



# **A case study of private-public sector labour market mobilities of South African medical laboratory specialists**

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Humanities, Development and Social Science,  
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## DECLARATION

Submitted in fulfilment of the requirements for the degree of Masters of Social Science,  
in the Graduate Programme in  
Industrial, Organizational and Labour Studies (IOLS), Humanities, Development and  
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South Africa.

I declare that this dissertation is my own unaided work. All citations, references and borrowed ideas have been duly acknowledged. I confirm that an external editor was used and that my Supervisor was informed of the identity and details of my editor. It is being submitted for the degree of Masters of Social Science, in Industrial, Organizational and Labour Studies in the Faculty of Humanities, Development and Social Sciences, University of KwaZulu-Natal, South Africa. None of the present work has been submitted previously for any degree or examination in any other University.

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## **Dedication**

This thesis is dedicated to my beloved Creator:

***Bhagavan Shri Sathya Sai Baba,***

who has instilled in me the goal of using one's own life as an instrument of God - one such way being through the development of knowledge, and that ultimately, the end of education is *character*.

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### **Abstract**

This thesis examines the labour market for medical laboratory specialists, specifically anatomical pathologists and haematologists in KwaZulu-Natal. It aimed to establish the extent of mobility of pathologists from the public to the private sector and *vice versa*. This study also aimed to investigate the reasons for such movement and importantly, the effects of this mobility. Lee's (1966) push-pull theory of migration was assessed in terms of its applicability to mobility in the local context and is extended and adapted to this context.

The five key research questions on which this thesis is based are: What is the nature of labour markets for medical laboratory specialists in KwaZulu-Natal? What is the extent of the mobility of medical laboratory specialists from the public sector to the private sector and *vice versa* in KwaZulu-Natal? What are the causes of such mobility between public and private sectors in KwaZulu-Natal? What are the effects or implications of the movement of medical laboratory specialists in KwaZulu-Natal? Lastly, to what extent can Lee's (1966) push-pull theory of migration be adapted to account for the mobility of anatomical pathologists and haematologists between the public and private sectors in KwaZulu-Natal?

This study adopted a case study design that used a purposive sampling strategy. There were 23 participants involved in the study. Of the 23 participants selected, 11 were anatomical pathologists and nine were haematologists. The remaining three participants were a microbiologist, a migration specialist and an international anatomical pathologist. Key findings indicated that mobility between the public and private sectors does occur. The labour market for medical laboratory specialists displayed 23 anatomical pathologists and 11 haematologists in KwaZulu-Natal. Financial reasons were not the only reasons that pathologists switched sectors; rather the decision rested on several other non-economic factors such as the working environment, flexibility and even management styles. The effects of mobility include delays in diagnosis and patient care as well as increased stress levels and workloads of specialists. Certain push-pull factors of Lee's (1966) push-pull theory were found to apply to the local context of this study.

### **Keywords**

Medical laboratory specialists; haematologists; anatomical pathologists; private sector; public sector; private-public mobility; push-pull theory; health-system.

## **Abbreviations**

AIDS	Acquired Immunodeficiency Syndrome
ANC	African National Congress
ARVs	Antiretrovirals
CAQDAS	Computer Assisted Qualitative Data Analysis Software
DoH	Department of Health
EQUINET	Regional Network for Equity in Health in Southern Africa
GP	General Practitioner
HIV	Human Immunodeficiency Virus
HSRC	Human Sciences Research Council
HPCSA	Health Professionals Council South Africa
ICAD	Interagency Coalition on AIDS and Development
IMGs	International medical graduates
IOLS	Industrial, Organizational and Labour Studies
IOM	Institute of Medicine
KZN	KwaZulu-Natal
LDCs	Less developed countries
MDCs	More developed countries
NCD	Non-communicable diseases
NPG	National Pathology Group
NHI	National Health Insurance
NHLS	National Health Laboratory Services
NHR	National Human Resources plan
NGO	Non-governmental organization
OECD	Organization for Economic Cooperation and Development
SASH	South African Society of Haematology
SAIMR	South African Institute for Medical research
StatsSA	Statistics South Africa
TB	Tuberculosis
UCT	University of Cape Town
USA	United States of America

WHO

World Health Organization

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# **Chapter One**

## **Introduction**

### **1.1. Introduction**

This thesis investigated the level of labour market mobility of medical laboratory specialists from the private to the public sector, and *vice-versa* in KwaZulu-Natal (KZN) and the causes of such mobility. The research focused on anatomical pathologists and haematologists. Anatomical pathologists are specialists that diagnose disease by analyzing tissue samples (Royal College of Pathology of Australia, 2011), while haematologists specialize in that branch of pathology in which components of diseases that affect the blood are studied. Lee's (1966) push-pull theory of migration in terms of which negative and positive factors influence people's decision to stay in an area or not, has also formed part of this study. The extent to which this theory can be applied to the labour market mobility of medical laboratory specialists to and from the private and public sectors has been explored. This study focuses on 'mobility', rather than migration, as the latter has connotations that suggest a long-term stay, whereas mobility may be seen as the movement of highly skilled persons that may be short-term (Vertovec, 2002).

### **1.2. Background**

The shortage of medical laboratory personnel is a growing problem (Vertovec, 2002; Ward-Cook, 2002; Beckering and Brunner, 2003; Bersch, 2003; Garrott, 2008; Khadria, 2010; Rohde *et al*, 2010). Since the 1990s, there have been a number of studies on skilled labour migration (Vertovec, 2002). However, the emphasis has been on the dimensions of global labour migration Vertovec (2002); Chen *et al* (2004); Hagopian *et al* (2004); Allsop *et al*, 2010), with less emphasis on local 'mobility'. This thesis investigated the mobility of medical laboratory specialists at a local level, that is, between the public and private sectors in KwaZulu-Natal specifically.

Extrapolating from national statistics, which locate 67% of medical specialists in the private sector, it is assumed that there is a similar trend for medical laboratory specialists (Breier and

Wildschut, 2006). Since no disaggregated data exists for medical laboratory specialists specifically, this study also aimed to obtain information pertaining to these specialists.

Labour market mobility of medical laboratory specialists to and from the private and public sectors has the potential to impact significantly on the South African health care system. South Africa has a dual health system: the public sector that comprises government institutions to provide health care to the poorest sections of the population; and the private sector, made up of profit-making organizations and individuals who serve those who can afford health care on an out-of-pocket basis (Pillay, 2009). The public sector, which is overused and under-resourced (Conell, 2007; Pillay, 2009), serves 82% of South Africa's population, but accounts for 40% of health expenditure (Pillay, 2009). The private sector, on the other hand, is responsible for 60% of health expenditure, but only serves 20% of the population (Pillay, 2009).

The maldistribution of medical specialists between the private and public sectors has been reported in a number of countries, with the latter sector subject to neglect (Chen *et al*, 2004; Pillay, 2009). Health workers comprise doctors, nurses, dentists, pharmacists, and laboratory technicians, as well as support staff and management (Khadria, 2010). As Khadria (2010) notes, however, doctors and nurses have been the focus of concerns regarding migration. The focus of this thesis is the patterns of mobility of medical laboratory specialists within the province of KwaZulu-Natal.

Bach (2003) notes that the migration of health workers may undermine the health care system due to loss of skills. If medical laboratories are understaffed, the accuracy of their results is called into question. Ensuring that there are sufficient skilled staff and resources as well as quality assurance checks in place is costly and may only be affordable to tertiary or privately owned laboratories (Bach, 2003; Bates and Maitland, 2005; Petti *et al*, 2006; Rohde *et al*, 2010). If reliable diagnostic testing is compromised, the risk of misdiagnosis and avoidable deaths is increased (Bersch, 2003; Hagopian *et al*, 2004; Petti *et al*, 2006; Connel *et al*, 2007; Kershaw, 2008; Blanckert, 2010; Plebani and Lippi, 2010). This study aims to uncover whether or not such risks arise due to the mobility of medical laboratory specialists to and from the private and public sectors.

The causes of the migration of medical laboratory specialists have been the subject of a number of studies (Beckerling and Brunner, 2003; Hagopian *et al*, 2004; Khadria, 2010;). However, these have explored this phenomenon on a global level. There is a paucity of research on the mobility of medical laboratory specialists on a local scale, between the private and public sectors, particularly in South Africa. In addition, the data on global migration is more than a decade old (Conell *et al*, 2007; Khadria, 2010). Therefore, establishing the extent of migration between the public and private health care systems and investigating the effects that this mobility has on health care in KwaZulu-Natal formed another goal of this research.

If the public health care system can retain its medical laboratory specialists, the health of millions of people will be better taken care of, as the public health care sector caters for the needs of the majority of South Africans, who cannot afford private health care.

### **1.3. Research Objectives**

The objectives of this study are:

- To explore the nature of labour market mobility of medical laboratory specialists from the private to the public sector and *vice-versa* within KwaZulu-Natal.
- To identify the causes of private-public mobility of medical laboratory specialists in KwaZulu-Natal.
- To examine the effects of this mobility on the KwaZulu-Natal health care system.
- To assess the extent to which Lee's (1966) push-pull theory of migration accounts for the labour market mobility of these specialists.

The objectives of this study will be achieved through investigating the nature of the labour market of medical laboratory specialists in KwaZulu-Natal as well as obtaining an idea of the extent of the mobility of these specialists, as outlined in research questions one and two. Research questions three and four will explore the impact of such mobility on the KwaZulu-Natal health care system, as well as the reasons why this mobility occurs. Finally research question five will enable an assessment of the degree to which Lee's (1966) push-pull theory explains such mobility:

- What is the nature of labour markets for medical laboratory specialists in KwaZulu-Natal?

- What is the level of mobility of medical laboratory specialists from the private to the public sector and *vice-versa* in KwaZulu-Natal?
- In what ways does this mobility impact on the KwaZulu-Natal health care system and laboratory staff?
- What are the causes of such mobility between the public and private sectors in KwaZulu-Natal?
- To what extent does Lee's (1966) push-pull theory explain the labour market mobility of medical laboratory specialists?

#### **1.4. Central Theoretical Argument**

This study takes as its central theoretical framework Lee's (1966) push-pull theory. According to Lee (1966) push factors can forcefully push people to migrate, whereas pull factors can attract them to an area (O'Rourke, 1972; Jenkins, 1977; Zimmermann, 1996; Higgins, 2008; Allsop *et al*, 2009). According to Lee's (1966) theory, push factors refer to negative factors in sending countries such as a lack of decent employment and opportunities; lower salaries; poor or primitive working conditions; poor infrastructure and technology; a lower social status; repressive governments; pollution; natural disasters and discrimination (Jenkins, 1977; Kline, 2003; Hagopian *et al*, 2004; Stilwell *et al*, 2004). Moreover, Allsop *et al* (2009) note that push and pull factors enable people to move to where the jobs best suit their training and education. Pull factors on the other hand, in the richer countries (or regions) attract skilled personnel like physicians (Hagopian *et al*, 2004: 17). Examples of pull factors include training opportunities; better living and working standards; educational opportunities, family links; security; a high level of industrialization; and better medical care, as well as more advanced research conditions (Hagopian *et al*, 2004: 17).

Lee (1966) argued that the migration process is selective due to the fact that factors such as age, gender, and social class influence employees' responses to push-pull factors. This research study investigates whether or not this theory can be applied at a local level (that is, between the public and private sectors within South Africa) and more importantly, the extent to which it is valid in explaining private-public medical laboratory specialist mobility within the South African health care system. Lee's (1966) push-pull theory was helpful in determining some of the causes of the private-public mobility of medical laboratory

specialists. Since this case study examined the labour markets and mobility of medical laboratory specialists at a local level, between sectors, only some of the push and pull factors identified by Lee (1966) may apply. For example, the study focused on factors such as salaries/earnings rates, working conditions and research conditions as possible reasons for the mobility of medical laboratory specialists between sectors, instead of push factors such as natural disasters, which did not apply to this case study. These push and pull factors were used to account for the mobility of medical laboratory specialists from the private to the public sectors and *vice versa*.

## **1.5. Research Methodology**

### Research Design

The research study will form part of a broader research project that explores the professional development, training and the labour market of medical laboratory specialists in South Africa. The study adopted a case study design, which is a qualitative approach that investigates a case/s through detailed and in-depth data collection that answers specific research questions (Tellis, 1997; Gillham, 2000; Cresswell, 2007). Case studies are useful in that they enable phenomena to be analyzed in their specific contexts without generalization to other populations (Keen and Packwood, 1995; Baxter and Jack, 2008).

### Data Collection

Data was collected by means of in-depth interviews. An in-depth interview is a research technique in which intensive individual interviews are conducted by the researcher to explore interviewees' specific perspectives on certain ideas or situations, whilst recording their responses (Gillham, 2000; Boyce and Neale, 2006; Monette *et al*, 2008: 158, 172). Interviews are a flexible form of data collection and allow for a conversational style (Monette *et al*, 2008: 181), which will aid the researcher to obtain a more personal and specific sense of responses that relate to that participant in particular. Demographic data was collected *via* a basic method that lists relevant categories (such as gender, occupation or race), and asks the researcher or participant to make the relevant choice. The researcher has also conducted secondary research on national and global labour market statistics in order to examine patterns of employment in this field. This includes statistics from the relevant sources such as the Health Professionals Council of South Africa (HPCSA), StatisticsSA and the World Health Organization.

### Sampling

The sampling strategy that was used for the case study is 'judgemental or purposive' sampling. In this strategy, the researcher selects specific participants who will exhibit the required information necessary for the study (Monette *et al*, 2008: 148). The participants were selected based on whether or not they are either a medical laboratory specialist, or a management staff member related to the field. This study focused on medical laboratory specialists in the public and private sectors. The population of both anatomical pathologists and haematologists in KwaZulu-Natal are 37. The sample for this study comprised 11 anatomical pathologists, of which three were from the public sector and eight from the private sector. Nine haematologists were interviewed, of which four were based in the public sector and five in the private sector. In addition, three other relevant stakeholders were identified. These include a migration specialist, an international anatomical pathologist, and a microbiologist.

### Data Analysis

Data analysis for the case study was conducted *via* thematic analysis. This refers to data being analysed through the interpretations of identifiable themes and patterns (Aronson, 1994; Terre Blanche, Durrheim and Painter, 2006; Creswell, 2007). Data can be classified into different categories and patterns. Patterns refer to conversation topics, vocabulary, meanings and feelings (Aronson, 1994). This form of interpretative analysis will enable the researcher to have a more clear understanding of the data (Terre Blanche, Durrheim and Painter, 2006), which facilitates the interpretation of very detailed and in depth data.

## **1.6. Chapter Outline**

### ***Chapter one: Introduction***

The purpose of this chapter is to provide a clear and concise understanding and background of the problem area, as well as issues surrounding it. Definitions and explanations of the key features of the study were outlined in order to construct a clear framework for the study. The objectives of the study were also outlined.

## ***Chapter two: Literature review: Global Health Worker Shortage and Medical Laboratory Medicine***

Chapter two consists of a review of literature pertaining to the study. The chapter highlights studies that provided a foundation for the research from a global perspective, while also critically engaging this literature in relation to this project. Themes discussed include: national and global labour markets; the mobility, or migration of medical laboratory specialists; and the reasons behind such movement. The chapter also provides a literature review on the public and private sectors. Finally, the chapter identifies both the differences and similarities between the present research and previous studies.

## ***Chapter three: Theorizing the Labour Market for Medical Laboratory Specialists***

This chapter focuses on literature on the South African context. Themes include private-public mobility, and the causes and effects of this mobility, as well as other current issues. These include National Health Insurance (NHI) and HIV/AIDS. Chapter three also outlines the theory, which provides the framework for the study, that is, Lee's (1966) push-pull theory. Lee's (1966) push-pull theory emphasizes that push or pull factors are influential in whether one decides to stay in one's country of origin, or migrate elsewhere. Push factors are negative and include low salaries and poor working conditions, whereas pull factors include training opportunities, better working conditions and standards and security (Hagopian *et al*, 2004). The chapter also explores whether Lee's (1966) push-pull theory can be adapted to a local context, that is, between the private and public sectors, as opposed to a global level.

## ***Chapter four: Research methodology***

Chapter four outlines the various methods and techniques used for the study. This chapter covers the research design, data collection, sampling, key research questions and data analysis. The limitations of the study are also highlighted. The research design is primarily qualitative, and followed a case study design, which is suitable for in- depth studies. Data was collected via in-depth interviews and secondary data such as statistics on national and global labour markets from relevant bodies such as the HPCSA and StatsSA. The judgemental or purposive sampling strategy was used, in which participants were selected based on whether or not they were a medical specialist or staff member related to this field of work. Eleven anatomical pathologists and nine haematologists were interviewed,

representing both the public and private sectors. Other participants included a migration specialist, a microbiologist and an international anatomical pathologist. Data was analysed *via* a thematic analysis in which themes and patterns were identified.

#### ***Chapter five: Data Analysis and Discussion***

Chapter five presents an analysis of the data collected. Data from interviews were thoroughly examined and coded into themes. The findings of the study are interpreted and are presented using different techniques, including graphs, diagrams and tables. The various themes that emerged are linked to the literature at relevant points of the discussion. These themes were the extent of mobility between the public and private sectors, the causes and effects of this, the nature of labour markets in terms of medical laboratory specialists in KwaZulu-Natal specifically, forms of inequality between the public and private sectors and public-private partnerships or collaborations that exist for pathologists. Lastly, Lee's (1966) theory is adapted to the context of this study.

#### ***Chapter Six: Summary and conclusions***

Chapter six outlines the aim of the thesis, and the research questions as well as the arguments of the study. The contribution of the study is discussed extensively during this chapter. This includes its contribution to Industrial, Organizational and Labour Studies (IOLS) through its emphasis on labour markets for medical laboratory specialists. The study also makes a contribution to the gathering of relevant statistics in this field. Recommendations are made for future research, including the current, ongoing issues surrounding NHI.

## **Chapter Two**

### **The Global Health Worker Shortage and Medical Laboratory Medicine**

#### **2.1 Introduction**

The purpose of a literature review is to establish the context of the topic, rationalize the importance of the problem and identify the relationships between ideas and practise (Hart, 1998). This chapter provides a literature review based on four sub-categories or themes that are relevant to the overall study. These are: the global health worker shortage; understanding the public and private sectors; public and private sectors in South Africa; and the importance of medical laboratory medicine as well as the shortage of medical laboratory professionals. The themes provide the general context for an understanding of chapter 3 that follows.

In addition, the purpose of the review is to identify gaps in existing literature. Numerous studies emphasise the global aspect of migration; however, this study will explore the nature of private-public mobility of medical laboratory specialists within KwaZulu-Natal, on which no analysed data is available. However, in order to contextualise the local or provincial labour market for medical laboratory specialists, it is imperative to understand the nature of the global labour market for health care workers. This context is outlined in section 2.2.

Sections 2.3 and 2.4 present a detailed outline of discourses on the public and private sectors. Section 2.3 presents a global and generalized view of the public and private sectors, while section 2.4 delivers a South African perspective. In the light of inequalities between the sectors in terms of staffing levels, this study will examine how anatomical pathologists and haematologists feel about these inequalities, their nature and the extent to which they occur in their particular sectors. The question of whether the public and private segments of medical laboratory specialists require joint ventures to overcome these inequities will be explored. Section 2.5 deals with the general importance of medical laboratory medicine, and medical laboratory specialists as well as the shortage of these specialists. This section outlines the roles and functions of medical laboratory specialists and their discipline, which reinforces the need to conduct research in this area.

