			
	41-50 years	29	47.81			
	51-65 years	21	44.19			
Technology, policy and cost challenges	20-30 years	7	50.43	4.021	3	0.259
	31-40 years	30	40.32			
	41-50 years	29	39.50			
	51-65 years	20	51.65			
Human resources challenges	20-30 years	7	57.00	6.942	3	0.074
	31-40 years	31	35.60			
	41-50 years	29	45.59			
	51-65 years	20	50.18			

Table 19 C. Test of effects of race on perceived challenges affecting departmental contracts

Challenge	Race	N	Mean Rank	Kruskal-Wallis tests		
				H	df	p-value
Service provider and planning challenges	African	50	42.13	7.023	3	0.071
	Asian	27	54.35			
	White	3	20.00			
	Coloured	10	46.10			
Technology, policy and cost challenges	African	48	40.39	3.504	3	0.320
	Asian	27	51.72			
	White	3	45.33			
	Coloured	10	44.50			
Human resources challenges	African	50	42.21	4.507	3	0.212
	Asian	26	53.29			
	White	3	31.33			
	Coloured	10	41.50			

Table 19 D. Test of effects of education on perceived challenges affecting departmental contracts

Challenge	Highest Qualification	N	Mean Rank	Kruskal-Wallis tests		
				H	df	p-value
Service provider and planning challenges	Grade 12	5	47.50	4.499	5	0.480
	Diploma	33	39.91			
	Degree	23	45.07			
	Honours	23	50.26			
	Masters	5	54.10			
	Doctorate	1	77.50			
Technology, policy and cost challenges	Grade 12	5	64.40	6.409	5	0.268
	Diploma	31	44.45			
	Degree	23	41.33			
	Honours	23	44.89			
	Masters	5	31.40			
	Doctorate	1	76.00			
Human resources challenges	Grade 12	5	49.20	2.401	5	0.791
	Diploma	33	42.74			
	Degree	23	46.33			
	Honours	22	49.23			

	Masters	5	32.60			
	Doctorate	1	37.00			

Table 19 E. Test of effects of work experience on perceived challenges affecting departmental contracts

Challenge	**Experience**	**N**	**Mean Rank**	**Kruskal-Wallis tests**		
				H	df	p-value
Service provider and planning challenges	<10 years	28	41.41	1.430	3	0.699
	11-20 years	30	44.10			
	21-30 years	18	48.56			
	30+ years	13	49.88			
Technology, policy and cost challenges	<10 years	27	44.59	1.644	3	0.649
	11-20 years	30	40.30			
	21-30 years	17	44.41			
	30+ years	13	50.77			
Human resources challenges	<10 years	28	38.95	3.499	3	0.321
	11-20 years	30	45.93			
	21-30 years	17	43.68			
	30+ years	13	54.23			

Table 19 F. Test of effects of position on perceived challenges affecting departmental contracts

Challenge	**Management Level**	**N**	**Mean Rank**	**Kruskal-Wallis tests**		
				H	df	p-value
Service provider and planning challenges	Lower	50	40.43	3.043	2	0.218
	Middle	32	50.08			
	Upper	6	48.67			
Technology, policy and cost challenges	Lower	49	43.57	0.528	2	0.768
	Middle	31	42.11			
	Upper	6	50.08			
Human resources challenges	Lower	50	41.89	1.012	2	0.603
	Middle	32	46.23			
	Upper	5	50.80			

Table 19 G. Test of effects of institution on perceived challenges affecting departmental contracts

Challenge	**Institution**	**N**	**Mean Rank**	Kruskal-Wallis tests		
				H	**df**	**p-value**
Service provider and planning challenges	Head Office	69	42.96	1.972	1	0.160
	Hospital/CHC	20	52.03			

Technology, policy and cost challenges	Head Office	68	43.99	0.000	1	0.992
	Hospital/CHC	19	44.05			
Human resources challenges	Head Office	68	42.53	1.875	1	0.171
	Hospital/CHC	20	51.20			

Table 19 H. Test of effects of SCM section on perceived challenges affecting departmental contracts

Challenge	**SCM section**	**N**	**Mean Rank**	Kruskal-Wallis tests		
				H	**df**	**p-value**
Service provider and planning challenges	Demand Management	25	49.02	8.457	3	0.037
	Acquisition Management	15	35.57			
	Contract, Logistics, Compliance management	32	38.64			
	Asset Management	7	23.50			
Technology, policy and cost challenges	SCM Demand Management	25	39.00	3.151	3	0.369
	SCM Acquisition Management	14	44.79			
	SCM Contract, Logistics, Compliance management	32	40.38			
	SCM Asset Management	7	26.71			
	Demand Management	25	43.42	1.312	3	0.726

Human resources challenges	Acquisition Management	14	39.57			
	Contract, Logistics, Compliance management	32	37.09			
	Asset Management	7	36.36			

4.3.4 Tests for effects of demographics on the perceived preparedness to implementing the NHI under current SCM structure

The government intends to implement NHI in South Africa. In this study, six items, as reflected in Table 20 below, are used in relation to whether the Health Department is ready to implement the NHI under the current SCM structure. A principal component analysis (PCA) of these items produced one latent factor with coefficients given in the table 20 below. The PCA weights are similar, and a variable to represent implementation issues can be computed as mean of these six items. The KMO is significant (0.843)

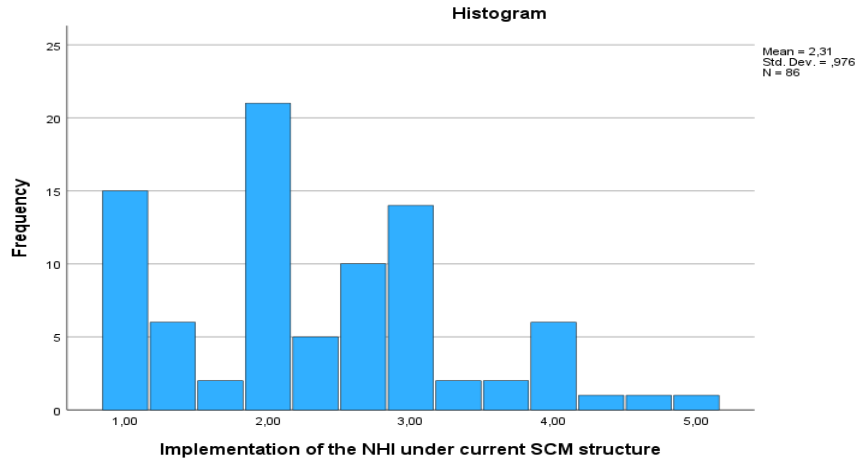
Table 20. PCA Implementing NHI

Implementation of the NHI under current SCM structure	**Principal Component coefficient**
35. The department has adequate resources for implementation of the NHI	0.918
36. The department has adequate infrastructure for the implementation of the NHI	0.936
37. The department has adequate human resource capacity to implement the NHI	0.906
38. The department has adequate human resource capability to implement the NHI	0.929

39. The department has appropriate systems to implement the NHI	0.955
40. The department has the right culture to manage the change to the NHI	0.848
Kaiser-Meyer-Olkin Measure (KMO)	0.843

Test of normality of the variable for Implementation of the NHI

The test of normality presented in the figure below show that the two tests of normality contradict (K-S has p-value=0.083 and the S-W has p-value<0.001). Since the sample size is greater than 50, one can use the Kolmogorov-Smirnov test, which indicates that the data does not significantly deviate from normality. One can thus assume normality, and can use ANOVA to assess the effects of demographics on perception of implementing the NHI under current SCM structures.