Before proceeding to section 2.2. of this chapter, it is pertinent to provide definitions of the relevant terms used in this study. Laboratory medicine is vital in preserving and protecting health as it enables the identification and measurement of biochemical and molecular risk factors, markers of genetic susceptibility and predictors of disease related complications (Plebani, 2002: 93; Guidi and Lippi, 2006). The term ‘medical laboratory specialist’ incorporates a broad spectrum of categories of doctors that oversee and perform laboratory investigations for patients (Interview: Dr Rampersad, 2011; *See 1.1*). There are many different types of medical laboratory specialists, including haematologists, anatomical pathologists, chemical pathologists, virologists, and microbiologists. The specific fields of medical laboratory specialization upon which this thesis is based on are haematology and anatomical pathology. Haematologists are doctors who specialize in the branch of pathology that deals with components of diseases that affect the blood (Royal College of Pathology of Australia, 2011). According to Dr Mohun (Interview: 2011), a haematologist is trained in the study of the haemopoietic system of the body, its normal functioning, and the abnormalities (benign and malignant) thereof. In other words, haematologists deal with abnormalities of blood cells (Interview: Dr Rampersad, 2011). Haematologists include both haematopathologists and clinical haematologists (Interview: Dr Smith, 2011). A haematopathologist analyzes, interprets and reports various tests performed in a haematology laboratory (Interview: Dr Mohun, 2011). They also play a role in laboratory management. A haematopathologist can also practice clinical haematology to a limited degree (Interview: Dr Mohun, 2011). A clinical haematologist functions primarily as a clinician, being involved in the management of patients afflicted with haematological disorders (Interview: Dr Mohun, 2011). Anatomical pathologists on the other hand, are specialists that are concerned with the tissue diagnosis of diseases (Royal College of Pathology of Australia, 2011). The primary function of an anatomical pathologist is the diagnosis of biopsies derived from patients such as medical diseases and tumours. Once a tissue biopsy is conducted by a doctor, it is sent to an anatomical pathologist for diagnosis.

This study will use the term ‘mobility’ rather than migration, as the latter has connotations of a long-term stay, whereas mobility can be seen as the movement of highly skilled persons that may be short-term (Vertovec, 2002) (*See 1.1 and 2.2*). For the purposes of this study, mobility refers to the movement of medical laboratory specialists from the public to the private sector and *vice-versa*.

Breier and Erasmus (2009) note that the skills shortage in South Africa should be seen within the context of the apartheid legacy as well as post-apartheid initiatives to correct these imbalances. The shortage of skills in South Africa is also related to international skills shortages (Breier and Erasmus, 2008). South African skills are viewed as highly valuable at a global level, thus contributing to the shortage of skills within South Africa. On another note, it has been observed that South African professionals such as those in the fields of engineering, medicine and nursing leave the country because of unsatisfactory working conditions (Breier and Erasmus, 2009). Sub-section 2.2. examines the global shortage of health workers.

## **2. 2. The Global Health Worker shortage**

As outlined in section 2.1. this study focuses on medical laboratory specialists at a local level. There is a paucity of research on this subject. Most existing studies are more general and operate at the global level.

The literature reveals that the migration of health workers is a global phenomenon (Vertovec, 2002; Hagopian *et al*, 2004; Narisimhan, 2004; Stilwell *et al*, 2004; WHO, 2004; Muula, 2005; Interagency Coalition on AIDS and Development (ICAD), 2006; The World Health Organization (WHO), 2008, Organization for Economic Cooperation and Development (OECD), 2008; Institute of Medicine (IOM), 2008, cited in, Khadria, 2010; Jones, 2009). The issue of skilled labour migration has been a growing area of research since the 1990s (Vertovec, 2002). Vertovec (2002) notes that skilled migrants refer to those that have obtained tertiary educational qualifications as well as work experience. They include architects, accountants and financial experts, engineers, information technology specialists, researchers, scientists, teachers, chefs and lastly, health professionals.

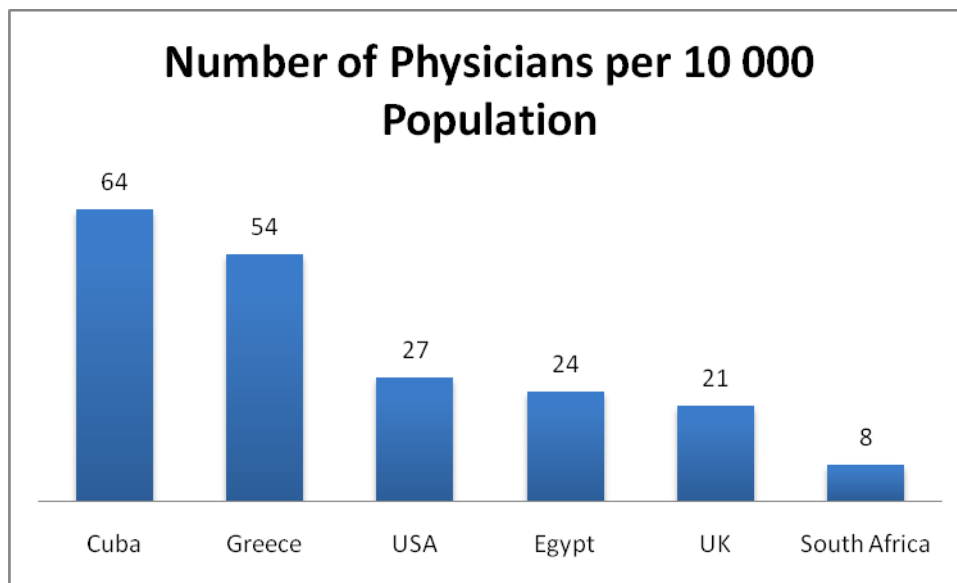
Vertovec (2002: 2) explains that migration has connotations of permanence and a long-term stay, whereas the movement of skilled professionals in this era is intermittent and short-term in many cases. This study focuses on the movement and mobility of medical laboratory specialists from the public sector to the private sector and *vice versa*, rather than migration out of the country; therefore, mobility is a more suitable term.

Although numerous studies have been conducted on the migration of medical doctors, practitioners and nurses (Chen *et al*, 2004; Muula, 2005; ICAD, 2006; IOM, 2007; Pillay, 2009; Allsop *et al*, 2010), there have been very few studies on medical laboratory specialists (Khadria, 2010). While there is an abundance of literature on the so-called ‘brain drain’, there is insufficient information on South Africa (Ryan, 2011).

Chen *et al* (2004) and Lippi and Plebani (2010), note that the global human resources crisis in the health sector is taking place alongside a series of other major challenges such as mass poverty, and uneven economic growth and well as political instability. Health workers provide a variety of services and include doctors, nurses, dentists, pharmacists, laboratory technicians, management staff and support staff (Khadria, 2010: 5). Narasimhan *et al* (2004: 1469) and Chen *et al* (2004) emphasise the importance of all health personnel, from public health to clinical services, and from primary to tertiary care. While there are different types of workers at each level, all are responsible for the protection and promotion of health (Narasimhan *et al*, 2004). Narasimhan *et al* (2004) add, however, that without a healthy and motivated workforce, financial investments and drugs to address health-related issues may be at risk of being misused. The system cannot run effectively without health workers who remain the ‘ultimate resource’ for health systems (Chen *et al*, 2004: 1984). Health workers are not just associated with vaccines and drugs, but they also play a vital role in preventing and curing diseases (Chen *et al*, 2004). When health workers migrate, they leave behind severely strained and challenged health systems, as is the case in sub-Saharan Africa (Hagopian *et al*, 2004). Life expectancy in this region is only 50 years, with a shocking 162 in 1 000 children dying before the age of five (Hagopian *et al*, 2004). Only half of the population has access to clean drinking water (Hagopian *et al*, 2004).

Globally, there is a shortage of four million health workers (Chen *et al*, 2004; Vedathan and Fuster, 2011). The WHO (2010) notes that South Africa has an alarming ratio of just eight physicians per 10 000 people. Figure 2.2.1 below sets out comparable ratios in a variety of countries across the world. South Africa has one of the lowest physician to population ratios (WHO, 2010). Cuba has the highest with 64 physicians per 10 000 people; Greece has 54 physicians per 10 000 people; the USA has 27 physicians per 10 000 people; Egypt 24 physicians per 10 000 people; and the United Kingdom (UK) 21 physicians per 10 000 people (WHO, 2010).

**Figure 2.2.1 Total number of physicians per 10 000 people**



Chen *et al* (2004) maintain that sub-Saharan countries need to treble the existing number of workers in their health sectors, by adding one million workers through retention, recruitment and training. Khadria (2010) adds that the global economic crisis has not decreased the demand for health workers, and notes that the international migration of health workers is not a new phenomenon. Sub-Saharan Africa is said to be the hardest hit by the global health crisis and the shortage of health workers as the provision of health care in this region is a complex challenge (Petti *et al*, 2006; Conell *et al*, 2007; Brugha *et al*, 2010; Chen *et al*, 2010; Eastwood *et al*, 2010). There is immense concern about the international migration of health workers (Vertovec, 2002; Chen *et al*, 2004; Hagopian *et al*, 2004; Stilwell *et al*, 2004; Kuehn, 2007; Naicker *et al*, 2009; Pillay, 2009; Allsop *et al* 2010; Khadria, 2010). However, the question of local migration, or ‘mobility’ of health workers remains a largely unexplored research area.

Narasimhan *et al* (2004) argue that significant imbalances are caused by mobility - internal, regional and international. Migration may have several effects. A study by Hagopian *et al* (2004) on the migration of physicians from sub-Saharan Africa to the United States of America (USA) notes that the migration of physicians from developing countries to developed countries may cause a series of imbalances within the health care workforce that in turn harm the health systems of source countries. This study showed that almost 86% of Africans practising in the USA originated from Nigeria, Ghana, and importantly, South

Africa (Hagopian *et al*, 2004). This is a reason for the shortage of health workers South Africa currently faces. Furthermore, as Hagopian *et al* (2004) explain, the WHO has declared that doctors migrating out of developing countries to developed countries results in imbalances not in their country alone, but globally.

Stilwell *et al* (2004: 596) note that it is only the “dramatic stories of health systems” that receive publicity; however, this is only a “partial picture” of health labour markets in developing countries. Many of these countries have an insufficient number of General Practitioners (GPs) and specialists (Hudson, 2011). Importantly, Stilwell *et al* (2004) emphasise that data on the magnitude of the problem and a context-based understanding of labour markets is required in order to craft policy options that will manage the migration problem. This highlights the need for a study of labour markets for medical laboratory specialists, especially in South Africa.

The data are incomplete, as most are based on the last rounds of national censuses that are a decade old (Khadria, 2010). Khadria (2010) notes that there are immigration data on some health worker categories, including doctors and nurses in the OECD countries, but virtually no data on emigration from developing countries and no specific data on health worker emigration in sending countries. The WHO indicates the total number of doctors, but not how many have migrated. Ryan (2011) points out that data is limited for developing countries, even in African countries. In addition, data may not exist at all on the whereabouts as well as the flows of health professionals (Ryan, 2011). This can be attributed to developing countries not always tracking the mobility of their health professionals (Ryan, 2011). The World Bank (cited in Ryan, 2011: 6) notes: “Quantitative data on the healthcare workforce is notoriously unreliable in most countries. In poor countries, government and professional information systems are weak, when they exist at all, and are rarely comprehensive and up to date.”

Ryan (2011) observes that many African countries develop a sense of the extent emigration through consulting data provided by destination countries. Using this method, the Mozambique Medical Association estimated that 5% of Mozambican doctors were working in other countries (Ryan, 2011). However, census data from nine destination countries showed that an estimated 75% of doctors born in Mozambique no longer resided in the country (Ryan, 2011). The data from the destination countries may also be an under-estimation, due to the fact that foreign-trained health professionals only include doctors

registered and practising (Ryan, 2011). Ryan (2011) notes that 33% of foreign-trained nurses who applied for licensure in Canada have not completed this.

Chen *et al* (2004: 1984) note that a large number of countries across the globe are facing the problems of a shortage of workers, skills imbalances, maldistribution, unsupportive or negative work environments and a weak knowledge base. Although there is concern over the global migration of health workers, as shown above, there is a need to examine the localised *mobility* of health workers, specifically medical laboratory specialists, from the public to the private sector. Information on these sectors, especially the private sector, is difficult to obtain (Hagopian *et al*, 2004). Studies by Kuehn (2007), Chatterjee *et al* (2011) as well as Rao *et al* (2011) emphasise that a shortage of health care workers restricts the achievement of public health priorities.

### **2.3. Understanding the Public and Private Sectors**

As the public and private sectors are a focus of this study, it is imperative to explore the meaning of these concepts. It is also essential to define public health to enable a better understanding of the challenges faced by this sector. Beaglehole and Dal Poz (2003:3) define public health as “the art and science of preventing disease, promoting health, and prolonging life through the organized efforts of society...the mission of public health is to fulfil society’s interests in assuring conditions in which people can be healthy...and is the collaborative actions to improve population-wide health and reduce health inequalities.”

The Global Health Council (2011) outlines the various responsibilities of the public sector. These include direct service provision; regulation of the health care industry as well as medical products; provision of incentives to make services affordable; the maintenance of a skilled workforce; and providing for research and development of new products (Global Health Council, 2011). The public sector is tasked with providing goods and services directly to the population. The public sector includes national governments and international agencies, including the WHO and the World Bank (Reich, 2002).

Generally, the government has a key function in terms of building and managing health care systems such as hospitals, clinics, human resources, medical equipment, supply chains, storage facilities and general infrastructure (Global Health Council, 2011). The Global Health

Council (2011) states that majority of public health funds go towards human resources and half of total health spending is allocated to pharmaceutical companies in certain developing countries. Relying solely on public/government resources and funding is clearly not a viable option in terms of fulfilling health needs (Reich, 2002; Global Health Council, 2011). Traditional public health groups suffer the consequences of limited financial resources, complex social and behavioural problems, and vast disease transmission within national boundaries, as well as reduced state capabilities (Reich, 2002). While globalization allows new technologies to rapidly engage with markets and spread across rich countries, the lack of access in poor countries produces a marginal gap (Reich, 2002). This leads to vast differences in morbidity and mortality (Reich, 2002). Neither public nor private organizations have the capacity to resolve such problems on their own strength (Reich, 2002).

The private sector serves as an alternative provider of health services, and products as well as infrastructure (Global Health Council, 2011). The private sector can be defined as encompassing all providers that exist outside the public sector, regardless of whether their aim is philanthropic or commercial, who treat illness or prevent disease (Mills, Brugha, Hanson, and McPake, 2002: 325; Global Health Council, 2011). The private sector includes both large and small commercial companies, categories of professionals such as doctors, national and international non-governmental organizations, and individual providers as well as shopkeepers (Mills, Brugha, Hanson, and McPake, 2002: 325). Private providers consist of individual practitioners that are both formal and informal, that work alone or in groups, as well as private companies that provide health care (Travis and Cassels, 2006: 426). The private sector includes those who contribute to health systems such as retailers, private financing agents and civil society organizations (Reich, 2002; Global Health Council, 2011). Services provided by the private sector include hospitals, nurses, nursing and maternity homes, midwives, clinics that are run by doctors, paramedics, diagnostic facilities such as laboratories and radiology units/centres, and the sale of drugs from pharmacies (Mills, Brugha, Hanson, and McPake, 2002).

Governments are involved in the regulation of the private sector (Global Health Council, 2011). In order to uphold the quality of private sector services, there is a need for regulatory mandates (Global Health Council, 2011). However, overregulation is said to ‘stifle’ the growth of the private sector (Global Health Council, 2011). Governments are also able to provide financial incentives for the expansion of the private sector (Global Health Council,

2011). For example, government as well as donor subsidies serve to encourage the private sector to provide specific services for poor populations (Global Health Council, 2011).

Traditional medicine is part of the private sector. Traditional medicine plays a key role in both developing and developed countries, and is said to be part of the “informal” private sector (The WHO (cited in Global Health Council, 2011) defines traditional medicine as: “The sum total of knowledge, skills and practices based on the theories, beliefs and experiences indigenous to different cultures that are used to maintain health, as well as prevent, diagnose, improve or treat physical and mental illness”. Eighty percent of the population in parts of Asia and Africa report ‘frequent’ use of traditional medicine (Global Health Council, 2011).

Even in developed countries, almost 80% of the population have used traditional medicine facilities/services. There are policies in place regulating traditional medicine in more than 100 countries (Global Health Council, 2011). However, the regulation of quality and safety in terms of patient use, as well as sustaining knowledge and resources remain challenges (Global Health Council, 2011).

The Global Health Council (2011) emphasises that both the public and the private sectors are vital in order to address the challenges that developing countries are confronted with in maintaining and nurturing effective health systems. Reich (2002) notes that private for-profit organizations have realised the importance of public health goals for their immediate and long-term objectives, in addition to accepting a wider view of social responsibility in terms of their corporate mandate. It is important to note that in practice, the public and private sectors overlap (Mills, Brugha, Hanson, and McPake, 2002; Reich, 2002). This means that staff/employees that work in the public sector also practise in the private sector either on their own or by working for the owners of private facilities (Mills, Brugha, Hanson, and McPake, 2002). Interestingly, the private sector is a resource that is also used in some of the poorest countries, as well as among lower income groups (Mills, Brugha, Hanson, and McPake, 2002; Travis and Cassels, 2006; Global Health Council, 2011). For example, the majority of malaria ‘episodes’ in sub-Saharan Africa are treated by private providers through the purchase of drugs (Mills, Brugha, Hanson, and McPake (2002). The Global Health Council notes that 40% of the poorest in sub-Saharan Africa obtain their health care services from the for-profit private sector. In addition, more than over 50% of the rural populations in Uganda

and Nigeria use the for-profit private sector for their health care needs (Global Health Council, 2011).

Both the public and private sectors have an underlying goal to improve health; however the objectives of the private sector may differ from the public sector (Global Health Council, 2011). These include issues related to delivering services, to developing funding streams and to imposing patient fees (Global Health Council, 2011). There are three forms of private sector involvement: for-profit, not-for-profit and social enterprises (Global Health Council, 2011). Examples of formal and informal private sector entities are: organizations that provide health services; corporations; individual health providers; professional associations; and national and international non-governmental organizations (NGOs); as well as charitable entities (Global Health Council, 2011).

Confronting health-related issues requires collaboration and joint initiatives between the public and private sectors. However, such collaboration may be restrained. Problematic issues pertaining to the private sector in terms of health care services in developing countries include profit-making mechanisms, which are viewed as ‘price-gouging’ and subsequently affect poor populations negatively (Global Health Council, 2011). Other issues include unethical management, insufficient diagnostic services, and unsustainable provision of services (Global Health Council, 2011).

The efficiency of the private sector can be expressed in terms of the notion that larger corporations in the private sector have immense experience and know-how in management, distribution and marketing (Global Health Council, 2011). The private sector is able to provide services even in remote areas due to their well-equipped and updated infrastructure and networks (Global Health Council, 2011). The wages and salaries of state employees are lower than those in private sectors (Bender and Heywood, 2010). Over the past 20 years, state and local employees’ earnings have decreased compared to those of private sector employees (Bender and Heywood, 2010: 3).