Tests of Normality

	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	df	p-value	Statistic	df	p-value
Implementation of the NHI under current SCM structure	0.090	86	0.083	0.943	86	<0.001

Figure 4

One-way ANOVA tests for effects of demographics perception of implementing the NHI under current SCM structures

The results in table 21 below show that perceptions on the implementation of NHI do not differ across categories of gender (p-value=0.445), age (p-value=0.327), highest qualification (p-value=0.360), management level (p-value=0.467) and section (p-value=0.976).

However, race (p-value=0.001) has a significant effect on the perceptions on the implementation of NHI. Africans (mean=2.7) tend to have a more positive perception of implementing NHI than Asians (mean=1.69) whilst Coloureds have a mean=2.18 and whites have a mean= 2.17.

Employment experience (p-value= 0.106) indicates a significant effect on the perception of the implementation of NHI, with managers having 21-30 years' experience (mean=1.94) and 30+ years' experience (mean=1.81) having less positive perceptions and opinions on the implementation of NHI than managers with experience ranges of 10 to 20 years' experience (mean=2.6) and less than 10 years' experience (mean=2.55). This is most likely due to the understanding, lessons learned, and insight gained through experience.

Institutions managers are from either head office, hospitals or clinics (p-value=0.029), (Table 21), indicates a significant effect on the perception of the implementation of NHI. Hospitals or clinic managers (mean=1.90) have less positive perception and opinion on the implementation of NHI than managers from head office (mean=2.45). This is most likely due to the ground level understanding that managers who work at hospitals and clinics have in terms of capacities and capabilities of hospitals and their current state. They at the ground level and have a different or stronger negative perception than managers whose work of site is at a head office level.

Table 21. Anova Implementing NHI

Dependent variable: Implementation of the NHI under current SCM structure		**Descriptives**			**ANOVA tests**		
		N	Mean	Std. Dev	F	df1, df2	p-value
Gender	Male	37	2.22	1.09	0.590	1, 84	0.445
	Female	49	2.38	0.88			

Age	20-30 years	7	2.55	1.17	1.167	3, 80	0.327
	31-40 years	29	2.44	1.02			
	41-50 years	28	2.40	0.89			
	51-65 years	20	1.98	0.95			
Race	African	47	2.70	0.92	7.506	3, 82	<0.001
	Asian	26	1.69	0.72			
	White	3	2.17	0.29			
	Coloured	10	2.18	1.15			
Highest Qualification	Grade 12	5	2.83	1.00	1.113	5, 80	0.360
	Diploma	32	2.47	1.13			
	Degree	23	2.09	0.83			
	Honours	21	2.22	0.88			
	Masters	4	2.46	0.57			
	Doctorate	1	1.00				
Employment Experience	<10 years	28	2.55	1.06	3.627	3, 81	0.016
	11-20 years	27	2.60	0.92			
	21-30 years	18	1.94	0.68			
	30+ years	12	1.81	0.93			
Management level	Lower	48	2.41	1.04	0.768	2, 82	0.467
	Middle	31	2.19	0.93			
	Upper	6	2.00	0.56			

Institution	Head Office	66	2.45	0.98	4.926	1, 83	0.029
	Hospital/CHC	19	1.90	0.83			
SCM section	Demand Management	24	2.32	1.03	0.069	3, 72	0.976
	Acquisition Management	15	2.21	1.08			
	Contract, Logistics, Compliance management	30	2.28	0.89			
	Asset Management	7	2.17	0.65			

4.3.5 Tests for effects of demographics on the perceived factors relating to Poor service delivery

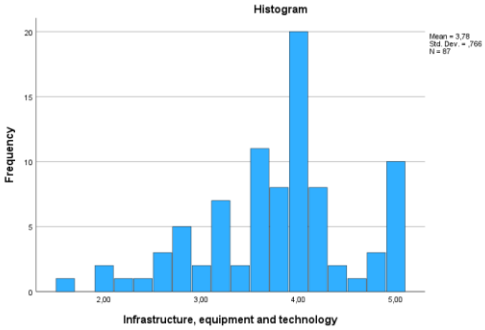
Poor service delivery in the health department and in most other government departments is pervasive and multi-causal. In this study, ten items as perceived factors relating to poor service delivery are considered, and these are categorised into two sub-groups. These are: infrastructure, equipment and technology, and human resources planning. Principal component analysis of these items produced coefficients, given in table 22 below. Two latent variables, representing each of the two constructs of perceived factors relating to poor service delivery were generated. Table 22. PCA Infrastructure, technology and human resources

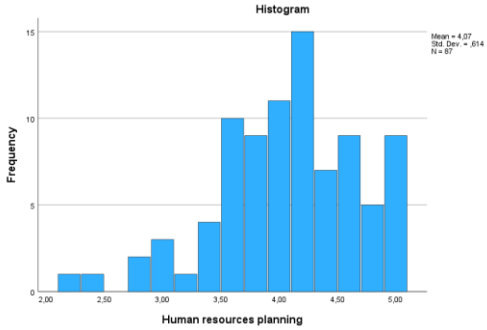
Infrastructure, equipment and technology	**Principal Component coefficient**
43. Lack of facilities is the reason for poor service delivery	0.888
42. Lack of infrastructure is the reason for poor service delivery	0.882
44. Lack of equipment and resources is the reason for poor service delivery	0.814
41. Outdated technology is the reason for poor service delivery	0.731

47. Lack of financial resources is the reason for poor service delivery	0.579
Kaiser-Meyer-Olkin Measure (KMO)	0.795
Human resources planning	**Principal Component coefficient**
46. Lack of human resource capability is the reason for poor service delivery	0.828
48. Poor work culture is the reason for poor service delivery	0.686
45. Lack of human resource capacity is the reason for service delivery	0.685
49. Poor planning is the reason for poor service delivery	0.648
50. Fraud and financial mismanagement is the reason for poor service delivery	0.500
Kaiser-Meyer-Olkin Measure (KMO)	0.645

Test of normality of the variables for factors relating to poor service delivery

The results in the figure below show that the two sub-constructs of factor relating to poor service delivery are not normally distributed (both the K-S and S-W tests show have p-values less than 0.05). Non-parametric Kruskal-Wallis tests will be used to assess how these constructs are affected by demographics.





Tests of Normality

	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	df	p-value	Statistic	Df	p-value
Infrastructure, equipment and technology	0.133	87	<0.001	0.950	87	0.002
Human resources planning	0.099	87	0.035	0.956	87	0.005

Figure 5

Non-parametric one-way ANOVA tests (Kruskal-Wallis) for factors relating to poor service delivery versus demographics

The Kruskal-Wallis is used in place of Anova because of lack of normality and results. There are no significant differences in perceptions of factors relating to poor service delivery in terms of any demographics, as shown in the tables below (Table 23A-Table 23H).

Table 23A

Factors relating, to poor service delivery	**Gender**	**N**	**Mean Rank**	**Kruskal-Wallis tests**		
				H	df	p-value
Infrastructure, equipment and technology	Male	39	46.51	0.105	1	0.745
	Female	51	44.73			
Human resources planning	Male	38	41.72	0.555	1	0.456
	Female	49	45.77			

Table 23B

Factors relating to poor service delivery	**Age**	**N**	**Mean Rank**	**Kruskal-Wallis tests**		
				H	df	p-value
Infrastructure, equipment and technology	20-30 years	7	45.71	6.139	3	0.105
	31-40 years	31	45.26			
	41-50 years	29	36.36			
	51-65 years	21	54.21			
Human resources planning	20-30 years	7	46.86	6.694	3	0.082

	31-40 years	29	40.38			
	41-50 years	28	36.50			
	51-65 years	21	54.00			

Table 23C

Factors relating to poor service delivery	**Race**	**N**	**Mean Rank**	**Kruskal-Wallis tests**		
				H	df	p-value
Infrastructure, equipment and technology	African	50	46.42	3.608	3	0.307
	Asian	27	49.63			
	White	3	32.17			
	Coloured	10	33.75			
Human resources planning	African	47	40.53	4.133	3	0.247
	Asian	27	51.96			
	White	3	45.50			
	Coloured	10	38.35			

Table 23 D.

Factors relating to poor service delivery	**Highest Qualification**	**N**	**Mean Rank**	**Kruskal-Wallis tests**		
				H	df	p-value
Infrastructure, equipment and technology	Grade 12	5	51.90	5.533	5	0.354
	Diploma	33	47.03			
	Degree	23	48.46			
	Honours	23	41.78			
	Masters	5	26.10			
	Doctorate	1	77.50			
Human resources planning	Grade 12	5	46.80	3.603	5	0.608
	Diploma	32	43.11			
	Degree	21	41.07			
	Honours	23	48.26			
	Masters	5	33.20			
	Doctorate	1	76.00			

Table 23E.

Factors relating to poor service delivery	**Employment Experience**	**N**	**Mean Rank**	**Kruskal-Wallis tests**		
				H	df	p-value
	<10 years	28	42.68	2.403	3	0.493

Infrastructure, equipment and technology	11-20 years	30	47.22			
	21-30 years	18	39.50			
	30+ years	13	52.50			
Human resources planning	<10 years	27	39.31	3.225	3	0.358
	11-20 years	28	43.77			
	21-30 years	18	41.72			
	30+ years	13	54.08			

Table 23F.

Factors relating to poor service delivery	**Management Level**	**N**	**Mean Rank**	**Kruskal-Wallis tests**		
				H	df	p-value
Infrastructure, equipment and technology	Lower	50	44.44	0.075	2	0.963
	Middle	32	45.06			
	Upper	6	42.00			
Human resources planning	Lower	48	42.13	0.455	2	0.797
	Middle	31	45.13			
	Upper	6	39.00			

Table 23G.

Factors relating to poor service delivery	**Institution**	**N**	**Mean Rank**	**Kruskal-Wallis tests**		
				H	df	p-value
Infrastructure, equipment and technology	Head Office	69	44.96	0.001	1	0.976
	Hospital/CHC	20	45.15			
Human resources planning	Head Office	66	43.40	0.004	1	0.947
	Hospital/CHC	20	43.83			

Table 23H.

Factors relating to poor service delivery	**SCM section**	**N**	**Mean Rank**	**Kruskal-Wallis tests**		
				H	df	p-value
Infrastructure, equipment and technology	Demand Management	25	41.76	0.302	3	0.960
	Acquisition Management	15	40.57			
	Contract, Logistics, Compliance management	32	38.53			
	Asset Management	7	39.21			
Human resources planning	Demand Management	25	42.38	2.674	3	0.445
	Acquisition Management	14	32.04			
	Contract, Logistics, Compliance management	32	37.16			
	Asset Management	5	45.80			

4.3.6 Measure of overall satisfaction with current procurement, goods and general service quality

The research questionnaire utilised a unipolar rating scale for overall satisfaction with procurement and service quality. Respondents are asked to select their scale of satisfaction, in percentage terms, ranging from not at all satisfied (1-20% satisfied) to extremely satisfied (80-100% satisfied), which takes up 5 points on the scale. This was done for questions on level of satisfaction with current processes, level of satisfaction with goods, and level of satisfaction with services. To assess the general level of satisfaction with current procurement of goods and general service quality, a latent variable based on the three items that measured satisfaction was created. The principal components coefficients of the three items are presented in table 24 below. The three items have very similar PC coefficients; hence they are of similar importance to the measure of overall satisfaction. An overall satisfaction variable is constructed, using the mean of the three items. The KMO (0.700) is significant, which implies the carrying PCA's was significant.

Table 24. PCA Satisfaction

Measure of satisfaction	**Principal Component coefficient**
55. Overall, indicate as a manager your measure of satisfaction with the quality of medical goods and consumables procured by the Department.	0.856
56. Overall, indicate as a manager your measure of satisfaction with the general services like security, cleaning, catering and waste removal.	0.830
54. Overall, indicate (as a manager) your measure of satisfaction with current procurement processes.	0.820
Kaiser-Meyer-Olkin Measure (KMO)	0.700

Regression of overall satisfaction with current procurement system several predictors discussed in the study.

Linear regression analysis is used to measure the relationship between the independent and dependent variable. Regression helps by making a statement on how well the independent variables predict the value to the dependent variable (Naharuddin and Sadegi, 2013). The reason for using a regression analysis in this study was to illustrate the relationship that exists between the independent variables (predictor variables) and overall level satisfaction with procurement systems (dependant variable).

The independent variables (predictor variables) analysed under this regression section were developed in preceding sections of this chapter, using principal components and the internal consistency of the items that make up these variables were evaluated using Cronbach Alpha statistics. These predictor variables considered in the regression model include:

Contracts Management which was developed and covered in chapter 4.2.1. Contract Management as variable indicates how well contracts are managed. We are testing to see if the perception of how well contracts are managed affects overall level of satisfaction with current procurement system.

Contracts Performance which was developed and covered in chapter 4.2.2. Contract Performance as a as variable indicates how well contracts perform in achieving Departmental objectives such as achieving value for money and economies of scale. We are testing to see if the perception of how well contracts perform affects the overall level of satisfaction with current procurement system.

Service provider and planning challenges; Technology, policy and cost challenges; Human resources challenges which were developed and covered in chapter 4.2.3. The 3 categories of challenges were tested as variables to see if the perception of these 3 sets of challenges affects the overall satisfaction. We were testing to see how strongly the perceptions of these challenges affect the overall level of satisfaction with current procurement system.

Implementation of the NHI under current SCM structure which was developed and covered in chapter 4.2.4. This variable created refers to weather the perception of the preparedness of the Department to implement the NHI under the current structure in terms of capacity resource and

infrastructure. We are testing this variable to see if the perceptions of the preparedness of the Department to implement the NHI under the current structure affects the overall level of satisfaction with current procurement system.

Infrastructure, equipment and technology and Human resources planning which were developed and covered in chapter 4.2.5. These were the 2 categories of challenges relating to poor service delivery were tested as variables to see if the perception of these challenges affects the overall level of satisfaction with current procurement system.