## **2.4. The Public and Private Health Sectors in South Africa**

South Africa is among the list of countries that feature what is termed the ‘dual health system’ (Pillay, 2009), or, as Rispel and Setswe (2007) put it, a rather ‘fragmented’ health

system. Botha and Hendriks (2008) observe that the post-apartheid South African dual health system undermines progress even today. This system comprises the public sector and the private sector, with the former encompassing government health institutions to primarily serve the indigent population, while the private sector comprises for-profit organizations and individuals that serve insured patients and those that are able to afford health care on an ‘out-of-pocket’ basis (Pillay, 2009). According to Beaglehole and Dal Poz (2003), the public workforce is diverse and consists of those whose key responsibility is the provision of core public health activities regardless of their organizational base. Strikingly, the public sector accounts for only 20% of total health expenditure in South Africa despite catering for 82% of the population (Pillay, 2009). Beaglehole and Dal Poz (2003) highlight that there is insufficient information on the nature of the public sector health care workforce, its size, composition, skills, training needs, functions and performance, as well as their roles.

Numerous studies have highlighted the ongoing ‘inequity’ between the public and private health care sectors (Castro-Leal, Dayton, Demery, and Mehra, 2000; Crisp, 2000; Sanders and Chopra, 2006; IOM, 2007; Rispel and Setswe, 2007; Coovadia *et al*, 2009; Pillay, 2009). Rispel and Crisp (2000), Sanders and Chopra (2006), Setswe (2007) and Coovadia *et al* (2009) argue that South Africa has inherited a disjointed health care system that reflects disparities in health care spending in the distribution of health professionals, poor access and quality of care between and within provinces, races, urban and rural areas, and lastly, between public and private health sectors. Hudson (2011) also highlights the maldistribution of doctors between the public and private sectors.

Regarding medical laboratory medicine in the public sector, Crisp (2000: 252) argues: “the medical laboratory services in the public health sector of South Africa are very fragmented and range in quality from the services that one would expect from any world-class accredited laboratories to very poor and unreliable services.” This is an indication of the risks to which many South Africans are exposed in the public health care sector. Hudson (2011) notes that some disciplines experience more severe shortages than others, which impacts on both the public and private sectors. Crisp (2000) observes that while there have been efforts to rationalise and restructure these services, as well as improve quality, this has not materialised.

Numerous studies have highlighted the fact that the public health care sector is under-resourced and overused (Beaglehole and Dal Poz, 2003; Rispel and Setswe, 2007; Coovadia

*et al*, 2009; Pillay, 2009; *Cape Times*, 2009; *Sunday Argus*, 2009; *Pretoria News*, 2009). The South African public health care sector is seen as inefficient and ineffective in relation to providing accessible, affordable and suitable health care (Crisp, 2000; Pillay, 2009; Cape Times, 2009). The large and growing private sector, in contrast, has a good reputation and is recognised for its world-class facilities (Castro-Leal, Dayton, Demery, and Mehra, 2000; Muula, 2005; Rispel and Setswe, 2007; Pillay, 2009). Kershaw (2008) explains that even though a significant part of a patient's health record comprises of laboratory testing, and is actually determined by laboratory tests and procedures, laboratory testing is still a 'few%' of healthcare spending.

HIV/AIDS and the spread of non-communicable diseases (NCD), as well as global health threats such as environmental changes (Beaglehole and Dal Poz, 2003; Chen *et al*, 2004; Narasimhan *et al*, 2004; Muula, 2005; Banach *et al*, 2008; Coovadia *et al*, 2009;) have increased the pressure on public health care workers. It is important to investigate the ways in which the public health workforce manages this. Furthermore, Beaglehole and Dal Poz (2003) and Chen *et al* (2004) observe that service delivery in the public health care sector is inadequate and that training programmes and development in this sector have been neglected over recent decades in both developing and wealthy nations.

The reasoning behind the 'universal' poor condition of public health practise revolve around the fact that various aspects of public health practise expresses a struggle when the focus of public health has narrowed and government and resources centres on health care (Castro-Leal, Dayton, Demery, and Mehra, 2002; Beagle and Dal Poz, 2003). Furthermore, the private sector is becoming more involved in service delivery on behalf of the public sector (Uplekar, Pathania, and Raviglione, 2001; Beaglehole and Dal Poz, 2003; Sanders and Chopra, 2006); this is a reflection of the shortage of health care workers in the public sector as outlined by Muula (2005).

In addition, the public health care workforce itself as well as its associated infrastructure, is said to be neglected (Beaglehole and Dal Poz, 2003; Chen *et al*, 2004; Coovadia *et al*, 2009). However, the validation of this statement in terms of all medical fields within the public sector is yet to be investigated. It is questionable to argue that public sector health care service delivery in all specialities is inadequate. Moreover, Beaglehole and Dal Poz (2003:3)

speak of a general neglect of the public workforce “with a few exceptions”, thus, it may be that medical laboratory specialists within the public sector qualify as these “exceptions”.

The private medical laboratory sector in South Africa is very lucrative and maintains a vast range of private pathology services (Crisp, 2000). The private health care sector in South Africa is dominated by medical schemes that insure 14% of the population (Crisp, 2000; Muula, 2005; Rispel and Setswe, 2007; Coovadia *et al*, 2009). This sector includes private health care providers such as doctors and nurses, health professionals’ representative institutions, private health facilities such as laboratories and hospitals, funding mechanisms like short-term and life insurances and lastly, traditional health practitioners, and offers attractive remuneration packages (Muula, 2005; Rispel and Setswe, 2007). Crisp (2000) argues that the public and private sectors do display a level of interaction and that there are examples of sharing of resources and contracting out to each other. However, Crisp (2000: 252) points out that such arrangements are “loose and unstructured”, and have been developed in terms of convenience over time. The private sector covers less than 20% of the population, however, it consumes up to 60% of the country’s health expenditure (Rispel and Setswe, 2007; The Business Zone, 2008; Coovadia *et al*, 2009; Pillay, 2009). In 2006, an estimated 56% of health care expenditure was funded from the private sector, despite a mere one-fifth of the population having access to its services (Rispel and Setswe, 2007). Sanders and Chopra (2006) note that despite the improvement in health spending among the disadvantaged provinces in South Africa, the average real *per capita* health expenditure has only increased at an annual rate of 0.3% since 1998.

In her study on private sector contracts in low- and middle-income countries, Palmer (2000) observes that private sector providers are viewed as efficient solutions to gaps in coverage, more especially in areas where government health service provision is insufficient (Bhattacharya *et al*, 2010). There is a lack of data concerning medical laboratory specialists in both the public and private sectors.

Despite attempts to transform South Africa’s health services, inequity between the public and private health care sectors remains unresolved (Crisp 2000; Rispel and Setswe, 2007). Although there is a great deal of literature on the private health care sector in South Africa (Rispel and Setswe, 2007), this is not the case for medical laboratory specialists.

Rispel and Setswe (2007) and the *Saturday Star* (2010) highlight the challenges that the South African private health care sector is facing. Among these are rising costs, affordability, and decreasing access to care. In 2005, the Minister of Health declared that if there were no further improvement in the public and private health care sectors in South Africa, there would be a decline in both quality and access to care (Rispel and Setswe, 2007). It is important, therefore, to investigate whether such inequity and challenges are present in medical laboratory medicine. Castro-Leal, Dayton, Demery, and Mehra (2000) state that although the poor generally depend on the public care health system, South Africa is an exception to this rule, as its private health care sector is vital for both the wealthy and the poor. However, it is important to establish if this is the case for all medical fields of specialization.

The majority of medical practitioners and medical specialists practise in the private sector in South Africa (Rispel and Setswe, 2007; Breier and Erasmus, 2009). This comprises 62% of medical practitioners, and 75% of medical specialists (Rispel and Setswe, 2007). Rispel and Setswe (2007) point out that despite the fact that, historically, more nurses worked in the public sector, the public to private ratio has deteriorated from a ratio of 12.0 per 10 000 population to 10.7 per 10 000 population (Rispel and Setswe, 2007).

Van Rensburg (in Rispel and Setswe, 2007) speaks of an emerging phenomenon, which they term the “private-international drain”. This study will focus on the former part of the concept, that is, the private drain. The extent of the drainage on each sector will be investigated. Breier and Erasmus (2009) highlight the notion of not just external migration but also internal migration. Internal migration involves doctors migrating into the private sector once they have qualified and served their in-service in public sector hospitals (Breier and Erasmus, 2009).

Chanda (2002) maintains that there is a need to form linkages between the public and private health sectors in order to manage and support the public health sector as well as enhance the quality of general public sector health care. In essence, this requires the elimination of the divisions and inequality between the two sectors. Chanda (2002) expresses the linkage in terms of professional exchanges, cooperation in training, use of facilities, telemedicine, and sharing relevant data and research, as well as the provision of complementary or specialized treatments.

A public-private partnership involves private-public collaboration with the aim of providing health services and health products (Global Health Council, 2011). Public-private partnerships assist the government through the provision of supplementary financial, human and management resources to increase service coverage (Global Health Council, 2011). This results in the expansion of coverage as well as reduced costs, as contracting a service out may be more cost effective; however, sound structures are required (Global Health Council, 2011). There are several types of ‘partnering’ that occur under such collaborations. These include: contracting with many actors in the other sector in the production and distribution of health related products; contracting with workers in order to provide more training opportunities for public sector health professionals; offering subsidies to the private sector for ongoing and coordinated care as well as for the creation of new programmes and products; and lastly franchising and co-investment in health care attempts and initiatives to widen access to care (Global Health Council, 2011).

Partnerships include a variety of private sector actors, both at the domestic and international level for the purposes of combating health sector challenges (Global Health Council, 2011). In South Africa, medical doctors have internal and external dimensions (Breier and Erasmus, 2009). Doctors are trained in public hospitals; however, few remain there, and most flock to the private sector in urban areas (Breier and Erasmus, 2009).

The Global Health Council (2011) is of the view that private sector dealings with health systems may reinforce inequity and compromise the ability of the public sector to provide services for the poor. The fact that private sector hospitals can only offer their services to those that are able to afford them validates the perception that this sector focuses on profit rather than the needs of patients (Global Health Council, 2011).

The private sector could serve to encourage the public sector to improve the quality of its care and also to upgrade incentive options (Global Health Council, 2011). Establishing a ‘balance’ specific to the context of a particular country between public and private by way of maximizing the strengths and minimizing the weaknesses in both sectors is helpful in achieving the above (Global Health Council, 2011).

Several organizations, providers and commercial companies that cannot be solely classified as “public” or “private” exist (Global Health Council, 2011). Non-governmental

organizations may still support and promote public interests, despite being completely independent of the government (Global Health Council, 2011). In addition, private organizations are involved in public interests; however they lack formal institutions of public accountability and oversight (Global Health Council, 2011). It is important to note that doctors and nurses employed by the public sector may choose to increase their income by working under private providers (Global Health Council, 2011).

The stagnation of government health expenditure has resulted in a substantial portion of health expenditures coming from out-of-pocket spending, which then reduces the amount of cross-subsidization between the rich and poor (Sanders and Chopra, 2006). Statistics South Africa (StatsSA) noted a decline in the number of persons covered by medical schemes between 2002 and 2006 (Rispel and Setswe, 2007).

## **2.5. Importance of Medical Laboratory Medicine and the Shortage of Medical Laboratory Specialists**

In the current era, clinical laboratory testing has never been more crucial in the treatment and diagnosis of people. There is therefore a pressing need for investment and improvement in laboratory services as well as a re-examination of current practise and laboratory set-ups (Crisp, 2000; Plebani, 2002; Leong and Leong; 2005; Bates & Maitland, 2006; Guidi and Lippi, 2006; Pontious, 2006; Kershaw, 2008; Zille, 2009; Blanclaert, 2010; Mclane, 2010; Plebani and Lippi, 2010; Rohde *et al*, 2010).

Laboratories play a vital role in disease control and prevention programmes through providing timely and correct information for the purposes of patient management and disease surveillance (Ndiokubwayo *et al*, 2010). Ndiokubwayo *et al* (2010) group laboratories into two broad categories, that is, clinical laboratories and public health laboratories based on differences in case management and disease control and prevention. Public health laboratories are involved in the provision of timely and accurate results to promote disease control and prevention ((Ndiokubwayo *et al*, 2010). Clinical laboratories, on the other hand, provide accurate diagnosis of continuous, recent or past infections for appropriate case management (Ndiokubwayo *et al*, 2010). In clinical laboratories, the primary focus is on individual patient care (Ndiokubwayo *et al*, 2010). It is important to note however, that data generated from both types of laboratories are vital for disease surveillance, control and

prevention activities (Ndiokubwayo *et al*, 2010). Ndiokubwayo, *et al* (2010), explain that in Africa, laboratory services suffer from inadequate staffing, equipment and supplies. This is an obstacle to early detection of epidemics such as Ebola, Marburg, as well as multidrug-resistant and extensively drug-resistant tuberculosis (Ndiokubwayo *et al*, 2010).

Guidi and Lippi (2006) and Crisp (2000) emphasise the importance of laboratory medicine, noting that laboratory results are a significant part of clinical decision-making processes, medical diagnoses and therapies. Crisp (2000) adds that although laboratory services are merely seen as ‘providing results’, they have a crucial role in diagnosis and patient care. Despite the significance and vitality of laboratory medicine, Bates and Maitland (2006) and Crisp (2000) stress that laboratory medicine is one the most neglected areas of health care provision in sub-Saharan Africa and is hampered from delivering services to the poor. Guidi and Lippi (2006) identify public health issues, such as managed care and political issues as challenges that laboratory medicine is currently grappling with.

Guidi and Lippi (2006) speak of the immense changes in the organization, and complexity as well as the role of medical laboratories in health care. Thus, a substantial increase in global productivity is required (Guidi and Lippi, 2006). Furthermore, Plebani and Lippi (2010) and Blanckaert (2010) note that technological developments as well as economic drivers have resulted in changes in laboratories worldwide, which have increased efficiency; however, such productivity seems to decrease the value of laboratory services contextually. The shortage of medical professionals such as laboratory professionals are evident in the difficulty laboratories face in filling vacant positions (Plebani, 2002; Beckering and Brunner, 2003; Leong and Leong, 2005; Bates and Maitland, 2006; Guidi and Lippi, 2006; Sanders and Chopra, 2006; Banach *et al*, 2008; Rohde *et al*, 2010). In South Africa, the International Organization for Migration (IOM) (2007) reported 4 000 available vacancies within the public health sector alone.

Rohde *et al* (2010) note that 4 200 laboratory-discipline professionals graduate every year in the United States. However, there is still an alarming deficit of approximately 8 000 thousand laboratory professionals. Guidi and Lippi (2006) observe that the shortage of laboratory vocations worldwide may result in a serious crisis for laboratory medicine. Furthermore, there exists a disproportion between vacancy rates, job growth and the decline in job vocations that may worsen the crisis (Guidi and Lippi, 2006). This is an indication of the lack

of awareness surrounding the roles and functions of laboratory medicine (Guidi and Lippi, 2006). A study based in Australia on the relevance of post-graduate public health education and training showed that most training programmes focused on workers that already formed part of the workforce, instead of attempting to increase the size of the workforce (Beaglehole and Dal Poz, 2003).

Banach *et al* (2008) note that South Africa is facing vast challenges that are both social and health-related. Banach *et al* (2008), Sanders and Chopra (2006) and Rispel and Setswe (2007) observe that there is a worldwide shortage of medical staff, especially specialists, which includes pathologists, such as anatomical pathologists (Leong and Leong, 2005; Banach *et al*, 2008), who have migrated to pursue better opportunities or have retired. According to Beckering and Brunner (2003), Guidi and Lippi (2006) and Plebani (2002), some of the causes for this shortage are retirement, salary dissatisfaction, job dissatisfaction, and inadequate training programmes, as well as lack of awareness about the laboratory professions, especially among young people. For instance, Plebani (2002: 89) observes that students are reluctant to pursue careers as laboratory specialists due to inadequacies in recruiting students, the escalating costs of training, diminishing budgets for hospital laboratories, and poor wages as well as a lack of career growth and advancement. Bates and Maitland (2006) add that sub-Saharan countries are challenged by inadequate equipment and low morale.

Kershaw (2003) reveals that the starting salaries for laboratory professionals are marginally lower than graduates in allied health fields. Kershaw (2008) maintains that, in line with the shift from traditional diagnostics to additional personalized diagnostics and treatment, laboratories are a vital component of health care. For decades, this profession has suffered from a lack of visibility despite their significant contribution to health care around the world. Laboratory professionals are not in constant contact with the public, which is thus unable to relate to what they do (Beckering and Brunner, 2003; Leong and Leong, 2005; Kershaw, 2008). Leong and Leong (2005) argue that a disproportionate amount of attention is given to laboratory specialists, as laboratory activities appear more amenable to measurement and analysis. Other challenges include the rising cost of medical care (Leong and Leong, 2005).

A study by Pillay (2009), which focused on a comparative analysis of nurses and their work satisfaction in the public and private sectors, discussed the importance of the role played by

nurses in determining the efficiency, effectiveness and sustainability of health care in South Africa. Similarly medical laboratory specialists are responsible for diagnosis and the future of many lives and are of immense importance in any health system around the world. Hence the need for a comparative analysis of medical laboratory specialists.

Other challenges include the lack of a national policy and strategy for laboratory services, inadequate funding, insufficiently trained laboratory staff, poor laboratory infrastructure, old or inadequately serviced equipment, insufficiency of necessary reagents and consumables, as well as limited quality assurance and control protocols (Ndiokubwayo *et al*, 2010: 49). Laboratories are often given low priority and recognition in national health delivery systems (Ndiokubwayo *et al*, 2010).

Another challenge is the availability of and access to quality laboratory services (Ndiokubwayo *et al*, 2010). This has contributed to delayed or ‘inappropriate’ responses to epidemics, and disease control as well as patient management (Ndiokubwayo *et al*, 2010). Alarming, the majority of the estimated 12 million annual deaths in sub-Saharan Africa are still uninvestigated (Ndiokubwayo *et al*, 2010).

Ndiokubwayo *et al* (2010) explain that only a few laboratories have the ability to diagnose highly infectious diseases like viral haemorrhagic fever, severe acute respiratory syndrome, and pathogenic avian influenza virus (including A/H5N1) despite the severe threat of emerging and re-emerging pathogens. Countries ship specimens to other regions for confirmation, which causes a delay in terms of responses to outbreaks (Ndiokubwayo *et al*, 2010). The availability of centres of excellence or public health reference laboratories that provide diagnostic services for such highly infectious diseases is part of the challenges that many countries face (Ndiokubwayo *et al*, 2010). An illustration of the above is that an evaluation of the results of the external quality assessment scheme that was conducted in the African Region showed that several laboratories experienced difficulties in terms of identifying common bacteria like *Vibrio cholerae* and *Shigella* (Ndiokubwayo *et al*, 2010). This can be attributed to the absence of national quality control systems and special culture media as well as other essential reagents (Ndiokubwayo *et al*, 2010). The insufficiency of biosafety and biosecurity equipment and guidelines, poor coordination and lack of laboratory personnel in public health policy development and implementation are further challenges (Ndiokubwayo *et al*, 2010).