Regression Results

The regression results computed and obtained utilising SPSS show that of all the independent variables tested against the overall level of satisfaction on current procurement system (dependent variable), only Contracts Performance has significant effect on the overall satisfaction with current procurement system (B=0.463, t=2.063, p-value=0.044). Contracts performance is positively related to overall satisfaction with the current procurement system. This implies, the better contracts perform in terms of achieving value for money, economies of scale and obtaining quality goods and services, the greater the level of overall satisfaction with. The predictors explain 49.7% of the variation in the dependent variable (R^2=0.497).

Table 25: Regression results

Dependent variable: Overall satisfaction with current procurement system	Unstandardized Coefficients		Standardized Coefficients	t	p-value
	B	Std. Error	Beta		
(Constant)	1.261	0.944		1.336	0.187
Contracts Management	0.220	0.264	0.207	0.834	0.408
Contracts Performance	0.463	0.225	0.500	2.063	0.044
Service provider and planning challenges	-0.106	0.144	-0.103	-0.735	0.466

Technology, policy and cost challenges	0.006	0.151	0.005	0.040	0.968
Human resources challenges	-0.128	0.132	-0.136	-0.967	0.338
Implementation of the NHI under current SCM structure	-0.117	0.100	-0.149	-1.170	0.247
Infrastructure, equipment and technology	0.102	0.156	0.100	0.650	0.519
Human resources planning	0.131	0.210	0.101	0.627	0.534
R^2=0.497					

Since only one predictor (Contracts Performance) is significant, a linear regression model with only one predictor was fitted to the data with the results shown below. The model shows that contracts performance is positively related to overall satisfaction with current procurement system (B=0.570, t=6.321, p-value<0.001). In fact, contracts performance explains 37% of the variation in overall satisfaction with current procurement system.

Dependent Variable: Overall Satisfaction with current procurement system	Unstandardized Coefficients		Standardized Coefficients	t	p-value
	B	Std. Error	Beta		
(Constant)	1.452	0.307		4.730	<0.001
Contracts Performance	0.570	0.090	0.608	6.321	<0.001
R^2=0.370					

The regression model diagnostics are presented in the figure below. A histogram and Q-Q plot of the residuals do not show any notable departure from normality hence the model can be deemed

adequate. The plot of residuals against predicted values shows that there is no pattern the residuals as they are randomly scattered against predicted values. This points to homoscedasticity in the data.

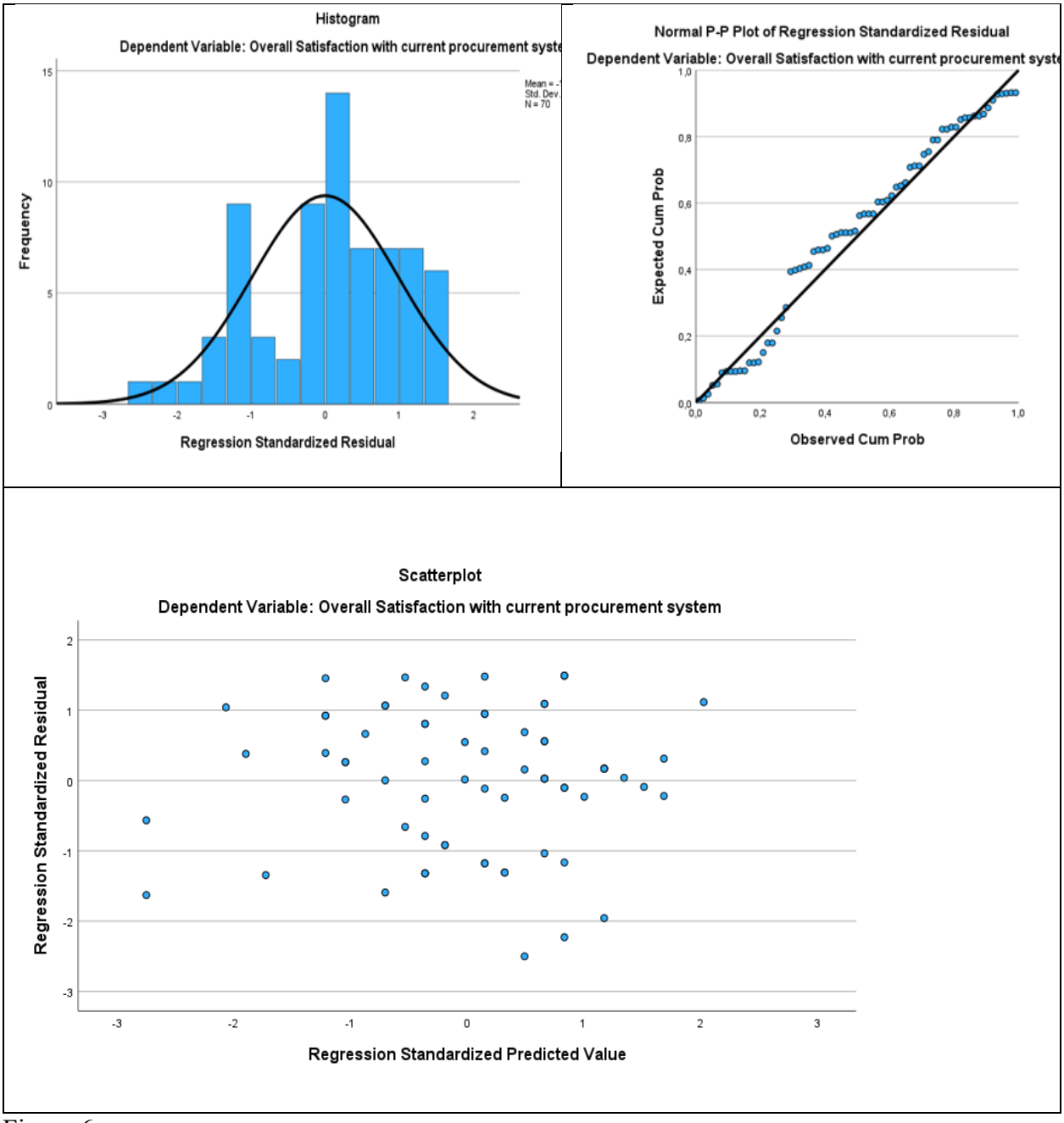


Figure 6

4.4 Conclusion

This chapter presented the results to the questions that underpin this study. The results are based on an analysis of the data collected by administering a questionnaire to public sector managers in the KwaZulu-Natal Department of Health. Through the questions provided in the questionnaire, the study's aim and objectives were pursued. The analysis on the responses received are provided in this chapter.

The key findings are highlighted below.

- Africans and Coloureds tend to have a more positive perception of how contracts are managed.
- Africans and Coloureds, and Whites tend to have a more positive perception of how contracts perform.
- Males are significantly more concerned with service provider and planning challenges than females.
- Demand Management staff are significantly more concerned with service provider and planning challenges than other directorates within SCM.
- Managers with greater experience have less positive perceptions and opinions on the implementation of NHI than managers with less experience.
- Hospitals or clinic managers have a less positive perception and opinion on the implementation of NHI than managers from head office.
- The satisfaction with procurement is significantly and positively influenced by contracts performance.