Ndihokubwayo *et al* (2010) argue that highly qualified health workers are not particularly interested in laboratory sciences due to the poor incentives and working environment. A survey conducted in 2003 through the external quality assessment programme revealed that a minimal number of laboratories were supervised by senior microbiologists and pathologists (Ndihokubwayo *et al*, 2010). The brain drain as well as the availability and maintenance of laboratory equipment are further challenges (Ndihokubwayo *et al*, 2010).

## **2.6. Conclusion**

Due to the lack of data on public and private sector mobility, specifically for medical laboratory specialists, a national and global literature review was conducted. The sub-sections within this chapter have provided a broad overview of the topics investigated. International and national literature was reviewed in an attempt to develop a perspective on local mobility and related issues. It can be concluded that health workers are migrating globally, and that the value of their skills is constantly growing. A detailed understanding of the public and private sectors is necessary in order to locate the study. Issue relating to the public and private health sectors in South Africa have been addressed. The chapter ended with a discussion of the significance of medical laboratory medicine in the diagnosis of conditions or illnesses, as well as the current shortage of medical laboratory specialists. It can be inferred from this discussion that medical laboratory specialists is indeed vital in the chain of health care and that their shortage is cause for grave concern. More in-depth information on medical laboratory specialists, as well as the research questions and the principal theory behind this study will be the focus of chapter 3.

## **Chapter 3**

### **Theorizing the Labour Market for Medical Laboratory Specialists**

#### **3.1. Introduction**

This chapter seeks to explore the research questions of this study (*See section 1.1*) in conjunction with the literature review. The purpose of this chapter is to create a framework to answer the following research questions: a.) What are the labour markets for medical laboratory specialists in KwaZulu-Natal? b.) What are the causes of the private-public and public-private mobility of medical laboratory specialists? c.) What is the extent of the labour market mobility of KwaZulu-Natal medical laboratory specialists from the public to the private sector and *vice-versa*? d.) How does this mobility impact on the KwaZulu-Natal health care system? e.) To what extent can Lee's (1966) push-pull theory of migration be adapted to account for the labour market mobility of these specialists?

Section 3.2, which profiles the labour market for medical laboratory specialists in South Africa, examines global and national statistics relating to this labour market. Issues of race and gender are dealt with under section 3.3. Section 3.4. deals with the private-public mobility of medical laboratory specialists and health professionals in general and relates this to the research question on the extent of mobility between the sectors.

The causes of such mobility and migration of health workers at large, which relate to the research question concerning the causes of the private-public mobility of medical laboratory specialists, are covered in section 3.5. Section 3.6. examines the effects of the migration of health professionals, including doctors, and its impact. It also explores the mobility of health workers, including medical laboratory specialists. This section relates to the research question on the effects of private-public mobility on KwaZulu-Natal's health system of South Africa. Section 3.7. examines the National Health Insurance plan (NHI), a policy that is the subject of intense debate but is also very close to implementation. This will have a significant effect on public and private sector health care systems.

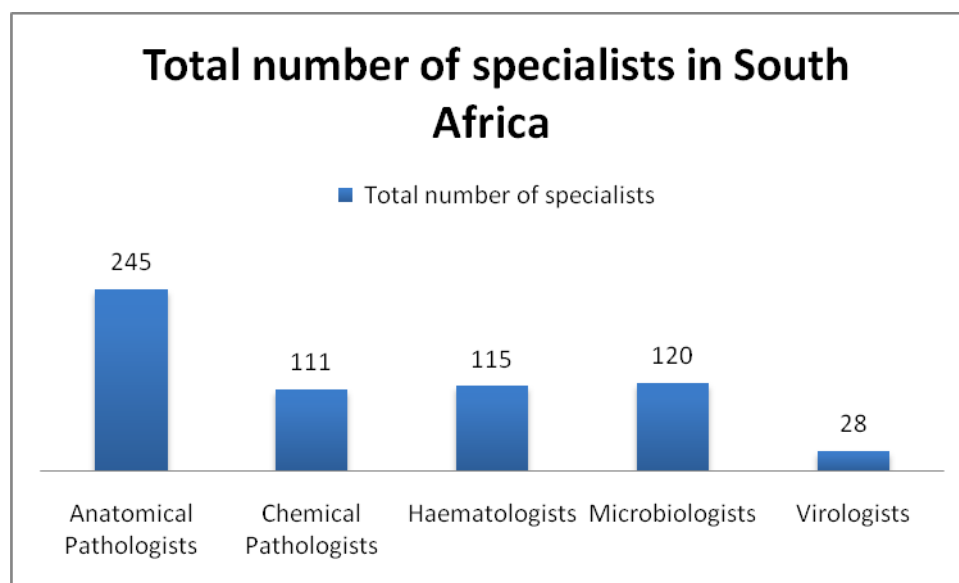
Section 3.8. which focuses on HIV/AIDS in South Africa, is essential in any health-related study, especially in the country that accounts for highest number of HIV infected people in

the world. The section analyzes HIV/AIDS statistics as well as the impacts of this pandemic on the country. It examines the role of medical laboratory specialists in this pandemic. Lastly, the principal theory of this study, that is, Lee's (1966) push-pull theory is discussed in terms of its relevance to this study. This is outlined in section 3.9, followed by the conclusion to this chapter in Section 3.10.

### 3.2. Profiling the labour market for Medical Laboratory Specialists in South Africa

According to the Health Professionals Council of South Africa (HPCSA) (2010), there are 744 medical laboratory specialists in South Africa. The total numbers of each specialization of medical laboratory medicine are as follows: 245 anatomical pathologists, 115 haematologists, 111 chemical pathologists, 120 microbiologists, and 28 virologists (HPCSA, 2010) as depicted in Figure 3.1.

**Figure 3.1: Total number of medical laboratory specialists in South Africa**



*Source: HPCSA (2010)*

However, although these statistics are helpful in providing an idea of the labour market, they should also be treated with caution<sup>1</sup>, due to the apparent inconsistencies in the totals in some cases once added (See Breier and Erasmus, 2009; and Ryan, 2011). Furthermore, it is not

<sup>1</sup> Data may be questionable at this point although it had been sourced from the HPCSA. The researcher's fieldwork shows slight differences (See Chapter 4).

known whether those specialists that are registered with the HPCSA are currently in South Africa or are practising outside the country. Only those who leave from South African airports are captured. Those that leave to travel and stay abroad permanently are not captured (Breier and Erasmus, 2009). As Breier and Erasmus (2009) observe, data is sometimes inaccurate. Moreover, data is categorised as independent practices and private practises, making it difficult to determine the true situation, as well as the difference between the categories. In addition, this study is based on provincial populations for KwaZulu-Natal (KZN) as shown in table 3.1. below.

**Table 3.1. Total population of medical laboratory specialists in KZN**

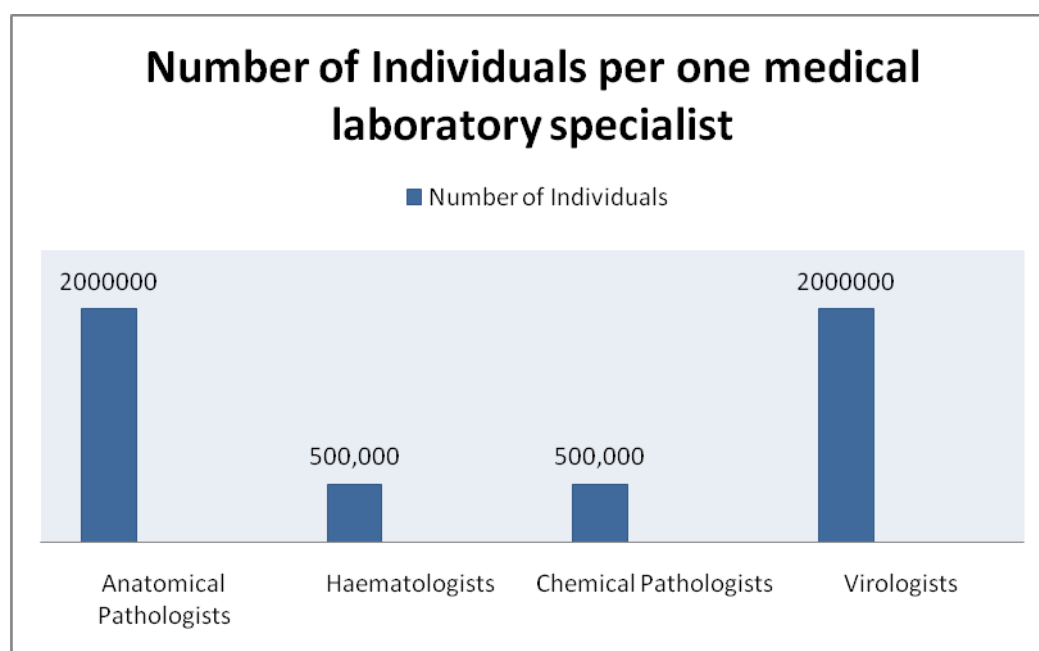
Speciality	Haematologists	Anatomical Pathologists
<b>Total Population (KwaZulu-Natal)</b>	<b>11</b>	<b>28</b>

*Source: HPCSA (2010)*

Breier and Erasmus (2009)'s study found that 85% of South Africans rely on the public sector, in which only 41% of doctors work, while the private sector covers the 15% of the population that has access to medical aid, yet employs 59% of all the doctors available (Breier and Erasmus, 2009). This is a clear indication of the unequal workforce in the two sectors. Clemens and Pettersson (2008, cited in Breier and Erasmus, 2009) used census data to establish that an astounding number of 65 000 African-born doctors are working overseas in nine different countries, along with 70 000 African-born nurses. The 47 sub-Saharan African nations have a total of 87 medical schools; however, 11 do not have a medical school, and 24 countries have one each (Hagopian *et al*, 2004).

As discussed in chapter 2, South Africa has an alarming shortage of physicians compared to many other countries (WHO, 2010; *see chapter 2*). In terms of medical laboratory specialists specifically, figure 3.2 illustrates the shortage of pathologists in South Africa.

**Figure 3.2: Number of individuals per medical laboratory specialist category in South Africa**

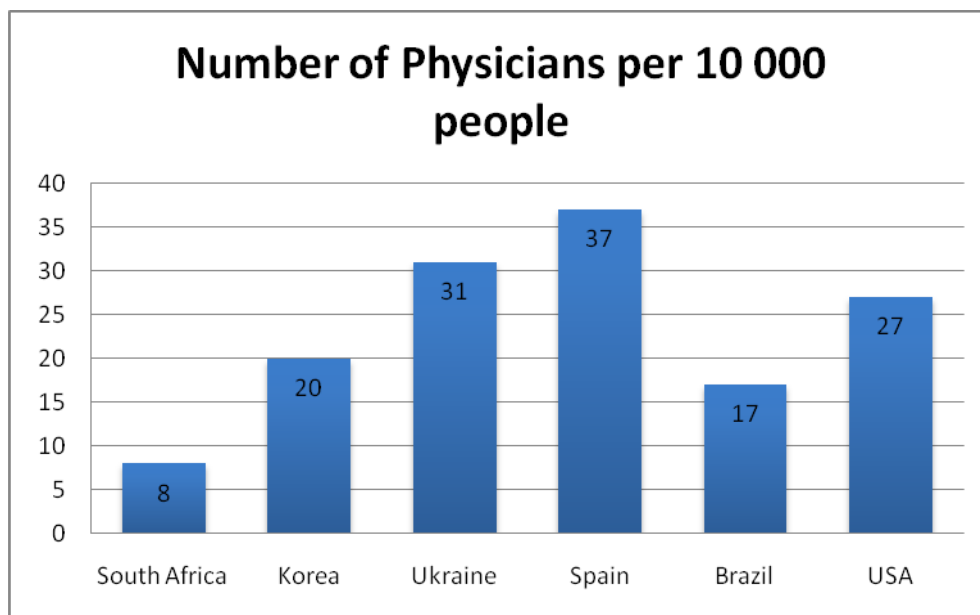


The total population of South Africa as at mid-2011 stands at 50.59 million people (StatsSA, 2011). Using this total, together with the totals of the different categories of medical laboratory specialists in South Africa from the HPCSA (2010), the researcher derived the number of persons per medical laboratory specialist within the country, as depicted in Figure 3.2. There is approximately one anatomical pathologist per two million people in South Africa. In addition, there are 500 000 people per haematologist, with the same ratio applying to chemical pathologists. Finally, there are two million people per virologist in the country. These figures provide a picture of the extreme shortage of medical laboratory specialists in South Africa.

In addition, an international comparison of physicians per 10 000 people in select countries is made to indicate the shortage in South Africa (*see figure 3.3. below*). The literature suggests that South Africa is lagging behind in terms of its health care workforce (*see figure 3.3*). Brazil, a semi-periphery country like South Africa, has 17 physicians per 10 000 people (WHO, 2011). The United States of America has approximately 27 physicians per 10 000 people (WHO, 2011). Interestingly, countries that have populations comparable to South Africa, such as Korea with 48 333 million people, Ukraine with 45 708 million, and Spain with 44 904 million, all have a higher number of physicians per 10 000 people (WHO, 2011) than South Africa, with 50.59 million people (StatsSA, 2011). Korea has 20 physicians per 10

000 people; Ukraine has 31 physicians per 10 000 people; and Spain has 37 physicians per 10 000 people (WHO, 2011). This is a stark indication of the serious shortage of physicians in South Africa which displays 8 physicians per 10 000 people. Using the WHO (2011), the figure below was derived by the researcher to show the international comparison of physician populations across the various countries.

**Figure 3.3. Number of physicians per 10 000 people (Inclusive of countries with population totals nearest to South Africa's)**



*Source: World Health Statistics, World Health Organization, 2011*

According to the HPCSA (cited in Hudson, 2011), 37 333 doctors were registered to practise in South Africa as at 1 April 2011. Of these, 12 238 are registered specialists (HPCSA, cited in Hudson, 2011). The HPCSA as well as colleges of medicine are unable to provide figures for what proportion of these 37 333 doctors are overseas at present, permanently or temporarily (Hudson, 2011). Two thousand four hundred new doctors will need to be trained each year just to stay on track (Hudson, 2011). South Africa has 5 000 specialists, but requires 13 000 (Hudson, 2011). Breier and Erasmus (2009) add that the statistics do not take into account the doctors who are registered, but are not practising. These doctors could be out of the country, retired or inactive, yet they are included in the total number of registered doctors.

The National Health Laboratory Services (NHLS) is the largest employer of medical laboratory specialists in the public sector. A transformation process initiated in June 1999 aimed to bring together public health laboratory services that were fragmented, and avoid duplication of services that caused wastage (Department of Science and Technology, 2011). Most importantly, the transformation process aspired to develop a world-class health laboratory service that would be accessible to all South Africans (Department of Science and Technology, 2011). The NHLS was founded under a 2001 Act of Parliament (NHLS, 2011) and was a merger between the South African Institute for Medical Research (SAIMR); the National Institute for Virology; the National Centre for Occupational Health, universities and provincial pathology laboratories (NHLS, 2011). The NHLS is involved in public health initiatives through epidemiology, and surveillance and outbreak response activities, as well as the national antiretroviral roll-out programme (NHLS, 2011). It also aims to improve laboratory medicine through state-of-the-art technology (Medical Research Council, 2011). The NHLS comprises of four specialised divisions: the National Institute for Communicable Diseases; the National Institute for Occupational Health; the National Cancer Registry; and the Antivenom Unit (NHLS, 2011). The NHLS has about 300 laboratories, offering pathology services to all public clinics and hospitals (NHLS, 2011).

The NHLS provides diagnostic services to 80% of the population in public hospitals (NHLS, 2011). The NHLS's diagnostic laboratories are located in provincial and district hospitals in metropolitan centres as well as remote rural areas, and in hospitals associated with university medical schools (NHLS, 2011). In an attempt to create laboratory services that are more accessible and affordable, the NHLS has several priority programmes (NHLS, 2011). These focus on HIV/AIDS and Tuberculosis (Medical Research Council, 2011; NHLS, 2011). However, the key aims of the priority programmes lie in providing affordable and sustainable laboratory services to adults and children affected by HIV/AIDS; conducting constant research to maintain efficiency; increasing the activities of the NHLS in relation to fighting diseases such as HIV/AIDS; and training health personnel so the services will be sustained in the future (NHLS, 2011). Importantly, the NHLS offers a 'referral diagnostic' service for private sector providers for certain tests, including those that are costly (NHLS, 2011). Diagnostic services for environment-related services are also offered (NHLS, 2011).

The NHLS is strongly linked to research across a wide spectrum. These include pathology and surveillance (NHLS, 2011). The research agenda comprises of priority diseases in South

Africa such as HIV/AIDS, tuberculosis, malaria, pneumococcal infections, and occupational health, as well as screening for cervical cancer and malnutrition (NHLS, 2011).

Pathology Schools in which NHLS employees operate are based at the Universities of Cape Town, Free State, KwaZulu-Natal, Limpopo (MEDUNSA Campus), Pretoria, Stellenbosch, Witwatersrand, Walter Sisulu University for Technology and Science and the Oral Pathology Department of the University of the Western Cape (NHLS, 2011). Academic staff contributes enormously to the national and international medical literature. They also contribute to the medical welfare of citizens through research on the diseases that most affect South Africa (NHLS, 2011).

Although the NHLS finances itself extensively, research support grants are provided by the South African Medical Research Council, the Cancer Association of South Africa, the Poliomyelitis Research Foundation, the National Research Foundation, pharmaceutical companies, private donors and many other international institutions (NHLS, 2011).

The NHLS along with Universities of Technology has launched a teaching programme with the aim of training and developing medical technologists as well as technicians. This includes undergraduate and post-graduate health professionals (NHLS, 2011). The programme is administered through public health and pathology departments in public hospitals, and medical schools as well as dental schools (NHLS, 2011). The programmes are open to all kinds of pathologists, pathology medical scientists, technicians, technologists, and occupational health practitioners as well as staff (NHLS, 2011). These training programmes are based on anatomical pathology, haematology, chemical pathology, microbiology, virology, and immunology, as well as human genetics (NHLS, 2011).

A study by the Human Sciences Research Council (HSRC) in 2008 highlighted the shortage of medical practitioners by means of an analysis of the Department of Labour (DoL) database in which *Sunday Times Business Times* advertised 112 828 vacancies (Breier and Erasmus, 2009). Half of this figure was for professionals, with a third of these being for health professionals, 95% of which was needed in the public sector (Breier and Erasmus, 2009).

Hudson (2011) notes that there is a drastic shortage of health professionals in all disciplines, adding that far too many doctors have left the public sector and South Africa itself. Research studies show that there is no single reason that influences the exodus of health care professionals, but that this is rather due to a combination of factors (Hudson, 2011).

### **3.3. Race and Gender**

Race and gender are controversial topics. Research on these issues in relation to medical laboratory specialists and their connection to workplace issues is thin on the ground. South Africa's history is permeated by divisions based on race and gender (Coovadia *et al*, 2009). The possibility of certain specialities attracting more males than females and *vice versa*, and the effect this has on the shortage of medical laboratory professionals, requires investigation. Coovadia *et al* (2009) note that South Africa's apartheid history has had a harmful effect on the health of many citizens, and health policy and services. The differences in the rates of diseases and mortality between the different races are an indication of these inequities (Coovadia *et al*, 2009). Furthermore, Sanders and Chopra (2006) argue that while South Africa possesses wealth and technical and scientific capacity, its health indicators, as well as a range of social outcomes, are inferior when compared to other countries.

Breier and Erasmus (2009) note that there is a need to increase the number of women graduating as medical specialists. While the number of women graduates is increasing, the number enrolling for medical studies is increasing at a much slower rate (Breier and Erasmus, 2009). This is also the case in the United Kingdom (U.K) and the United States of America (USA) (Breier and Erasmus, 2009). It is said that it will take more than two decades for women to outnumber men in the medical profession (Breier and Erasmus, 2009).

The need to racially transform medical schools with an emphasis on graduating Black students from rural areas is not just a question of equity but also rests on the assumption that they will return practise in their communities (Breier and Erasmus, 2009). However, a former professor of medicine at UCT has warned that this may be a false assumption, as poor students have as much reason to migrate as any other students, due to extensive financial debt (*Financial Mail*, 2007, cited in Breier and Erasmus, 2009).

The number of Black and female graduates that attempt specialist training is also a cause for concern (Breier and Erasmus, 2009). Targets to increase the number of women specialists have been set (Breier and Erasmus, 2009). A case study by the HSRC at UCT's Medical School established that the number of female students were lower at postgraduate level than at undergraduate level (Breier and Wildschut, 2006, cited in Breier and Erasmus, 2009). Women were found to be concentrated in fields such as psychiatry, and paediatrics, rather than in fields like surgery (Breier and Erasmus, 2009).

### **3.4. Public-Private Mobility**

This sub-section highlights research into mobility from the public to the private sector and *vice versa*. There is a paucity of literature on this subject, particularly on medical laboratory specialists. Hansen (2011) notes that there is a lack of research on movement from one sector to another and adds that labour economics literature is based on job shifts and shifts in job type and industry; only a few of these studies focus on 'sector switches' (Su & Bozeman, 2009a). The public administration and public management literature tends to focus on why people work in the public and private sectors and examines the differences between the sectors (Boyne 2002; Rainey, 2009, cited in Hansen, 2011).

Furthermore, Breier and Erasmus (2009) highlight the difficulty of establishing and quantifying the exact level of emigration, due to under reporting. Official figures are based on the information given by doctors when they leave the country; however, Breier and Erasmus (2009) point out that this data is often inaccurate and inconsistent. Current and reliable data is needed in order to establish the level of labour market mobility of medical laboratory specialists. Stilwell *et al* (2004) and Khadria (2010) note that obtaining data on migratory trends is vital in order to manage health care worker migration.

During the early 1980s, approximately 40% of doctors worked in the private sector. A decade later, 62% of general practitioners and 66% of specialists worked in the private sector (Coovadia *et al*, 2009). The consulting rooms of many private specialists are located in private hospitals, where their patients are generally admitted, thereby increasing the mobility of doctors into the private sector (Coovadia *et al*, 2009). The IOM (2007) maintains that there is not only maldistribution between rich and poor countries, but also between the public and private sectors, as health personnel are increasingly moving from one sector to the other.

The Regional Network for Equity in Health in Southern Africa (EQUINET) (IOM, 2007) has voiced concern about the unequal distribution of health care professionals in favour of the private sector. However, establishing the precise extent of private-public mobility and *vice versa* of medical laboratory specialists in South Africa is hampered by a severe lack of data (Breier and Erasmus, 2009) and research.

Pillay (2009)'s comparative analysis of nurses in the public and private sectors found that 40% worked in the private sector and 60% in the public sector. Approximately 35% of respondents indicated that they intended to shift sectors within the next few years, while 30% maintained that they would most likely still be in their current positions in five years' time (Pillay, 2009). The current study will seek to establish similar intentions on the part of medical laboratory specialists, specifically anatomical pathologists and haematologists.

Muula (2005: 101-102), in his study on the shortage of health workers in the Malawian public health sector notes that the reasons for the shortage of public health care workers in southern Africa, is the high attrition caused by ill-health and deaths due to AIDS, and migration from the public to the private sector.

In an important case study on South Africa, the ICAD (2006) notes that, while South Africa is said to be a source for health workers in other countries, up to 80% of doctors working in South Africa's rural health sector are foreign (ICAD, 2006). The ICAD (2006: 4) observes that South African health workers are leaving the public sector and joining the private sector, where the working environment is more 'comfortable' and 'affluent'. This is an indication of the 'mal-distribution' between the public and private sectors (Chen *et al*, 2004).

Since the public sector provides for the health care needs of a larger percentage of the population than the private sector in South Africa, and since there is greater mobility out of the public health sector into the private health sector, the question arises: What is being done to retain medical laboratory specialists not just in the country but in the public health sector? Former State President of South Africa, Thabo Mbeki, implored the World Health Assembly to put an end to the outflow of physicians from poor countries to those that are more developed (Hagopian *et al*, 2004). In 1995, South Africa outlawed the recruitment of doctors from other Organization of African Unity countries. However, as Hagopian *et al* (2004) note,

after receiving their medical training in African countries, a significant number of physicians migrate to high-income countries.

Hansen (2011) discusses the issue of ‘sector switching’, a concept that only recently entered the discourse on public organizations (Bozeman and Ponomariov, 2009; Su and Bozeman 2009a; Su and Bozeman 2009, cited in Hansen, 2011). Hansen (2011) maintains that higher wages are a motivator for the shift to the private sector and that job security discourages medical personnel from sector switching.

The passion for flexible or flat organizations and the ability to open up avenues for creativity may also be motivational factors for mobility to the private sector (Hansen, 2011). On the other hand, switching into the public sector can open up new career opportunities and the chances of promotion (Hansen, 2011). Su and Bozeman (2009, cited in Hansen, 2011) explain that it is those in managerial positions who most often transfer to the public sector.

The mobility of human resources is linked significantly to the knowledge economy (Pogue, 2007). Mobility results in a series of impacts that are dependent on the systems between which it occurs (Pogue, 2007). Pogue (2007) discusses the different understandings of the term ‘mobility’, such as mobility of national, regional and sectoral systems, to name a few. This study focuses on mobility between sectors (Pogue, 2007: 5). Discussions on economic development often focus on sectoral employment, as employment in one or more sectors expands or declines as part of the economic growth process (Pogue, 2007: 5). Pogue (2007) however, highlights an issue of concern regarding the lack of mobility in South Africa from the informal to the formal sectors.

### **3.5. Causes of public-private mobility of medical laboratory specialists**

This sub-section focuses on several causes of mobility or migration between counties as well as the public and private sectors. As there is a lack of research on mobility between sectors, the causes of international migration, on which there is abundant research, may be used to denote possible reasons for local mobility between sectors. The migration of medical laboratory specialists has been the subject of several studies; however, research on the causes of the local mobility of medical laboratory specialists between the public and private sectors is limited, as outlined above.

The global economic crisis (Plebani, 2002; Khadria, 2010) has placed severe strain on public finances and this could affect the number of public sector workers being trained/recruited. The causes of migration are attributed to employment conditions and environments such as salaries, career advancement/development, working conditions, new technology, crime, poor public education, a deteriorating public sector, and the fragility of the South African economy (Chanda, 2002; Vertovec, 2002; Ward-Cook, 2002; Bach, 2003; Beckering and Brunner, 2003; Chen *et al*, 2004; Hagopian *et al*, 2004; Stilwell, 2004; Guidi and Lippi, 2006; Connel *et al*, 2007; Kuehn, 2007; Pogue, 2007; OECD Report 2004 cited in Breier and Erasmus, 2009; Allsop *et al*, 2010; Khadria, 2010). Chen *et al* (2004) explain that health workers, like many other employees in different fields of work, seek an improved way of life as well as more rewards and thus depart for richer countries, or ‘greener pastures’ as they are commonly referred to. Allsop *et al* (2010) emphasise that the decision to migrate is often associated with reasons such as the desire to gain additional experience. For example, Maistry (cited in, Hudson, 2011: 22) reports that a cytologist said that after having worked three years in Saudi Arabia, returning to South Africa “meant taking a few steps back professionally”. Hudson (2011) adds that one of the reasons that newly qualified specialists move into the private sector or leave the country is the unavailability of consultant posts in the public sector.

The IOM (2007) identified the following reasons for the mobility of health personnel from the public sector into the private sector: better salaries, enhanced working conditions, greater career advancement opportunities, and streamlined and responsive institutional procedures and regulations (IOM, 2007:10). These causes are similar to those for migration. Whether or not these are the reasons that medical laboratory specialists specifically, rather than health professionals in general, move into other sectors will be looked at extensively in chapter 5.

Stilwell *et al* (2004) argue that the decision on whether or not to migrate relies on personal circumstances that may change at any given time. Stilwell *et al* (2004) add, however, that it is still vital to take into consideration the social and economic context in which decisions are made. For instance, social unrest may be a factor that causes migration, as may government intervention. Collinson (2010) argues that it is the young adults that often migrate. At the local level, the possibility that age may be a cause for medical laboratory specialists’ mobility between the public and private sectors and *vice versa* should be evaluated.

South African authors such as Posel (2003: 4) argue that since the 1980’s, there has been an increase in the possibility of families at large, rather than simply individuals to migrate. Posel

(2003: 4) continues that the expectation that circular or temporary migration within South Africa would be replaced with people settling in places of employment on a more permanent basis. Migration plays a vital role in the process of social transformation and is influential in 're-shaping' communities and societies (Castles, 2000; Castles and Delgado-Wise, 2007: 6). In other words, migration is a product of integration of local communities and national economies (Castles, 2000: 269). Social networks also play an influential role in migration (Massey and Zenteno, 1999; Vertovec, 2002). Social networks provide guidance on desirable occupations and areas, psychological support, social and economic information, and in some cases even assist in allocating jobs, accommodation and the circulation of goods and services (Massey and Zenteno, 1999; Vertovec, 2002; Aguilera and Massey, 2003). The components of such networks such as the class profile, that is, the dimensions of power and social position are said to have a conditioning impact (Vertovec, 2002). Social ties in networks affect why people migrate, who migrates, the means of migration, and the destination, as well as future opportunities for physical and occupational mobility (Massey and Zenteno, 1999; Vertovec, 2002). Social networks and ties as a cause of the local mobility of haematologists and anatomical pathologists between the public and private sectors will be reviewed.

Local labour markets are connected through networks of 'interpersonal' and 'organizational' ties (Vertovec, 2002; Stilwell *et al*, 2004). Meyer (2001, in Vertovec, 2002) explains that links to earlier migrants provide potential migrations with ways of reducing the costs of migration by offering information, finance and job opportunities. This study will examine whether such 'causes' of the private-public sector mobility of medical laboratory specialists exist in the labour market for these specialists. The social environment may also be viewed as a casual condition for mobility (Pogue, 2007). Migration may be brought about through broader social influences. The market arbitrage model deals with the movement of the labour force to establish inter-market equilibrium (Pogue, 2007). This approach comprises of various disciplines such as the new economies of geography, urban economics and regional science (Pogue, 2007). Each of these approaches is primarily influenced by the economic activity of a certain physical location (Pogue, 2007). In terms of the market arbitrage model, social networks play a role in cost calculation (Pogue, 2007). The spatial-economic attractiveness of a location is also a cause for mobility.

Collinson (2010) stresses the importance of gender in the process of migration. Males are said to have a tendency to migrate, as they are the 'main earners' within their family

structures (Collinson, 2010: 8). However, Collinson (2010) adds that young ambitious, well-educated and career-driven women may also be inclined to access increased opportunities and freedom.

Studies by Kline (2003) Narasimhan *et al* (2004) and Pillay (2009), found the key dissatisfactors to be ‘non-supportive work environments’ as well as increased workloads. Chen *et al* (2004: 1986) highlight the importance of countries across the globe improving their working environments by way of reinforcing good practises to enhance the management of resources, provide sufficient access to supplies and facilities, and to develop incentives, both financial and non-financial, to retain and encourage health workers. Plebani (2002) notes that the introduction and continuous development of information technology and automation have enabled laboratory professionals to maintain optimum performance, as well as keep up with the speed of their work. Narasimhan *et al* (2004: 1470) point out that unsupportive working environments and low compensation ‘demoralize’ workers and may result in a shift to private practise either in the short-term or on a permanent basis. A study by Muula (2005: 104) emphasised the role of working environments for nurses. Trainee nurses are compelled to work and interact with senior nurses who, due to their superior qualifications and experience may belittle and ‘harass’ younger nurses (Muula, 2005). Such working environments are characterized by what Muula (2005) refers to as ‘interpersonal conflict’.

Narasimhan *et al* (2004: 1470) maintain that the quality of the work environment is deteriorating along with education and training that lack appropriate funding. Among other factors of dissatisfaction, professional development and recognition, as well as relationships with co-workers and peers were also cited (Pillay, 2009). Moreover, Pillay’s (2009) study revealed that remuneration and poor working conditions has been a cause of dissatisfaction for nurses. Remuneration specifically, has been a reason for the movement of nurses to the private sector. Private sector nurses were generally satisfied, and felt a sense of belonging in the communities where they worked, and felt that their working environment was safe. In contrast, public sector nurses were generally dissatisfied (Pillay, 2009). Pillay (2009)’s findings contradict general management literature, which indicates that public sector satisfaction has improved relative to the private sector over the years (Pillay, 2009).

Coovadia *et al* (2009) make mention of several ‘unfortunate’ policy decisions such as the voluntary severance packages offered to public sector personnel that resulted in the movement of skilled staff out of the public sector and into the private sector, international

agencies or even retirement. In the South African context, salary increases could stem the flow from the public to the private sector (Ryan, 2011). A study of the whereabouts of Wits graduates showed that 64% of those working in the private sector said that “income generating potential” was their reason for working in this sector (Ryan, 2011).

The NHR Plan (DoH, 2006a, cited in Breier and Erasmus, 2009) states that salary was not the only issue influencing doctors or health professionals to leave the country; other factors included deteriorating working conditions, increased workloads due to wider access to health care, exposure to HIV/AIDS as well as other forms of infectious diseases, lack of suitable equipment, and social and racial factors. In addition, insecurity and crime, affirmative action, poor public education, uncertainties about the future, the fragility of the South African economy, foreign recruitment, better salaries abroad, a deteriorating public sector, transferability of skills in OECD member countries, and integration into a knowledge based global economy that is competitive prompt professionals to migrate (Breier and Erasmus, 2009: 129).

### **3.6. Effects of public-private mobility on the health care system of South Africa**

To develop relevant and effective strategies, the effects of phenomena must be carefully evaluated. While there is overall evidence that migration between countries is taking place, Hagopian *et al* (2004) note that the data on the workforce in Africa as well as on health care systems are poor, which complicates efforts to determine the effects of physician migration on sending countries. There is also a lack of information on the effects of private-public mobility and *vice versa* of medical laboratory specialists on the health system. Hagopian *et al* (2004) explain that government and professional information systems in developing or low-income countries are poor and non-comprehensive. There is also a paucity of information on the private sector (Hagopian *et al*, 2004).

A number of studies have pointed out that work satisfaction is essential in ensuring high-quality care (Beckerling and Brunner, 2003; WHO, 2004; Pillay, 2009). According to Anyangwe and Mtonga (2007), health care workers are the ‘backbone’ of every health system, as well as the tool that facilitates the efficient implementation of health action for sustainable socio-economic development. Anyangwe and Mtonga (2007) add that the density of the health workforce is strongly associated with positive health outcomes. This means that

a shortage of health care workers influences the quality of health (Anyangwe and Mtonga, 2007; Maestad, Torsvik and Aakvik, 2010). Thus, it is vital to note the implications or effects of the mobility of medical laboratory specialists on the health care system in South Africa. Dynamic patterns in health worker migration impact on the supply and demand gaps in the labour markets of the destination countries (Bersch, 2003; Stilwell *et al*, 2004; Khadria, 2010). Hagopian *et al* (2004)'s study reveals that despite the fact that sub-Saharan African physicians represent only a small proportion of international medical graduates (IMGs) working in the USA, the impact of their migration on the sub-Saharan medical workforce is significant.

Once a health worker migrates, those that remain behind are under severe stress, as they now have to cope with an increased workload (IACD, 2006). The IACD (2006) notes that in some parts of Africa, where enormous numbers of public employees have quit to go overseas or moved from the rural areas to the cities, or left the health sector altogether, it is left to charitable or missionary workers to replace them. Beckering and Brunner (2003) highlight that the shortage of medical laboratory specialists results in the existing workforce having to do the same volume of work or testing that a fully staffed laboratory would. They are required to maintain the same turnaround times, which lead to exhaustion, burnout and the increased likelihood of errors (Beckering and Brunner, 2003; Bersch, 2003; Blanckaert, 2010).

Plebani (2002) notes that laboratory data has to be reliable, yet Bates and Maitland (2006) are of the view that establishing, maintaining and demonstrating the accuracy of laboratory testing is a challenge for many laboratories in sub-Saharan Africa. Petti *et al* (2006) concur, noting that the region lacks access to reliable diagnostic testing and that misdiagnosis commonly occurs. Unreliable and inaccurate laboratory testing result in additional unnecessary costs (Petti *et al*, 2006). Alarming, 12 million people die each year in sub-Saharan Africa, yet the cause of death in the majority of cases remains unknown (Petti *et al*, 2006: 377). Petti *et al* (2006) explain that these uninvestigated deaths are commonly ascribed to diseases such as AIDS, malaria, and tuberculosis. However, there is no laboratory confirmation (Petti *et al*, 2006). A Kenyan study revealed that 26% of children's deaths were caused by bacterial bloodstream diagnosed by means of a blood culture (Petti *et al*, 2006).

Quality assurance systems are highly expensive and only a small number of laboratories can afford them; these are usually tertiary or privately owned laboratories (Bates and Maitland, 2006). This is an indication of the disparity and differences between the public and private sectors. It is important to investigate whether this is the case in South African laboratories.

A systematic assessment of laboratory services conducted with integrated disease surveillance and response programmes showed that countries lack the minimum equipment that is required to ensure quality diagnosis (Ndiokubwayo *et al*, 2010). The lack of the required equipment and/or poorly maintained equipment resulted in unreliable laboratory results (Ndiokubwayo *et al*, 2010). Another challenge has also been inadequate funding, which hinders quality laboratory services (Ndiokubwayo *et al*, 2010). Initiatives such as laboratory partnerships and collaboration have assisted in the sustainability and upgrading of laboratory services for polio, measles and HIV programmes (Ndiokubwayo *et al*, 2010). However, not all countries are making use of such innovations to strengthen national public health laboratory systems (Ndiokubwayo *et al*, Kasolo, Yahaya, and Mwenda, 2010). This is a need to reinforce partnerships and collaboration in order to produce sustainable investment in laboratory services (Ndiokubwayo *et al*, 2010). Pillay (2009) notes that dissatisfied providers may deliver poor quality, and less efficient care. In addition, the ICAD (2006: 4) states that the loss of personnel results in a decrease in the quality and quantity of care, and hospital and health centre management, as well as the deterioration of the public health sector.

The evidence points to a positive correlation between professional satisfaction and patient satisfaction and outcomes (Pillay, 2009). Blegan *et al* (in Pillay, 2009) note a strong negative association between work satisfaction and stress, while Grieshaber *et al* (in Pillay, 2009) demonstrated that dissatisfaction led to frustration, which results in further physical, emotional and behavioural problems. It is clear that worker dissatisfaction may have a serious effect on the overall health care system. It is thus important to investigate whether this is the case for medical laboratory specialists. Pillay (2009) notes that most of the studies conducted in South Africa relate to individual organizations. He adds that there is a lack of current studies nationally, and that those that do exist used data collected prior to the socio-political transition and the transformation of the health system.