The summary and discussion of results in relation to the research objectives will be covered in the next chapter. Based on the findings of this study which has been illustrated in this chapter, inferences have been drawn from which recommendations are suggested. The next chapter reflects on these conclusions and recommendations.

Chapter 5: Summary, conclusion and policy directions

5.1 Introduction

This dissertation aimed at understanding the perceptions of managers and supervisors towards departmental contracts in The KZN Department of Health, and whether the current environment in the department is conducive to service delivery and the implantation of the NHI. In this chapter, we highlight the key findings in relations to the objectives of the study. This chapter closes off by providing future direction and recommendations based on the findings of this research.

5.2 Summary of results

The following is a summary of the key findings of this research. Each heading below relates to a section of the questionnaire and answers the research questions and fulfills the objectives of this research dissertation. These questions and objectives were covered explicitly in the methodology chapter. Firstly, under each heading we will discuss the responses and then how it differs in terms of demographics.

Research Objective 1: Perception of contract management

The results show that most of the respondents were of the view that procurement is easier when contracts are in place (93.2%), while only 23.6% believe that departmental contracts are timeously awarded.

Race has a significant effect on perceptions on the efficiency and functionality of departmental contracts management. Africans and Coloureds tend to have a more positive perception of how contracts are managed, while Asians and Whites are the most sceptical of how contracts are managed. This could be attributed to low representation of these 2 groups in the sample.

Employment experience also represents a difference in perception of how contracts are managed. Less experienced respondents with less than 10 years' experience, and those with between 10 and 20 years 'experience have a more positive perceptions than managers with greater than 20 years' experience. This is probably due to the higher expectations of more experienced managers and the higher standard that is expected. This is aligned to earlier studies by Graf- Vlachy, Bundy and Hambrick (2020) and Dokko and Jiang (2017), who state that expertise and expectations vary in direct proportion to experience.

Research Objective 1 continued: Perception of contract performance

The results show that most of the respondents were of the view that Departmental contracts aid in achieving service delivery (80.9 %), while only 31.5 % believe that service providers are able to timeously deliver contracted items.

Race has a significant effect on the perceptions on the performance of departmental contracts. Africans and Coloureds, and Whites tend to have a more positive perception of how contracts perform, while Asians tend to have a less positive perception of contract performance.

Research Objective 2 & 3: Perception with regards to challenges affecting departmental contracts

The results show that most of the respondents were of the view that Departmental contracts pose certain challenges. Poor planning (82.2%) and the rising cost of healthcare (82%) represented the highest percentage perceptions of contract challenges. Although all issues need to be addressed, more focus should be placed on improving planning and curbing corruption and managing the rising cost of healthcare. Reports from IBM (2012), Sustainia (2014) and Deloitte (2022) declare that the expense of healthcare worldwide has had a massive increase.

Males are significantly more concerned with service provider and planning challenges, than females. However, technology, policy and cost challenges as well as human resource challenges do not significantly differ between males and female's perceptions.

Demand Management staff are significantly more concerned with service provider and planning challenges than other sections. According to The Supply Chain Management Framework that emanates from The Public Finance Management Act of 1999, planning is a Demand Management Function; hence, SCM demand managers should address planning challenges.

Research Objective 4: Perception on the implementation of the NHI in relation to demographics

Most respondents (62.5%) believe the Health Department does not have adequate human resource capability to implement the NHI,

Race has a significant effect on the perceptions on the implementation of NHI. Africans tend to have a more positive perception of implementing NHI than Asians, Coloureds and Whites.

Employment experience indicates a significant effect on the perception of the implementation of NHI, with more experienced managers, those having 21-30 years' experience and 30+ years' experience, tend to have less positive perceptions and opinions on the implementation of NHI than managers with lower levels of experience. This is understandable as there is a learning effect with length of experience. According to Linda (2021), managers who are experienced tend to have more realistic and prudent expectations about outcomes than managers with less experience.

Institutions refer to the place that the respondents work. We have categorised institutions into two areas: namely, Head Office and Hospital/CHC. The institution that the respondent works at indicates a significant effect on the perception of the implementation of NHI. Hospitals or clinic managers have a less positive perception and opinion on the implementation of NHI than managers from head office. This is most likely due to the ground level understanding that managers who work at hospitals and clinics have, in terms of capacities and capabilities of hospitals and their current state. They are at the ground level, and they have a different or stronger negative perception than managers, who work off site, at a head office level.

Research Objective 5 and 6: Factor affecting poor service delivery, and perception by demographics

Most respondents believe the lack of infrastructure results greatly in inadequate service delivery (74.4%). This is supported by the report from the International Association for Management of Technology IAMOT 2016 Conference found that the public health sector is lacking basic amenities and poorly resourced.

Most respondents believe the poor work culture (86.7%) and poor planning (85.6%) were the main contributors in terms of human resources that impeded service delivery. Although poor work culture and poor planning were identified as the main human resources issues hampering service delivery, all human resources factors have high percentage responses that confirm these factors are contributors to impeding service delivery. This is as the so-called lowest contributor, lack of human resources capacity had 73,3 % of respondents feel that it is a contributor to poor service delivery, whilst lack of human resource capability and fraud and financial mismanagement had 73,6% and 78,9% respectively. This implies that human resources challenges are all strong contributors to poor service delivery.

There is no significant differences in perceptions of factors relating to poor service delivery in terms of any demographics.

Research Objective 7: Analysis of overall satisfaction with the procurement process

The contract system in The KZN Health Department drawn from the procurement process. The results indicate that most of the respondents expressed higher levels of satisfaction with the quality of medical products, as the majority fell in the ranges of 60 to 100 %. However, the results also show lower overall levels of satisfaction with the procurement processes and services, as majority of respondents viewed them below the ranges of 60-100%, which is below a satisfactory level.

The regression results show that only Contracts Performance has a significant effect on overall satisfaction with current procurement. Contracts performance is positively related to overall satisfaction with current procurement system, and singly this factor explains about 37% of the variation in satisfaction. The better contracts perform, the greater the level of overall satisfaction amongst respondents.

Research Objective 8: Other challenges, constraints and benefits of departmental contracts

Delays in the legislated SCM process resulting in poor service delivery, bottlenecks and poor supply and delivery of goods and services (24.2%) as well as lack of monitoring and risk management of SCM processes and contracts (21.2%) were the most common responses identified by managers and supervisors

Most responses by managers and supervisors were that it is the easiest means of procurement for SCM in government in terms of legislation (67.1%), whilst the potential benefits from economies of scale are perceived by only a small minority (1.9%).

With regard to the feasibility of implementing the NHI under the existing health structures, the majority of the respondents were against the implementation. The main reasons cited were: corruption, lack of resources and cultural differences.