Bates and Maitland (2006) note that an article written by Petti *et al* (2006) on the provision of laboratory services in sub-Saharan Africa, does not include an African author. They go on to suggest that this might imply a shortage of advocates for medical laboratory services in sub-Saharan Africa. The current study therefore makes a contribution to the overall health care system by obtaining current data in a field of specialization, medical laboratory medicine that lacks attention, particularly as regards the public *versus* the private sectors (Stilwell, 2004; Pillay, 2009) in a South African context.

Chanda (2002) observes that foreign specialists from countries such as South Africa and even Portugal fill in for medical staff in Mozambique. The shortage of medical doctors and specialists can be attributed to this. Chanda (2002) and Kline (2003) maintain that should such outflows continue, they would have adverse effects on the equity, quality and availability of health services. Outflows of specialists not only result in shortages, but resources invested in their training are lost. South Africa pays to train medical personnel in its public medical and nursing schools; therefore, the financial losses that the country suffers as a result of the migration of its doctors and nurses are drastic (IOM, 2007).

Bhattacharya *et al* (2001) note that health workers report a gradual flow of poor patients from the private sector to free public clinics. This was reported to result in a delay in diagnosis ranging from one to six months, which results in increased disease transmission (Bhattacharya *et al*, 2001). In other words, mobility puts lives at risk. It is therefore important to investigate the mobility of medical laboratory specialists and uncover what the possible effects might be.

Pogue (2007) discusses the effect of mobility on efficiency. The effect of mobility of systems of innovation in particular concern brain drain as well as brain gain (Pogue, 2007). Brain drain can be described as the exodus of skills from less developed countries (LDCs) to more developed countries (MDCs) (Pogue, 2007: 16). According to the literature on LDCs, the migration of skilled human resources is harmful to the sending countries (Pogue, 2007). There is a loss of skills, education and public investment for the developing economy (Pogue, 2007). The effects on human resource development are termed brain gain (Pogue, 2007).

Mobility in a global context is a crucial factor driving economic growth in that it allows for an efficient allocation of the global stock of skills (Pogue, 2007: 19). Zucker *et al* (1998a,

1998b, cited in Pogue, 2007)'s analysis of biotechnology found that higher levels of human capital could be traced to higher rates of mobility. Pack and Paxson (1998, cited in Pogue, 2007) maintain that labour mobility is facilitated through knowledge transfers. Mobility also has an effect on social capital, which is not a new phenomenon (Meyer *et al*, 2001, cited in Pogue, 2007). Migration represents cross border migratory traditions with valuable social capital that is important for reconnecting socio-economic markets (Meyer *et al*, 2001, cited in Pogue, 2007).

### **3.7. National Health Insurance**

National Health Insurance (NHI) is a priority on many countries' health agendas (McIntyre *et al*, 2009). Its intention is to facilitate efficiency and the equitable distribution of financial and human resources, which will improve health outcomes for all (McIntyre *et al*, 2009). The cornerstone of NHI is to provide a single paper system of healthcare financing (Ncayiyana, 2009). This is regarded as more cost effective than if there are many competing medical aid schemes, as it reduces administration costs, duplication and profit taking (Ncayiyana, 2009). Revenues will be sourced from payroll tax, and matching employer contributions as well as state contributions for the segment of the population that is either unemployed or under-employed (Ncayiyana, 2009). Every South African will be obliged to sign up for NHI and register in a private practise or primary care facility, which will be remunerated *via* capitation (Ncayiyana, 2009). Interestingly, Ncayiyana (2009) states that private insurance will not be proscribed but will serve as a top-up cover over and beyond the NHI benefits package. The private sector will continue to exist, but as a contractual partner to NHI (Ncayiyana, 2009). Ncayiyana (2009) adds that NHI would be pointless if the current two-tier system remains in place.

The introduction of NHI was first mooted in South Africa during the 1940s by the Collie Committee of Enquiry and has since been debated extensively (McIntyre *et al*, 2009). The initial government proposal regarding NHI attracted much criticism (Botha and Hendriks, 2008). Health professionals and the National Treasury argued that it was too rigid and costly (Botha and Hendriks, 2008). However, the ruling African National Congress (ANC)'s Polokwane Conference in 2007 signalled the implementation of NHI (McIntyre *et al*, 2009). The debates of the past two decades have created a common understanding of the need for

NHI (McIntyre *et al*, 2009). According to Botha and Hendriks (2008), these include: it satisfies the fundamental principles of a unitary health system; it allows for the promotion of redistribution and sharing of resources among public and private sectors which meets South Africa's transformation agenda; and research reveals that South Africans are willing to contribute towards something that will provide for them as well as those that are less fortunate (Botha and Hendriks, 2008).

Compared to other countries, including those with similar patterns of economic development, South Africa has poor health status indicators (McIntyre *et al*, 2009). Income inequalities influence the health status of citizens (McIntyre *et al*, 2009). The 7% of GDP that is allocated to the health system is not providing sufficient value for money (McIntyre *et al*, 2009). McIntyre *et al* (2009) point out that another contributor to this inequality is that 47% of financial resources flow through medical schemes that serve only 15% of the population, whereas less than 40% comes from tax revenues for public sector services. The remaining 14% of funds are spent on out-of-pocket payments or co-payments by medical scheme members to GPs and pharmacies or by those without medical schemes who sometimes use primary care services in the private sector (McIntyre *et al*, 2009).

Under NHI, there will be a single pool of funds consisting of allocations from general tax revenue and mandatory contributors by formal workers and their employers (McIntyre *et al*, 2009). These funds will be used to purchase quality health care for all South Africans from accredited public and private providers. Those who opt for additional coverage through medical schemes are at liberty to do so. Thus, the key aim is to provide universal protection against health care costs whenever required (McIntyre *et al*, 2009). The Department of Health set a target of March 2010 to implement the necessary institutional and organisational structures (DoH, 2009/10). This was to be achieved *via* collaboration with all key stakeholders within and outside government. A key priority in implementation is to strengthen the public sector (DoH, 2009/10).

McIntyre *et al* (2009) argue that despite NHI having been on the policy agenda for a long time, there has been minimal public engagement (McIntyre *et al*, 2009). McIntyre *et al* (2009) add that the public will be the contributors and beneficiaries of such a system. McIntyre *et al* (2009) conducted a study in which data was obtained from a household survey to explore public perceptions on what changes are required in the public health system to

ensure the acceptability and sustainability of NHI and whether South Africans are ready to move towards NHI. The results of the survey revealed that the public was very negative towards public sector health. They even voiced concerns regarding the private sector. About 67% of respondents said that they would support health insurance if their monthly contributions were less than that of their current medical scheme (McIntyre *et al*, 2009). In addition, 71% of current medical scheme members agreed with this statement. This is an important finding as it implies that all South Africans are ready for change (McIntyre *et al*, 2009). McIntyre *et al* (2009) emphasize the importance of further research on public perceptions in designing the NHI. It is vital for the public to adequately understand how NHI works for its successful implementation.

### **3.8. HIV/AIDS**

An understanding of the HIV/AIDS pandemic is critical to any medical or social study. The following section examines the nature of this phenomenon as well as the role of haematologists in HIV/AIDS.

South Africa has the highest number of HIV-infected people in the world, which is up to 17% of the global burden (Cleary and McIntyre, 2010). The National Department of Health (DoH) estimated in 2005 that 5.5 million were living with HIV/AIDS (Breier and Erasmus, 2009). Tuberculosis is an opportunistic infection most associated with HIV/AIDS. HIV/AIDS has raised the mortality rate to 171 deaths among 100 000 people South Africa (WHO, 2010). In 2009, the WHO estimated that there were 5 800 000 people living with AIDS (WHO, 2011). Ploch (2011) concurs, stating that there are almost 6 million HIV positive people in South Africa. An approximate 18.1% of adult South Africans aged 15-49 were HIV positive in 2009 (Ploch, 2011). An alarming 1.4 million children in South Africa have been orphaned by HIV/AIDS (Ploch, 2011).

The Operational Plan for Comprehensive HIV/AIDS Care, Management and Treatment (DoH, 2003, cited in Breier and Erasmus, 2009) noted that the roll-out of anti-retroviral (ARVs) required an increase in health human resources (Breier and Erasmus, 2009). It was estimated that there was a need for 21 824 new staff members between March 2004 and

March 2008. Nine hundred and seventy-five additional doctors were required, and 6 822 nurses (Breier and Erasmus, 2009).

The capacity of laboratories has been strengthened in order to facilitate and deal with many issues, such as supporting programmes for poliomyelitis eradication, HIV/AIDS prevention and control, and the elimination of measles (Ndiokubwayo *et al*, 2010: 49). However, Ndiokubwayo *et al* (2010) argue that challenges persist.

Women are said to be disproportionately affected by HIV/AIDS, and Vass (2008) emphasises that it is vital to address this phenomenon before it disadvantages them even further. Vass (2008) notes that the effects of HIV can be harmful in that the age-sex distribution exacerbates performance challenges in human resource development. HIV/AIDS affects equity targets as well as attempts to redress deficits in education and training (Vass, 2008).

HIV/AIDS continues to have a negative impact on labour supply (Vass, 2008). Adults aged between 15-49 years, and women as well as youth are most affected (Vass, 2008). Women have a higher AIDS prevalence rate than men (Vass, 2008). The highest prevalence rate occurs among women aged 25-29, followed by those that are 30-34 years old (Vass, 2008). This has important implications for the labour market, as it is in this age range that labour participation peaks (Vass, 2008). HIV prevalence is found to be higher amongst older men between the ages of 25-44 (Vass, 2008). This has negative implications for skills acquisition and experience (Vass, 2008). Moreover, the World Bank found that it has negative effects on human capital and productivity (Vass, 2008). In the private sector, company surveys have established that HIV is more prevalent amongst those with lower skill levels (Vass, 2008).

The private sector is said to be greatly affected by HIV/AIDS (Shisana *et al*, 2003; Shisana *et al* 2005a, cited in Vass, 2008). Interestingly, the HIV prevalence rates for non-professional workers in the health sector are lower than the rate projected for the semi-skilled and non-skilled. Sanders and Chopra (2006) stress that the greater the ability of rich areas to maintain more resources for the treatment HIV, the wider the gap with public health services.

Haematologists play a crucial role in the lives of those living with HIV/AIDS. Agarwal (2005) explains that haematological abnormalities are the most common complications of HIV/AIDS. More than 65% of patients with HIV become anaemic at some point (Agarwal,

2005). However, anaemia is of a varied aetiology, thus needing substantial, artful work-up (Agarwal, 2005). Other haematological infections include neutropenia, thrombocytopenia, venous throm-embolism, haemophagocytic syndrome, AIDS related lymphoma such as primary effusion lymphoma, Castleman's disease, Hodgkin's disease and myeloma (Agarwal, 2005). The importance of haematologists in fighting the AIDS pandemic is clearly apparent. Recovery from anaemia is associated with a decreased risk of death. The association between thrombocytopenia and HIV infection has been established for more than 20 years (Agarwal, 2005). It arises in the early stages of HIV and can be seen before any manifestations of AIDS (Agarwal, 2005). AIDS related lymphoma is a late manifestation of HIV and is commonly present in the advanced stage of AIDS (Agarwal, 2005). The high prevalence of various haematological disorders serves as evidence of the dire need for haematologists.

A study by Erhabor *et al* (2005) emphasizes the importance of haematology in the HIV/AIDS pandemic. The results of this study suggest the need for routine monitoring of some haematological parameters among HIV/AIDS infected Africans before the use of highly active antiretroviral therapy in order to ensure that mortality and morbidity are reduced and that the quality of life is reinforced (Erhabor *et al*, 2005).

### **3.9. Principal Theory**

#### **3.9.1. Lee's (1966) Push-Pull Theory**

The core theory that will form the base of this study is Lee's (1966) push-pull theory. This section outlines the theoretical basis of this theory as well as its specific application to this study. Lee's push-pull theory will be applied to the mobility of medical laboratory specialists from the public to the private sector and *vice versa*. Since Lee's (1966) push-pull theory may appear dated, its relevance and modern application in recent studies will be illustrated. Although the network theory relates to this study to a certain extent, it will be excluded due to its international context that cannot be applied in terms of local mobility between sectors. The network theory maintains that networks are "sets of interpersonal ties that connect migrants, former migrants and non migrants in origin and destination areas through ties of kinship, friendship and shared community origin" (Massey *et al*, 1993: 448). Such networks or links are influential in decreasing the costs and risks of migration and subsequently, the 'expected

net returns' of migration are said to rise and thus motivate the process of migration (Massey *et al*, 1993). Although Lee's (1966) push-pull theory forms the main theory of this study, critiques do exist (Haas, 2008; Van de Kruk, 2009).

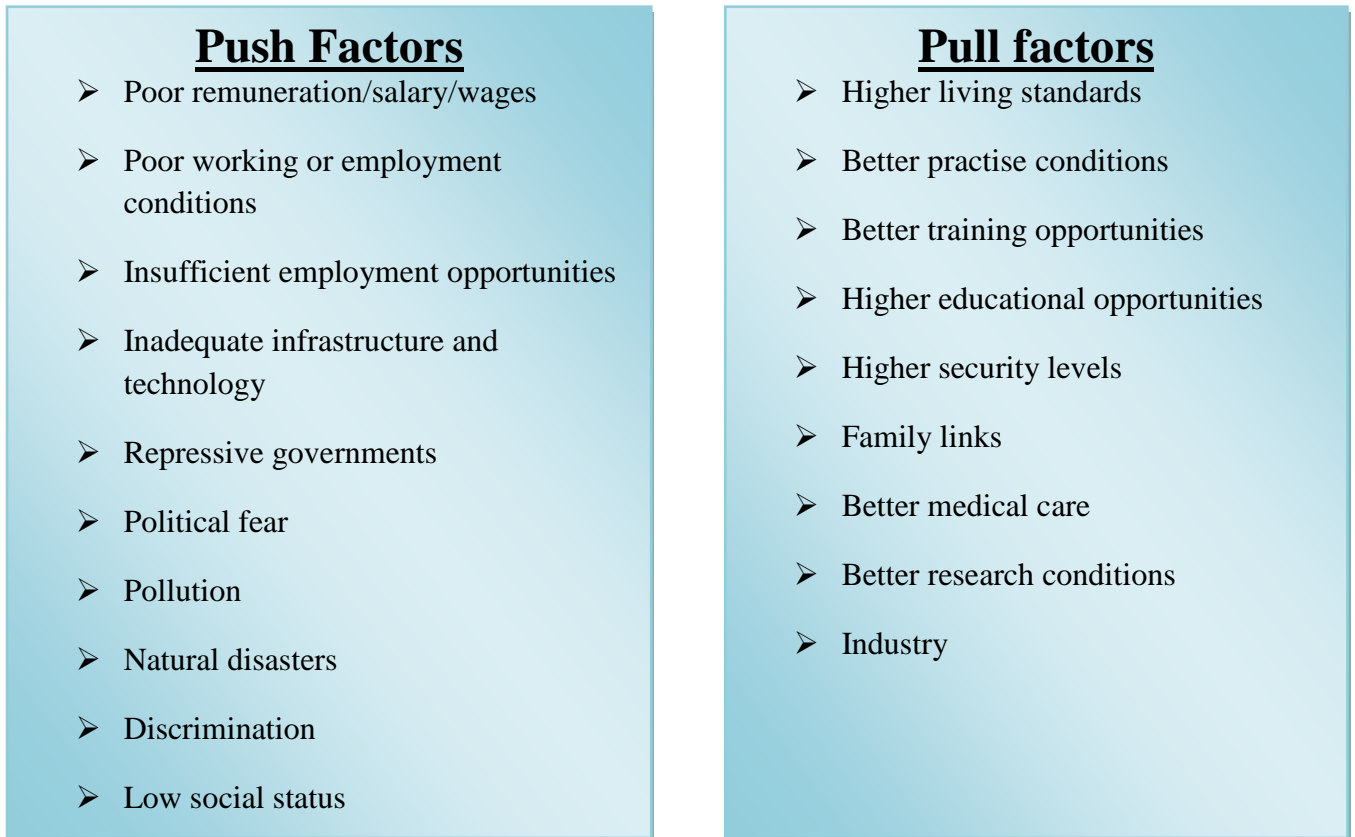
Lee (1966: 49)'s explanation of migration concludes that: "migration is defined broadly as a permanent or semi-permanent change of residence". Lee's (1966) theory has been used in recent studies and literature such as Kline (2003); van Dalen, Groenewold and Schorol (2004); Kirigia *et al* (2006); Oberoi and Lin (2006); Gubert and Nordman, (2008); Allsop *et al* (2009); Jones, (2009); Van der Kruk, (2009); Nelson, (2011) and Ryan (2011).

Interestingly, there is no restriction on the actual distance of movement or on the voluntary or involuntary nature of the act (Lee, 1966: 49). Moreover, there is no distinction between external and internal migration (Lee, 1966). "Thus, a move across the hall from one apartment to another is counted just as much an act of migration as a move from Bombay, India, to Cedar Rapids..." (Lee, 1966: 49). The current study examines mobility, rather than the commonly used term 'migration.' The latter part of Lee's (1966) definition is relevant to the context of this study as it investigates local mobility between the public and private sectors as opposed to international migration. Therefore, this theoretical concept is suitable for a study of this nature.

The foundation of Lee's theory was its division into two significant, yet distinctive categorizations of factors, whose name clearly emanates from the theory. Lee's (1966) push-pull theory consists of push factors as well as pull factors (Lee, 1966; Van der Kruk, 2009; Nelson, 2011), which will shortly be expanded on.

Meija, Pizurki and Royston (1979 cited in Kline, 2003: 108) add that migration is the result of the interplay of various forces at each end of the migratory axis. The main components, which Lee (1966) proposed influence the decision and process of migration, were "factors associated with the area of origin, factors associated with the area of destination, intervening obstacles, and personal factors" (Lee, 1966: 50). Figure 3.4. presents a description and basic summary of both push and pull factors that originated from Lee's push-pull theory.

**Figure 3.4: Based on Lee's (1966) Push-Pull Theory: International migration context**



*Source: Lee's (1966) push-pull theory*

Lee's (1966) theory maintains that within every area there exist factors, which either hold people back, or attract them. These can be categorized as 'push factors' and 'pull factors' respectively. As noted above, push factors are factors that 'push' people to migrate, whereas pull factors can draws them to an area or place of work (O'Rourke, 1972; Jenkins, 1977; Zimmermann, 1996; Oberoi and Lin, 2006; International Organization for Migration (IOM), 2007; Gubert and Nordman, 2008; Higgins, 2008; Allsop *et al*, 2009; Van der Kruk, 2009; Nelson, 2011). Datta (2004) explains that push factors have negative characteristics that function at the centre of origin, whereas pull factors are associated with positive characteristics. Allsop *et al* (2009) note that push factors move individuals to where employment best suits their training and education. Pull factors in the richer countries (or regions) are said to attract physicians (Hagopian *et al*, 2004 17). Pull factors include a.) Improved/higher living standards and practise conditions, b.) Training opportunities, c.) Educational opportunities, d.) Increased levels of security, e.) Family links, f.) Better medical

care as well as more advanced research conditions and g.) Industry, (Zimmermann, 1996; Hagopian *et al*, 2004: 17).