5.3 Recommendations

This study which targeted key role players in the system, indicated that the public healthcare system and in particular the procurement system currently deployed to ensure service delivery

and implement the NHI is plagued by problems, which could mean failure for the scheme and a fruitless venture and expenditure. Therefore, to improve the performance of Supply Chain Management, Departmental contracts and service delivery, and ensure the successful implementation of the NHI scheme, based on the findings of the study, the following recommendations are pertinent:

Improving supply chain management practices to improve performance

Strategic Planning and sourcing are key areas that need to be targeted and drastically improved. Managers and supervisors are expected to control everything in their power, to manage and mitigate risks involved in the supply chain process. This should be the responsibility of senior managers to roll out a culture change towards awareness and promote a proactive approach in supply chain management rather than a reactive approach. That is essentially what strategic procurement is. Managers would need to ensure that sections within supply chain management do not work in silos; they should rather communicate effectively and come together to resolve issues and brainstorm ideas. By adopting strategic sourcing, instilling a culture that is proactive and improving teamwork between supply chain sections, the Department can drastically improve the performance of Departmental contracts, improve the quality of goods and services it procures, whilst reducing bottlenecks identified by the respondents and saving the Department billions. This would directly improve service delivery, improve the image of Departmental contracts and make the environment more conducive to the implementation of the NHI.

Improving health infrastructure and facilities

The Department usually sees itself in a position without money to improve infrastructure and technology, due to fruitless and wasteful expenditure and corruption. Funds can be made available and spent better firstly by reducing fruitless and wasteful expenditure arising through poor planning and management, in the supply chain process. Along with the improvements in planning mentioned above, the supply chain principles of lean operations and total quality management should be established to compliment strategic procurement, to further reduce costs by reducing waste and lead time to improve performance, free up money and ensure goods and services arrive just in time. Further total quality management is a philosophy that aims at creating value during each stage of supply chain management. By doing so the output of the process which was a major issue identified by respondents can be drastically improved. Then the

Department would need to establish proper accountability and greater consequence management for financial mismanagement to ensure corruption and fraud that drains Departmental funds can be eradicated. The better the facilities, the better service delivery will be and the NHI would have a proper platform to be rolled out.

Enhance Leadership and Governance:

Building on the above, the Department will need to mitigate the risks surrounding leadership, corruption, inequalities within the public healthcare sector with particular interest in addressing leadership within supply chain management. This may require an overhaul of the current management structures within the public healthcare sector to improve capability, expertise and enhance governance.

Improve e-Health Strategy:

The Department of Health will need to address the current constraints preventing the successful rollout of the e-health strategy. This entails using evaluative and iterative strategies, improving infrastructure, adapting and tailoring resources and infrastructure to the context, developing stakeholder interrelationships, using financial strategies, providing support to clinicians, providing interactive assistance and training and educating stakeholders. The e-health project is a key component and enabler that is required for the successful implementation of the NHI scheme. It is thus imperative that sufficient funds from budget allocations should be made available. This should be done with an appropriate governance structure that will manage and mitigate risks associated with the rollout of the e-health system and NHI scheme.

Invest in Training and Development:

The Department will need to engage in massive training and skills development, in terms of strategic sourcing, lean operations and total quality management to ensure that the Supply Chain Management responsible for the provision of all procurement can drastically improve its processes when contracting for goods and services. During this training and development process, culture changes need to be implemented, driven by proactive and positive service delivery orientations, as mentioned above. Further, recruitment processes should hire candidates who are most equipped and competent to improve supply chain management. This means employing on merit rather than on race.

Address Socioeconomic Inequalities:

The Department will need to reconsider the causes of the lingering socioeconomic inequalities in the country and eradicate them. Integrating the private and public sectors will be a major challenge, due to the fact that in the 3 decades post-apartheid, there has not been enough progress in this regard. In order for the NHI to be a success there needs to be integration of the two sectors; however, with such disparities and inequality in terms of resources and facilities, NHI delivery will be a major issue. For the above-mentioned areas to improve, the Department will need to invest heavily in improving the public healthcare facilities and integrate with the private sector.

Inefficiencies of the public sector health cannot be assumed to disappear by 'dissolving' the private sector health service, which has proven to be more efficient and of a top class similar to some developed economies. Elimination of public sector health inefficiencies is unlikely in the short term. As the Auditor General Reports indicate, most government departments and municipalities do not have clean records, with little consequence management. Further, the implications of higher taxation to fund NHI and a massive drain of medical doctors and other professionals migrating to other places, where there is security, law and order, rule of law and better prospects for growth and development, are to be factored in.

5.4 Future research directions:

It is recommended that further research should be undertaken to determine how best the culture of South African healthcare institutions can be realigned to support the proposed NHI scheme and improve on contracts management. Even the NHI in a more developed or resourceful economy, like in the UK, is already proven to be riddled with imperfections and problems. Possible lessons may be learnt from the British experience. The realities of funding an expensive health project with insufficient medical professional architectures, inadequate technology and physical resource limitations, in a low growth, high unemployment and high-taxed South African economy, with a thin taxpayer base, should also be taken into consideration. These could be directions for future research regarding the feasibility of the NHI and its execution with a view to improving overall health care delivery in South Africa.

5.5 Conclusion

The findings of this study emphasize the critical role that effective contracting for goods and services via SCM plays in achieving service delivery, and in order to obtain the goals of the National Health Insurance scheme. This is inferred by the respondents' perceptions. The NHI scheme in principle can improve and revamp the current healthcare system of South Africa, and ensure its citizens have affordable and accessible healthcare. By addressing the identified Departmental contract challenges raised by respondents of this research and leveraging infrastructural and technological advancements, the Department of Health Kwa-Zulu Natal can enhance its healthcare delivery, thus fulfilling its commitment to equitable and high-quality healthcare for all its citizens and provide a conducive platform for the implementation of the NHI. The following indicates key areas to improve the position of the KZN health Department, based on the responses provided and the literature reviewed.

By addressing the above challenges and implementing the relevant recommendations, South Africa can improve its healthcare system's management and delivery, ensuring better accessibility, quality, and affordability for its citizens. As the regression results show, satisfaction only comes from contracts performance. Normatively, an efficient private health care system should not be swallowed up by an inefficient public health system. This is tantamount to a highly expensive monopoly situation that tends to infringe on citizens' freedom and choice of health care, and that is likely to be prone to corruption and rent-seeking, as identified by the Zondo Commission. More competition from the private sector is desirable to complement the public sector health in South Africa.

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Appendix

Ethical clearance from UKZN

UNIVERSITY OF KWAZULU-NATAL
INYUVESI YAKWAZULU-NATALI

28 November 2024

Nabeel Ebrahim Amoo (209510781)
School of Man Info Tech & Gov
Pietermaritzburg Campus

Dear N Ebrahim Amoo,

Protocol reference number: HSSREC/00008015/2024
Project title: Analysis of departmental contracts within the KwaZulu-Natal Health Department: A supply chain management perspective
Degree: Masters

Approval Notification – Expedited Application

This letter serves to notify you that your application received on 25 November 2024 in connection with the above, was reviewed by the Humanities and Social Sciences Research Ethics Committee (HSSREC) and the protocol has been granted **FULL APPROVAL**.

Any alteration/s to the approved research protocol i.e. Questionnaire/Interview Schedule, Informed Consent Form, Title of the Project, Location of the Study, Research Approach and Methods must be reviewed and approved through the amendment/modification prior to its implementation. In case you have further queries, please quote the above reference number.

PLEASE NOTE: Research data should be securely stored in the discipline/department for a period of 5 years.

Incidents of adverse events and serious adverse events (AEs and SAEs) should be reported in writing to HSSREC, the study sponsors, and any regulatory authority (where appropriate), within 7 working days of the occurrence for local sites and 14 days for all other South African sites.