Push factors, or minus factors, refer to negative factors in the country of origin such as a.) Poor remuneration or salaries, b.) Deteriorating working or employment conditions, c.) Lack of decent employment and opportunities, d.) Inadequate infrastructure and technology, e.) Repressive governments, f.) Pollution as well as natural disasters and lastly g.) Discrimination and lower social status (Jenkins, 1977; Kline, 2003; Datta, 2004; Stilwell *et al*, 2004; Hagopian *et al*, 2004; Jones, 2009). Kline (2003: 108) describes these factors as “political, social, economic, legal, historical, cultural and educational.” The mobility of medical laboratory specialists will be assessed and investigated through similar factors.

A study by Gubert and Nordman (2008) investigated the factors causing migration to OECD countries out of Algeria, Morocco and Tunisia. “For factors concerning the home country, one refers to the so-called push factors; for those concerning the host country one uses the term pull factors” (Gubert and Nordman, 2008: 7). Gubert and Nordman (2008: 7) argue that key push factors for developing countries include population growth and unemployment, poverty as well as political instability. With regard to pull factors, Gubert and Nordman (2008) identifies them as better wage levels in receiving countries, social security systems, political stability, and interestingly, shared culture.

Lee (1966) explained that different types of people may react to the same sets of factors in either places of origin and destination differently (Lee, 1966; Nelson 2011). However, the opposite of this is also true. Lee (1966) stressed that there are classes of people that do respond or react similarly to the same set of factors. Moreover, Lee (1966) argued that it is impossible to specify the exact set of factors that may either attract or repel any given individual. In other words, not everyone makes choices based on similar motivations. A common example of this is the issue of level of salary/remuneration, a factor that causes many individuals to leave their home country, as outlined by the studies cited below. However, this factor is not equally important for all people in deciding whether or not to migrate (*See chapter 5*). The NHR plan (cited in Breier and Erasmus, 2009) stated that salary was not the only factor influencing the migration of South African doctors. HIV/AIDS, working conditions and workloads were also identified (DoH, cited in Breier and Erasmus, 2009). The study by Bezuidenhout, Joubert, Hiemstra and Struwig (2009) on the emigration

of South African qualified physicians makes reference to the push-pull theory, which reinforces its relevance. This study showed that salaries were not the sole factor that causes the migration of physicians. Approximately, 86.2% of respondents left South Africa for financial reasons, and 79.3% for improved job opportunities, while 58.6 percent wanted to experience something new based on personal preferences and 51.7% left due to high levels of HIV/AIDS (Bezuidenhout, Joubert, Hiemstra and Struwig, 2009). Hence, different factors influence different types of people. A study by Brugha *et al* (2010) revealed that the public-private migration of health workers in Zambia was caused by increased workloads. This study will thus investigate what factors motivate the mobility of medical laboratory specialists.

An essential part of Lee's (1966) push-pull theory is that the decision to migrate cannot be simply deduced by the mere weighing or evaluation of pros and cons, or rather, push or pull factors (Lee, 1966; Van der Kruk, 2009). These push and pull factors are referred to Lee (1966) as 'plus' or 'minus' factors. The "balance in favour of the move must be enough to overcome the natural inertia which always exists" (Lee, 1966, 51). Moreover, Lee (1966) adds that there are intervening obstacles between any two points. Such obstacles may once again be viewed and dealt with differently by different kinds of people; they may be minor to some, yet serious to others (Lee, 1966; Van der Kruk, 2009; Nelson, 2011). For example, the cost of transport as an obstacle may seem trivial to some, but very important to others (Lee, 1966).

Personal factors are influential in either promoting or prohibiting/slowing down the process of migration (Lee, 1966). Lee (1966) claims that personal factors are constant throughout the individual's life, whereas others are linked with life cycle stages. At the place of origin, personal factors such as personal sensitivities, intelligence, and awareness of conditions in other destinations enter into the situation (Lee, 1966). Furthermore knowledge of the situation at the destination is said to rely on personal contacts, or sources of information that are not universally accessible (Lee, 1966). Personality differences also affect the migration process, as there are those that are more prone to and welcome change for the sake of change and others that are resistant and reluctant to change (Lee, 1966). Some must be compelled to migrate whilst others require minimal provocation or encouragement to migrate (Lee, 1966). The factors that influence migration can be education, entrance into the work force, economical fluctuations, marriage or divorce, and retirement, (Lee 1966).

Lee (1966) viewed the migration process as being selective due to factors such as age, gender, and social class. These affect workers' responses to push-pull factors, or plus or minus factors, as some may have a different sets of means to respond from others. This research study explored how valid this theory is in addressing the issues surrounding the private-public labour market mobility of medical laboratory specialists. In applying and evaluating this theory, only certain facets were feasible. For instance, the case study looks at labour markets and the mobility of medical laboratory specialists locally; therefore, only specific push and pull factors of Lee's (1966) theory were applicable. The focus was on factors such as the nature of the working environment, resource availability, training opportunities, salaries/earnings rates, working conditions and research conditions as causes of the private-public labour market mobility of medical laboratory specialists, as opposed to push factors such as natural disasters or wars.

More recent applications of the push-pull theory include the study by Oberoi and Lin (2006) who identified various push and pull factors that lead to migration from southern Africa. The endogenous factors included poor remuneration, HIV/AIDS, inadequate further education or career development, and poor working conditions (Oberoi and Lin, 2006). The exogenous factors were a poor quality of life, high levels of crime, civil conflict and social pressure (Oberoi and Lin, 2006). During the course of this study, the South African participants highlighted their concern over push factors such as HIV/AIDS as well as the lack of support in the workplace, including education and counselling (Oberoi and Lin, 2006).

In an attempt to identify the reasons why health professionals, specifically doctors, opt to leave developing countries, and the effects of such action on the original and receiving countries, as well as ways of overcoming these challenges, Ryan (2011) makes reference to push and pull factors. This demonstrates the continuing relevance of Lee's push-pull theory. According to Ryan, (2011: 8) push factors include high rates of crime or unsafe working conditions; low salaries/wages; job dissatisfaction; human rights violations, ethnic or religious tension, political persecution, wars, and economic collapse. Crime is said to be the most important push factor for health professionals (Ryan, 2011). Official statistics provided by the South African Police for 2007 and 2008 was 38 murders per 100 000 people, compared to 5.6 murders per 100 000 in the US (Ryan, 2011). South Africa's murder rate is therefore seven times higher (Ryan, 2011). Job dissatisfaction relates to high unemployment

rates, frozen posts, and nepotism in recruitment, as well as promotions, lack of motivation or supervision, limited career opportunities and inadequate equipment. Stressed health systems and the high prevalence of HIV/AIDS cause burn out, prompting health workers to leave the country (Ryan, 2011). Aside from the pull factors that have already been mentioned above, Ryan (2011) also makes mention of ‘grab factors’ that can be classed as a pull factor. According to Ryan (2011), grab factors refer to aggressive recruitment by other countries. Ryna (2011) adds that this might be a factor for South African doctors, whose high quality training (Bezuidenhout, Joubert, Hiemstra and Struwig, 2009; Ryan, 2011) is valued in other countries.

In the South African context, several studies imply that South African doctors are influenced to a great extent by push factors (Ryan, 2011). A study of 653 South African doctors living in Australia, found that 93% of the respondents emigrated due to their intention to leave South Africa, rather than because of the attraction of pull factors in Australia (Ryan, 2011). Again, this study revealed that crime and safety issues were the most influential push factor after 1990 (Ryan, 2011).

A practical example of how the push-pull theory of migration might apply in the case of health workers are presented in the study by Kingma (2001, cited in Kline, 2003) who stressed that nurses migrated in search of better prospects for professional development that were unavailable in their current job or country. This is an example of an educational pull factor (Kline 2003). Secondly, nurses migrated in order to obtain improved working conditions as well as living standards; this indicates economic and social push and pull factors (Kline, 2003). Similarly, Jenkins (1977)’s study on push and pull factors from Mexico to the USA revealed that Mexican workers wages in the US are double those in Mexico. Korte *et al* (cited in, Stilwell *et al*, 2004)’s study on health care workers in four developing countries in Africa concluded that low job satisfaction and motivation act as push factors to migrate.

### **3.10. Conclusion**

Each sub-section within this chapter had a specific focus and relates to the research questions of this study. The key research questions that were researched in this chapter were the extent of the labour market mobility of medical laboratory specialists from the public to the private sector and *vice versa*; labour market statistics for medical laboratory specialists specifically;

the causes of private-public mobility and *vice versa* of medical laboratory specialists; the impacts/effects of this mobility on the South African health system overall; and lastly, the extent to which Lee's (1966) push-pull theory of migration can explain the labour market mobility of these specialists. Lee's push-pull theory was found to be the most fitting, as the push and pull factors have the potential to match the possible reasons for mobility between local sectors of medical laboratory specialists. Recent studies have illustrated that this theory is still relevant today. The section on the NHLS provided information on this institution as it relates to the employment and training of medical laboratory specialists in South Africa. The NHI policy was also discussed, as it is a priority on South Africa's health agenda. The role of medical laboratory specialists in combating fatal diseases was outlined, using haematologists and HIV/AIDS as an example. Chapter 4, which discusses the methodology of this study, including the tools, mechanisms and strategies used in conducting the research, follows.

## **Chapter 4**

### **Methodology**

#### **4.1. Introduction**

For purposes of re-iteration, the aim of this study is to investigate the extent of the private-public mobility of medical laboratory specialists, the causes and effects of such mobility in KwaZulu-Natal and how Lee's (1966) push-pull theory can be adapted to the study. This chapter presents the research methods, techniques and procedures that utilized for study. This chapter consists of eleven sub-sections; the philosophy of research; the advantages of qualitative research; the research design; sampling; the research questions; data collection; triangulation; data analysis; the limitations of research project; ethical issues and a conclusion. A detailed background on research concepts, methods and techniques is provided in every section.

#### **4.2. The Philosophy of Research**

Research is the process of finding solutions to a problem following an in-depth study as well as analysis of the relevant situational factors (Sekaran, 2003: 3). Saunders, Lewis and Thornhill (2003) note that research is undertaken in order to find things out in a systematic way and subsequently increase one's knowledge. Saunders, Lewis and Thornhill (2003) explain that research involves a thorough explanation of the methods used to collect data. This is useful in explaining why the results obtained are meaningful (Saunders, Lewis and Thornhill, 2003).

The discipline of industrial sociology has historically been associated with research centred on organised labour, organisational change, workplace restructuring and globalisation. This has indeed contributed significantly to the world of research in the social sciences. However, Standing argues that labour economists have presented very little research on occupational labour markets (<http://www.youtube.com/watch?v=YeQHgLS1WZI>). Standing adds that information on occupations is absent even in mainstream books (<http://www.youtube.com/watch?v=YeQHgLS1WZI>). The current study will therefore aim to add value to several disciplines by focusing on occupational labour markets. While aligning itself with labour studies by way of researching labour markets, this study will differ from

general studies within the discipline, as it investigates the shortage of not just popular categories of workers, or health workers such as doctors and nurses that have been covered extensively in numerous studies (Chen *et al*, 2004; Muula, 2005; ICAD, 2006; IOM, 2007; Pillay, 2009; Allsop *et al*, 2010), but focuses on labour markets for specialists such as haematologists and anatomical pathologists in the medical field. It will thus add to the scarce literature on occupations. Furthermore, it will explore variations in the labour markets of medical laboratory specialists in both the public and private sectors. In this way, the study will add value to the discipline of labour studies whilst building a link to medical research studies and to health care workers, as well as South Africa's overall health care system. In essence, this study is unique in terms of being an example of pioneering research that aims to close the gap between industrial, organizational and labour studies, human resource management and medical sociology.

#### **4.3. Qualitative Methods, Quantitative Methods and Mixed Methods**

The three types of research methods that are commonly used in research are known as qualitative, quantitative, and mixed methods. The qualitative approach was used for the purposes of this study. Bryman and Bell (2007) define qualitative research as being more associated with words than numbers. As defined by Denzin and Lincoln (2005, in Creswell, 2007), qualitative research is a situated activity that locates the observer in the world and consists of a set of interpretive and material practises that make the world visible. They turn the world into a series of representations comprising of field notes, interviews, conversations, photographs, recordings and memos to one's self (Denzin and Lincoln, 2005, cited in Creswell, 2007). Qualitative research has an interpretative and naturalistic approach to the world (Creswell, 2007). Qualitative researchers study things in their natural settings in an attempt to understand and make sense of phenomena according to the meaning ascribed to them by people (Denzin and Lincoln, 2005, cited in, Creswell, 2007). Creswell (2007) explains that qualitative research is executed by means of a theoretical lens with the research questions inquiring and exploring the meanings that individuals assign to a human problem. Qualitative researchers use a qualitative approach to inquiry, with data collection in a natural setting that is sensitive to people as well as the places under study. Data analysis is inductive, with patterns and themes that emerge (Creswell, 2007).

This study employed qualitative methods in order to investigate whether a link exists between theory and practise. Specifically, it explores whether Lee's (1966) push-pull theory is accurate in accounting for the concerns surrounding private-public mobility. Qualitative research has also rejected the practises and principles of the natural scientific model and positivism; rather it focuses on and emphasises ways in which individuals interpret their social world (Bryman and Bell, 2007). In light of the meaning that individuals assign to different factors, it was important for this study to investigate and highlight the views and ideas of participants themselves, as they face challenges in the field of laboratory medicine daily. It was in this regard that it was deemed that qualitative methods were best suited for the study. It should be noted that Bryman and Bell (2007) maintain that qualitative research encompasses a view that social reality is a continuously 'shifting property' of an individual's creation.

Bryman and Bell (2007) highlight four traditions of qualitative research: naturalism, ethnomethodology, emotionalism, and postmodernism. Naturalism involves understanding social reality on its own terms and allows for the provision of descriptions of people and interaction in natural settings (Gubrium and Holstein, 1997 cited in Bryman and Bell, 2007). Ethomethodology focuses on the understanding of the creation of the social order through talk and interaction, while emotionalism involves subjectivity and inside experience (Gubrium and Holstein, 1997 cited in Bryman and Bell, 2007). Lastly, postmodernism is concerned with 'method talk' and is sensitive to the various ways that social reality can be constructed (Bryman, 2004; Gubrium and Holstein, 1997 cited in Bryman and Bell, 2007).

This study adopts a qualitative approach due to the nature of information required. There was a need for in-depth and thorough interviews to explore the causes and reasons for mobility between private and public sectors and *vice versa*. Quantitative methods might not have achieved this purpose as efficiently, as quantitative methods such as surveys and closed-ended questionnaires provide respondents with limited choice of options. Qualitative interviews have enabled the researcher to probe and add new questions during interviews, as opposed to the fixed standardization of quantitative methods such as questionnaires. This case study was of an exploratory nature hence it employed qualitative research, which allows for the development of an understanding of the meaning and experience of people and their social worlds (Folley *et al*, 2002).

Quantitative research entails the collection of numerical data and exhibits a deductive view of the relationship between theory and research, and a predilection for a natural science approach, as well as maintaining an objectivist approach towards social reality (Bryman, 2004: 62; Bryman and Bell, 2007). Quantitative research involves collecting primary data from large numbers of individual units, and often applying the results to wider populations. In essence, the strength of quantitative research is that it is 'generalisable' (Coldwell and Herbst, 2004; Terre Blanche, Durrheim and Painter, 2006). Quantitative data ranges from simple counts such as the frequency of occurrences to more sophisticated data such as test scores and prices (Saunders, Lewis and Thornhill, 2003). Furthermore, the collection and the classification of the numbers in relation to other facts as well as opinions allows the user of the data, which is known as 'information', to solve a problem (Coldwell and Herbst, 2004). There are four preoccupations in quantitative research (Bryman and Bell, 2007): measurement, casualty, generalization and replication. Because the population of medical laboratory specialists is minute, using quantitative methods, which are useful for the study of large populations, was deemed inappropriate.

Mixed methods refers to research that allows for the integration of both qualitative and quantitative research within one project; in other words, research methods that cross the two research strategies (Bryman and Bell, 2007). Both probability sampling, which provides external validity, as well as purposive sampling, to increase transferability is used in research (Teddle and Yu, 2007). Bryman and Bell (2007) emphasize that the qualitative and quantitative data that is derived from mixed methods research must be "mutually illuminating". They (Bryman and Bell, 2007) enumerate three methods for mixed methods research: triangulation, facilitation, and complementarity. Triangulation is the use of quantitative research to corroborate qualitative research; facilitation emerges when there is a need for one research strategy to support or aid another research strategy; and complementarity occurs when two research strategies are used in order that various aspects of a study can be merged (Hammersley, 1996, cited in, Bryman and Bell, 2007). This will be discussed further in section 7 of this chapter. Even though the broader project of this study uses mixed methods, this particular case study took the form of a qualitative study, as it is an exploratory study that investigated a small population of specialists in KwaZulu-Natal (KZN).

#### **4.4. Advantages of Qualitative Research**

Qualitative research provides a platform for researchers to examine and understand “complex phenomena” (Baxter and Jack, 2008). In-depth interviews are able to obtain more rich and detailed data (Boyce and Neale, 2006). Another advantage of qualitative research is that the participant may be more comfortable during an interview as opposed to filling out a questionnaire (Boyce and Neale, 2006). In-depth qualitative interviews facilitated the extraction of intricate information for this study. In addition, data collection procedures in case studies are not routinized as in structured surveys (Burton, 2000). Face-to-face interviews allowed for probing questions to be asked by the researcher on interesting, vital aspects and issues uncovered during the duration of the interview. It is important that interviews be recorded. Bryman and Bell (2007) note that researchers are not simply interested in what is being said, but also the way it is said. Digital recording of interviews facilitates this process. Face-to-face interviews also enabled the researcher to observe facial expressions and reactions to certain questions. Case studies are seen as a flexible method of conducting social science research that places emphasis on listening skills (Burton, 2000). Case studies are also helpful in exploring existing theories (Saunders, Lewis and Thornhill, 2003).

A thorough and repeated analysis of the qualitative data was essential for the purposes of this research project and have been developed through a thematic analysis in which the researcher could easily sought out relevant themes in relation to research questions of the study.

#### **4.5. Research Design**

A research design may be defined as providing a framework, structure or answers for both the collection and analysis of data (Bryman, 2004:27; Coldwell and Herbst, 2004). The research design of this study will take the form of a case study. Creswell (2007: 73) refers to case studies as being a qualitative approach in which the investigator explores a case over a certain period of time through the use of detailed, in-depth data collection that includes multiple sources of information such as observations, interviews, audio visual material, documents and reports, and thereafter ‘reports’ a case description or case-based themes. For a project of this nature, which explores intricate issues, a detailed research design that focuses on a highly specialised category of medical health scientists was required. The case study method was

appropriate for this particular project as it allowed for the study of a unique case and provided context to other forms of data, thus providing a holistic overview (Neale, Thapa and Boyce, 2006).

The selection of a specific research design illustrates the importance given to different facets of the research process; such reflections include generalizing to larger groups of people rather than focusing only on those that are technically part of the research; and understanding behaviour and its meaning in a particular context (Bryman, 2004: 27).