This approval is valid until 28 November 2025.
To ensure uninterrupted approval of this study beyond the approval expiry date, a progress report must be submitted to the Research Office on the appropriate form 2 - 3 months before the expiry date. A close-out report to be submitted when study is finished.

HSSREC is registered with the South African National Health Research Ethics Council (REC-040414-040).

Yours sincerely,

Professor Dipane Hlalele (Chair)
/nng

Humanities and Social Sciences Research Ethics Committee
Postal Address: Private Bag X54001, Durban, 4000, South Africa
Telephone: +27 (0)31 260 8350/4557/3587 **Email:** hssrec@ukzn.ac.za **Website:** http://research.ukzn.ac.za/Research-Ethics
Founding Campuses: Edgewood Howard College Medical School Pietermaritzburg Westville

Ethical clearance granted by the Department of Health: KZN

KWAZULU-NATAL PROVINCE
HEALTH
REPUBLIC OF SOUTH AFRICA

DIRECTORATE:

Physical Address: 330 Langalibalele Street, Pietermaritzburg
Postal Address: Private Bag X9051
Tel: 033 395 2805/ 3189/ 3123 Fax: 033 394 3782
Email:

Health Research & Knowledge Management

NHRD Ref: KZ_202310_012

Dear Mr N Ebrahim Amoo
(UKZN)

Approval of research

1. The research proposal titled **'The perceived benefits and challenges of Department contracts by Supply Chain Managers in the Department of Health KZN'** was reviewed by the KwaZulu-Natal Department of Health (KZN-DoH).

   The proposal is hereby **approved** for research to be undertaken at all selected health facilities at KZN-DoH.

2. You are requested to take note of the following:
   a. ***Kindly liaise with the facility manager BEFORE your research begins.***
      This is to ensure that conditions in the facility are conducive to the conduct of your research. These include, but are not limited to, an assurance that the numbers of patients attending the facility are sufficient to support your sample size requirements, and that the space and physical infrastructure of the facility can accommodate the research team and any additional equipment required for the research.
   b. *All research conducted in KwaZulu-Natal must comply with government regulations relating to Covid-19. These include but are not limited to: regulations concerning social distancing, the wearing of personal protective equipment, and limitations on meetings and social gatherings.*
   c. *Please ensure that you provide your letter of ethics re-certification to this unit when the current approval expires.*
   d. *Provide an interim progress report and final report (electronic and hard copies) when your research is complete to **HEALTH RESEARCH AND KNOWLEDGE MANAGEMENT, 10-102, PRIVATE BAG X9051, PIETERMARITZBURG, 3200** and e-mail an electronic copy to hrkm@kznhealth.gov.za*
   e. *Please note that the Department of Health shall not be held liable for any injury that occurs as a result of this study.*

For any additional information please contact Dr. G Shezi on 033-395 3189.

Yours Sincerely

Dr E Lutge
Chairperson, Provincial Health Research Committee
Date: 17/01/2024

GROWING KWAZULU-NATAL TOGETHER

Approval by the KZN Health Director of supply chain, to undertake research within SCM

KWAZULU-NATAL PROVINCE
HEALTH
REPUBLIC OF SOUTH AFRICA

SUPPLY CHAIN MANAGEMENT
CONTRACT MANAGEMENT

Private Bag X9051, Pietermaritzburg, 3200
310 Jabu Ndlovu Street, Pietermaritzburg, 3200
Tel: 033 815 8302 Email:

Date: 31 October 2023

To whom it may concern:

APPROVAL FOR RESEARCH TO BE UNDERTAKEN WITHIN SUPPLY CHAIN MANAGEMENT

1. This letter serves to advise that approval has been granted to Nabeel Ebrahim Amoo, to undertake research within the Department of Health: Supply Chain Management for his Masters Dissertation.
2. The approval allows Nabeel, to interview supervisors and managers working within Supply Chain Management.
3. All respondents' responses are to be kept confidential and the research should be for academic purposes only.

Yours faithfully,

MR KE MTSHALI
CHIEF DIRECTOR: SUPPLY CHAIN MANAGEMENT

03/11/2023.
DATE

Consent form and questionnaire for the study

UKZN HUMANITIES AND SOCIAL SCIENCES RESEARCH ETHICS COMMITTEE (HSSREC)

APPLICATION FOR ETHICS APPROVAL
For research with human participants

INFORMED CONSENT RESOURCE

Information Sheet and Consent to Participate in Research

Date:

To whom it may concern:

My name is Nabeel Ebrahim Amoo from the University of Kwa Zulu Natal (UKZN) South Africa
(Masters in Commerce candidate, College of Law and Management Studies)
Telephone: +27 72 391 5538
Email : 209510781@stu.ukzn.ac.za

You are being invited to consider participating in a study that involves research on an analysis of the perceived benefits and challenges of Departmental contracts faced by Supply Chain Managers and Supervisors within The Department of Health KZN by Nabeel Ebrahim Amoo**.** The purpose of the study is to determine the perception of Departmental contracts in terms of functionality and effectiveness as viewed by Supply Chain Managers and Supervisors within The Department of Health KZN. The study also seeks to understand the critical Departmental contract challenges faced by Supply Chain Managers within The Department of Health KZN and in doing so gauge the reasons for poor service delivery. Lastly the study aims to view if Departmental Managers and Supervisor are of the opinion that the NHI can be implemented under the current circumstances.

The study is intended to enroll approximately 100 supply chain supervisors and managers in The Department of Health KZN.
The study involves administrating a structured research questionnaire which compromises five sections-
Section 1: Demographics of the respondent.
Section 2 Efficiency and functionality of Departmental Contracts.
Section 3: Challenges affecting Departmental Contracts.
Section 4: Implementing the NHI under Current SCM Structure
Section 5: Factors relating to poor service delivery

The study has no known risks and there are no direct financial benefits to the subjects. However, it is hoped that your participation will help researchers learn more about the constraints and challenges with Departmental contracts and the key inhibitors of service delivery. This research can utilise the management perceptions to tackle critical challenges in the future and improve service delivery.

This study has been ethically reviewed and approved by the UKZN Humanities and Social Sciences Research Ethics Committee (approval number_____).

In the event of any problems or concerns/questions you may contact the researcher at
072 391 5538 / 209510781@stu.ukzn.ac.za or the UKZN Humanities & Social Sciences Research Ethics Committee, contact details as follows:

HUMANITIES & SOCIAL SCIENCES RESEARCH ETHICS ADMINISTRATION
Research Office, Westville Campus
Govan Mbeki Building
Private Bag X 54001
Durban
4000
KwaZulu-Natal, SOUTH AFRICA
Tel: 27 31 2604557- Fax: 27 31 2604609
Email: HSSREC@ukzn.ac.za

You do not have to participate at all, or even if you agree now, you can terminate your participation at any time without prejudice
and that in the event of refusal/withdrawal of participation the participants will not incur penalty or loss of treatment or other benefit to which they are normally entitled.

Questionnaires will be numerically coded to maintain anonymity. The completed questionnaires will be stored safely and not made available to anyone not directly involved in this project. There will be no mention of name in the study.

CONSENT

I _____ have been informed about the study entitled An analysis of the perceived benefits and challenges of Departmental contracts faced by Supply Chain Managers and Supervisors within The Department of Health KZN by Nabeel Ebrahim Amoo

I understand the purpose and procedures of the study

I have been given an opportunity to answer questions about the study and have had answered to my satisfaction.

I declare that my participation in this study is entirely voluntary and that I may withdraw at any time without affecting any of the benefits that I usually am entitled to.

If I have any further questions/concerns or queries related to the study I understand that I may contact the researcher Nabeel Ebrahim Amoo at 072 391 5538 / 209510781@stu.ukzn.ac.za

If I have any questions or concerns about my rights as a study participant, or if I am concerned about an aspect of the study or the researchers then I may contact:
HUMANITIES & SOCIAL SCIENCES RESEARCH ETHICS ADMINISTRATION
Research Office, Westville Campus
Govan Mbeki Building
Private Bag X 54001
Durban
4000
KwaZulu-Natal, SOUTH AFRICA
Tel: 27 31 2604557 - Fax: 27 31 2604609
Email: HSSREC@ukzn.ac.za

_____	_____
Signature of Participant	**Date**
_____	_____
Signature of Witness (Where applicable)	**Date**
_____	_____
Signature of Translator (Where applicable)	**Date**

An analysis of the perceived benefits and challenges of Departmental contracts faced by Supply Chain Managers and Supervisors within The Department of Health KZN:

Please indicate your chosen option with an X

1. Gender

1.Male	
2.Female	

2. Age

	Years

3. Home Language

1. English	
2. IsiZulu	
3. Afrikaans	
4. Other	

4. Race

1. African	
2.Asian	
3.White	
4.Coloured	
5.Other	

5. Highest Qualification

1.Grade 12	
2.Certificate	
3.Diploma	
4.Degree	
5.Honors	
6.Masters	
7.Doctrate	

6. Number of years: employment experience

	Years

7. Please indicate which management level you fall under

1. Lower Management	
2. Middle Management	
3. Upper Management	

8. Please state the institution you work at?

_____

_____

9. Which District is your institution?

10. How do you hear about updates regarding Departmental contracts?

1.Emails	
2.Colleagues	
3.Department Website	
4.Other	

11. Please provide a brief description of your job in Supply Chain Management

_____

EFFICIENCY AND FUNCTIONALITY OF DEPARTMENTAL CONTRACTS					
	Strongly Agree	**Agree**	**Neither Agree nor Disagree**	**Disagree**	**Strongly Disagree**
12. The specifications for contracts are drafted efficiently at the outset of the supply chain process.	5	4	3	2	1
13. Procurement is easier when contracts are in place.	5	4	3	2	1
14. Contract information is easily accessible	5	4	3	2	1
15. The departmental contracts achieve value for money	5	4	3	2	1
16. The departmental contracts are competitive.	5	4	3	2	1
17. The departmental costs are effective	5	4	3	2	1
18. The departmental contracts are able achieve economies of scale.	5	4	3	2	1
19. The departmental contracts are timeously awarded.	5	4	3	2	1
20. Departmental contracts aid in achieving service delivery.	5	4	3	2	1
21. End users are satisfied with the products of departmental contracts	5	4	3	2	1
22. Current procurement is adequate to meet demand for patient care.	5	4	3	2	1
23. Competent and capable companies are awarded contracts.	5	4	3	2	1
24. Service providers are able to timeously deliver contracted items.	5	4	3	2	1
25. Contract management needs to improve service delivery and patient care.	5	4	3	2	1

CHALLENGES AFFECTING DEPARTMENTAL CONTRACTS					
	Strongly Agree	**Agree**	**Neither Agree nor Disagree**	**Disagree**	**Strongly Disagree**
26. Legislation is a major challenge.	5	4	3	2	1
27. Rising cost of healthcare products is a major challenge	5	4	3	2	1

28. Rising cost of technology is a major challenge	5	4	3	2	1
29. Constant evolution to technology is a major challenge	5	4	3	2	1
30. Human resource capacity is a major challenge	5	4	3	2	1
CHALLENGES AFFECTING DEPARTMENTAL CONTRACTS					
	Strongly Agree	**Agree**	**Neither Agree nor Disagree**	**Disagree**	**Strongly Disagree**
31. Human resource capability is a major challenge	5	4	3	2	1
32. Service provider capacity and capability is a major challenge	5	4	3	2	1
33. Service providers willingness to do work or deliver to rural areas is a major challenge	5	4	3	2	1
34. Poor planning is a major challenge	5	4	3	2	1

IMPLEMENTING THE NHI UNDER CURRENT SCM STRUCTURE					
	Strongly Agree	**Agree**	**Neither Agree nor Disagree**	**Disagree**	**Strongly Disagree**
35. The department has adequate resources for implementation of the NHI	5	4	3	2	1
36. The department has adequate infrastructure for the implementation of the NHI	5	4	3	2	1
37. The department has adequate human resource capacity to implement the NHI	5	4	3	2	1
38. The department has adequate human resource capability to implement the NHI	5	4	3	2	1
39. The department has appropriate systems to implement the NHI	5	4	3	2	1
40. The department has the right culture to manage the change to the NHI	5	4	3	2	1

FACTORS RELATING TO POOR SERVICE DELIVERY					
	Strongly Agree	**Agree**	**Neither Agree nor Disagree**	**Disagree**	**Strongly Disagree**
41. Outdated technology is the reason for poor service delivery	5	4	3	2	1
42. Lack of infrastructure is the reason for poor service delivery	5	4	3	2	1

43. Lack of facilities is the reason for poor service delivery	5	4	3	2	1
44. Lack of equipment and resources is the reason for poor service delivery	5	4	3	2	1
45. Lack of human resource capacity is the reason for service delivery	5	4	3	2	1
46. Lack of human resource capability is the reason for poor service delivery	5	4	3	2	1
47. Lack of financial resources is the reason for poor service delivery	5	4	3	2	1
48. Poor work culture is the reason for poor service delivery	5	4	3	2	1
49. Poor planning is the reason for poor service delivery	5	4	3	2	1
50. Fraud and financial mismanagement is the reason for poor service delivery	5	4	3	2	1

51. In your opinion are their other challenges regarding Departmental Contracts other than those mentioned above?

_____

_____

_____

_____

52. In your opinion are there any other constraints that prevent Departmental contracts achieving high quality patient care?

_____

_____

_____

_____

53. What are the current benefits of Departmental contract?

_____

_____

_____

_____

54. Overall, indicate (as a manager) your measure of satisfaction with current procurement processes

1. 1- 20% ☐ 2. 21- 40% ☐ 3. 41-60% ☐ 4. 61-80% ☐ 5. 81-100% ☐

55. Overall, indicate as a manager your measure of satisfaction with the quality of medical goods and consumables procured by the Department

1. 1- 20% ☐ 2. 21- 40% ☐ 3. 41-60% ☐ 4. 61-80% ☐ 5. 81-100% ☐

56. Overall, indicate as a manager your measure of satisfaction with the general services like security , cleaning, catering and waste removal

1. 1- 20% ☐ 2. 21- 40% ☐ 3. 41-60% ☐ 4. 61-80% ☐ 5. 81-100% ☐

Considering existing constraints to health procurement contracts, do you think NHI will improve health care delivery in SA? For both yes or no, kindly state on what grounds?

_____

_____

_____

_____