**Figure 4.5.1 Diagram of Broader Project linked to Case Study**

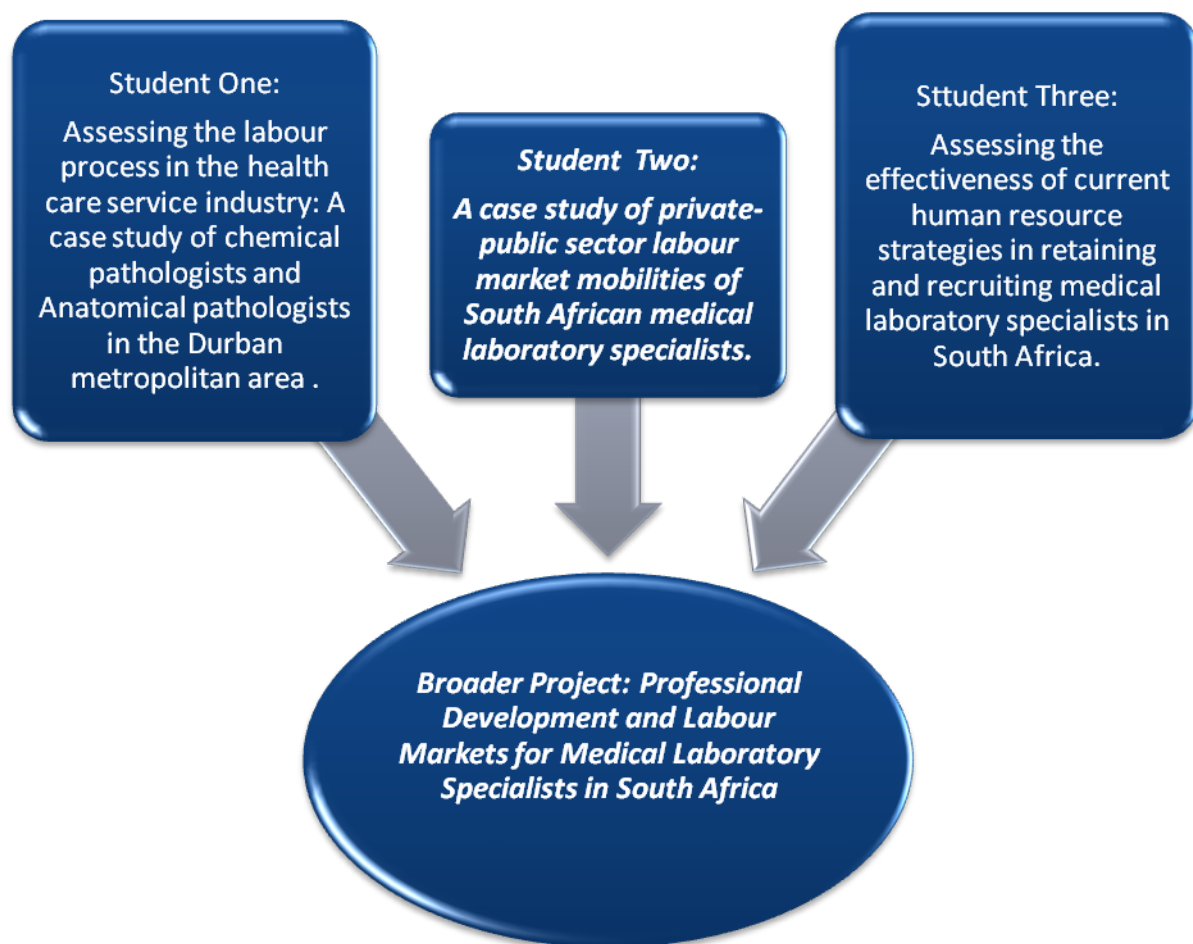


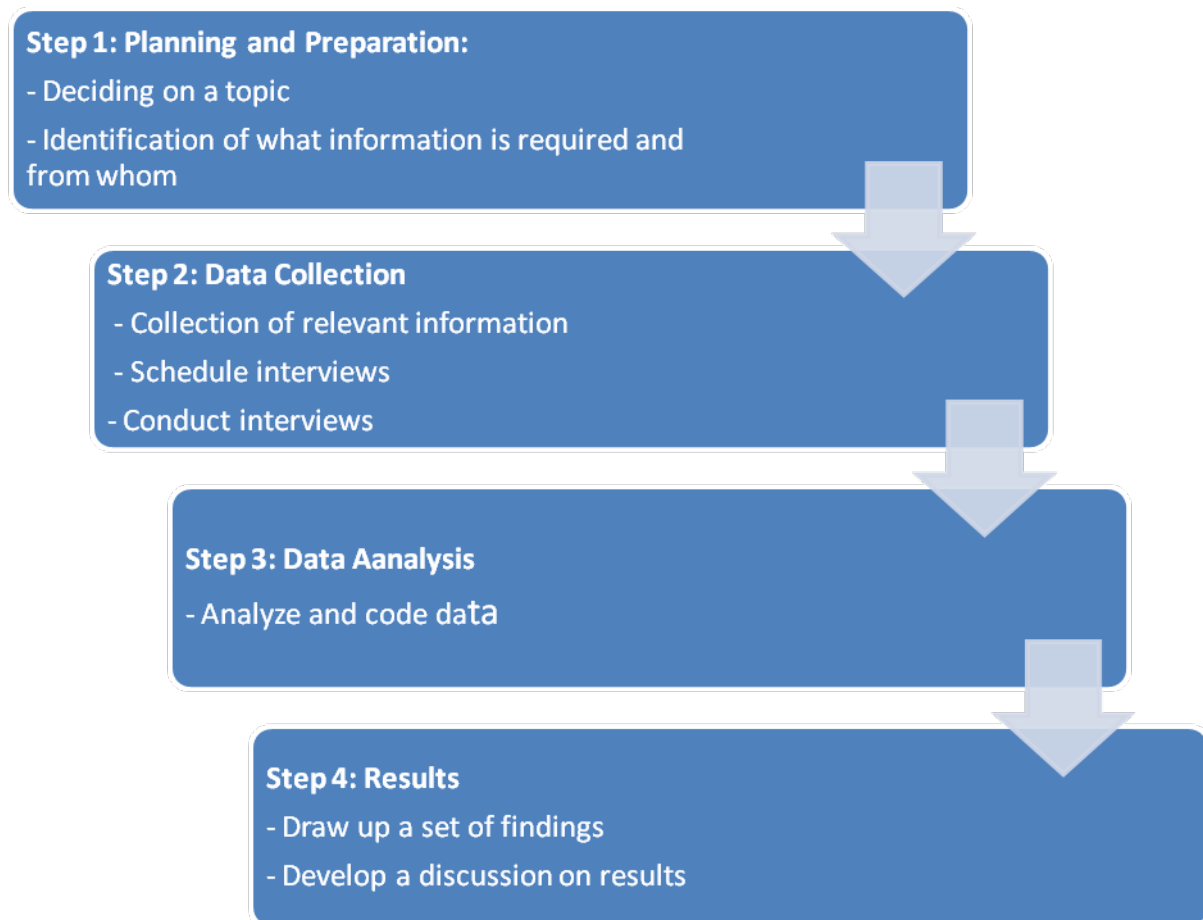
Figure 4.5.1. is an illustration of the larger project that this case study is part of. The project includes two additional case studies. The broader project aims at investigating the professional development and future of all medical laboratory specialists, which include

anatomical pathologists, haematologists, chemical pathologists, virologists and microbiologists. Within the larger project, there is also a focus on labour markets for medical laboratory specialists. One of the additional case studies is an assessment and exploration of the labour process of medical laboratory specialists, which focuses on chemical pathologists and anatomical pathologists. The other additional case study depicted in Figure 4.5.1 above, revolves around the factors surrounding the retainment and recruitment of South African medical laboratory specialists, specifically virologists and anatomical pathologists.

Creswell (2007) discusses five types of qualitative approaches: narrative research, phenomenology, grounded theory, ethnography and case study. As noted above, a basic case study is used for the purposes of this study, which comprises the in-depth and intensive analysis of a single case (Bryman and Bell 2007). Stake (1995, cited in Bryman and Bell, 2007) argues that case study research focuses on the complexity and specific nature of the case in question. Case studies involve the study of an issue that is investigated or explored through one or more cases, especially if a rich understanding of a context is required (Saunders, Lewis and Thornhill, 2003; Creswell, 2007). A case can be defined by many diverse entities such as a single organization, a single location, country or continent, a person or an event (Bryman and Bell, 2007; Burton. 2000). Cases are building blocks for data collection and analysis (Burton, 2000) and allow for detailed observations (Gummesson, 2000). There is a thorough examination/ investigation of the setting, and there is a tendency to link case studies with qualitative research, although such identification is not appropriate (Bryman and Bell, 2007). Case studies may be seen as a strategy of inquiry, a methodology, or a comprehensive research strategy (Merriam, 1998; Yin, 2003; Denzin and Lincoln, 2005, cited in Creswell, 2007).

There are different types of case studies (Gummesson, 2000 and Creswell, 2007), which are distinguished according to the size of the bounded case, such as the number of people, an entire programme, or an activity (Creswell, 2007). They are also differentiated according to the intent of the case analysis. In terms of intent, there are three variations: the single instrumental case study, the collective or multiple case study and the intrinsic case study (Creswell, 2007: 74). The researcher focuses on an issue or concern and then chooses one bounded case to illustrate the issue in an instrumental case study (Creswell, 2007: 74). In a collective study however, one issue is selected but multiple case studies are used to explore the concern or research problem (Creswell, 2007).

**Figure 4.5.2. Developing the Case Study**



*(See: Neale, Thapa and Boyce, 2006)*

Figure 4.5.2. above is a graphic representation of the case study design used in this study. Step one was the planning phase, in which decisions were made on the choice of possible topics as well as what type of information was needed and who would be the most appropriate provider of such information. Step two involved data collection, in which multiple data sources were obtained, followed scheduling of interviews and thereafter conducting them. Step three was the process of analyzing data through manually coding transcripts into several themes and patterns based on the research questions. Lastly, step four was the development and write up of the findings of the investigation.

## 4.6. Sampling

The term population refers to the group of people, events or things that a researcher may want to investigate (Sekaran, 2003; Coldwell and Herbst, 2004), or as Bryman and Bell (2007) note, to the universe of units from which the sample for a study will be selected. 'Population' has a broader meaning than its traditional meaning that is usually associated with defining the total number of people in a country (Bryman and Bell, 2007). The 'sample' is the segment of the population that is selected from a larger population for the investigation/study (Coldwell and Herbst, 2004; Bryman and Bell, 2007). There are several reasons for sampling, including timelines, larger populations, and the inaccessibility of some of a particular population, as well as accuracy or precision and budget constraints (Coldwell and Herbst, 2004; Saunders, Lewis and Thornhill, 2004). Probability sampling and non-probability sampling are the two types of sampling used in research (Sekaran, 2003; Bryman, 2004; Saunders, Lewis and Thornhill, 2004). Probability sampling is based on the expectation that every unit has a known but not always an equal chance of being selected (Sekaran, 2003; Coldwell and Herbst, 2004). Probability sampling encompasses many forms of sampling strategies, including simple random sampling, systematic sampling, stratified random sampling, and multi-stage cluster sampling (Sekaran, 2003; Bryman, 2004; Saunders, Lewis and Thornhill, 2004; Bryman and Bell, 2007).

Non-probability sampling, which will be used in this research study, refers to sampling that is not conducted according to the proponents of probability and means that certain units of the population are more likely to be selected than others (Bryman, 2004; Bryman and Bell, 2007). In this case, participants were selected based on whether they were an anatomical pathologist or haematologist, or a relevant stakeholder. Snowball sampling, quota sampling, convenience sampling and purposive sampling are some of the methods that fall under the umbrella of non-probability sampling (Coldwell and Herbst, 2004; Bryman and Bell, 2007).

Purposive sampling was used for this study and interviewees were selected according to whether they were likely to contribute to a theoretical understanding or not (Bryman and Bell, 2007). When conducting a case study it is necessary to interview not only those that are readily available, but those that may have the most relevant and vital information; thus specific target groups must be established (Sekaran, 2003). Purposive sampling involves research with specific types of people that possess the desired information in relation to an

understanding of a research problem and the central phenomenon of the study (Sekaran, 2003; Saunders, Lewis and Thornhill, 2004; Terre Blanche, Durrheim and Painter, 2006; Creswell, 2007). In addition, purposive sampling is useful when working with small samples, especially in case studies (Neuman, 2000, cited in, Saunders, Lewis and Thornhill, 2004) and is used in qualitative research (Terre Blanche, Durrheim and Painter, 2006). Given the tiny population of medical laboratory specialists, purposive sampling was appropriate. The judgement of the researcher played a significant role in selecting participants.

Anatomical pathologists and haematologists were the criteria for the selection of participants for this study. The sample of the study comprises of 23 participants. Eleven of the participants were KZN based anatomical pathologists including a Chief Executive Officer of one of the laboratories that participated in the project. This amounts to 42% of the total population of anatomical pathologists in KZN as per the HPCSA-provided total population, which is 26 (HPCSA, 2010). However, only 23 anatomical pathologists were traceable, which was inconsistent with the HPCSA's findings and will be discussed later in this chapter. Therefore, the percentage of the population of anatomical pathologists in KZN used in this study based on those who were traceable is 48%. An international anatomical pathologist was also interviewed. Nine of the remaining participants were haematologists, as shown in table 4.6.1. and the representative percentage of the haematologist population of KZN that has been interviewed is 81%. The remaining two interviewees were a migration specialist and a microbiologist, who both added value to the study with their knowledge of issues surrounding the research problem. The total population of haematologists and anatomical populations is 37, of which 20 specialists were interviewed. This is 54%, as shown in table 4.6.1.

**Table 4.6.1. Total No. of medical laboratory specialists interviewed**

	<b>Total Population KZN (Public and Private Sectors)</b>	<b>Total Interviewed</b>	<b>Percentage of Participants interviewed</b>
<b>1. Anatomical Pathologists</b>	<b>26<sup>2</sup></b>	<b>11</b>	<b>42%</b>
<b>2. Haematologists</b>	<b>11</b>	<b>9</b>	<b>81%</b>
<b>Total No of anatomical Pathologists and haematologists :</b>	<b>37</b>	<b>20</b>	<b>54%</b>

*Source: HPCSA (2010)*

As depicted in table 4.6.2 below, the total number of anatomical pathologists in South Africa according to the HPCSA (2010) is 245, whereas the total number of haematologists is 115. In KZN, where this research study is located, there are 26 anatomical pathologists (HPCSA, 2010) and 11 haematologists (HPCSA, 2010). This is also illustrated in table 4.6.2. The number of anatomical pathologists may, however be open to dispute, as only 23 were traceable. This is illustrated in table 4.6.4.

**Table 4.6.2. Population of Medical laboratory specialists at provincial and national level**

<b>Total Population of Medical Laboratory Specialists</b>	<b>Provincial Level (KwaZulu-Natal)</b>	<b>National Level</b>
<b>1. Anatomical Pathologists</b>	<b>26</b>	<b>245</b>
<b>2. Haematologists</b>	<b>11</b>	<b>115</b>

*Source: HPCSA (2010)*

Participants were interviewed from both the public and private sectors. Three of the anatomical pathologists interviewed were from the public sector, and eight were from the

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<sup>2</sup> HPCSA, 2010

private sector, as outlined in table 4.6.3. There were four haematologists from the public sector, and five from the private sector.

**Table 4.6.3. Number of anatomical pathologists and haematologists interviewed in the public and private sectors during the period the research was conducted**

Sectors	Public Sector		Private Sector	
Total Population of Medical Laboratory Specialists	Total Population	Total Interviewed	Total Population	Total Interviewed
1. Anatomical Pathologists	12	3	11	8
2. Haematologists	4	4	6	5

The researcher found that the population totals for both anatomical pathologists and haematologists sourced from the HPCSA (2010) did not correspond with the number of anatomical pathologists within the field. The HPCSA (2010) indicated that there were 26 anatomical pathologists in KZN in 2010; however, only 23 were traceable. This implies that the statistics for anatomical pathologists supplied by the HPCSA may have been inflated by approximately 12%. Of the 23 anatomical pathologists found, the researcher deduced through fieldwork that 12 were from the public sector and 11 from the private sector. However, the total number of haematologists provided by the HPCSA (2010) was accurate. This is shown below in table 4.6.4. It is important to note that although 11 haematologists were located by the researcher and corresponded with the statistics from the HPCSA (2010), one of the haematologists was a clinical haematologist and was excluded from the population of this study due to the fact that this research focuses on laboratory-based haematologists.

**Table 4.6.4: Total Populations and Findings provided by HPCSA and researcher**

	Total Population KZN (HPCSA, 2010)	Total Population KZN (Researcher Findings)
1. Anatomical Pathologists	26	23
2. Haematologists	11	11

Table 4.6.5 below is an illustration of the breakdown of race and gender of anatomical pathologists and haematologists that were interviewed. There were two white anatomical pathologists, two black anatomical pathologists and seven who were Indian. Of the anatomical pathologists interviewed, majority (10) were males, whereas there was only one female anatomical pathologist interviewed. In terms of haematologists, two were white, seven were Indian and none were black. Majority of haematologists that were interviewed were females and three were males.

**Table 4.6.5: Division of Participant's Race and Gender**

	<b>Total No. Interviewed</b>	<b>Race</b>			<b>Gender</b>	
		<b>White</b>	<b>Black</b>	<b>Indian</b>	<b>Males</b>	<b>Females</b>
<b>Anatomical Pathologists</b>	<b>11</b>	<b>2</b>	<b>2</b>	<b>7</b>	<b>10</b>	<b>1</b>
<b>Haematologists</b>	<b>9</b>	<b>2</b>	<b>0</b>	<b>7</b>	<b>3</b>	<b>6</b>

## **4.7. Research Questions**

Case studies focus on specific situations that express uniqueness. In keeping with this, the key areas of investigation and objectives of this study are outlined in order to understand both the reasons that certain types of methods were selected, as well as the context of the study. In examining the nature of mobility between the private and public mobility sectors, several questions arise.

### **Key Questions**

#### **1. What are the KwaZulu-Natal labour markets for medical laboratory specialists?**

This question sets out to investigate the nature as well as the number of medical laboratory specialists, specifically haematologists and anatomical pathologists that exist in KZN.

**2. What is the level of mobility of medical laboratory specialists between the private and the public sector and *vice versa* in KwaZulu-Natal?**

A key element of the study is to determine the level of mobility of medical laboratory specialists between the public and private health sectors. The movement of haematologists and anatomical pathologists will be examined. Mobility from the private sector back into the public sector will also be analyzed in order to establish whether such a phenomenon exists. Determining the level of mobility will enable the researcher to explore the effects of this mobility.

**3. In what ways does this form of mobility impact on the KZN health care system?**

Every study should include the effects and impacts of the phenomenon studied. This case study thus explores the effects or outcome of private-public mobility of haematologists and anatomical pathologists in KZN.

**4. What are the causes of such mobility between the public and private sectors?**

This study also explores the driving forces behind the movement of haematologists and anatomical pathologists between the public and private sectors. This relates significantly to the following research question.

**5. How does Lee's (1966) push-pull theory relate to the labour market mobility of medical laboratory specialists?**

Lee's push-pull theory demonstrates that certain factors influence decisions on whether to migrate or not. These include economic, political and social factors. Lee's theory will be adapted to the local situation for the purposes of this study.

## **Objectives**

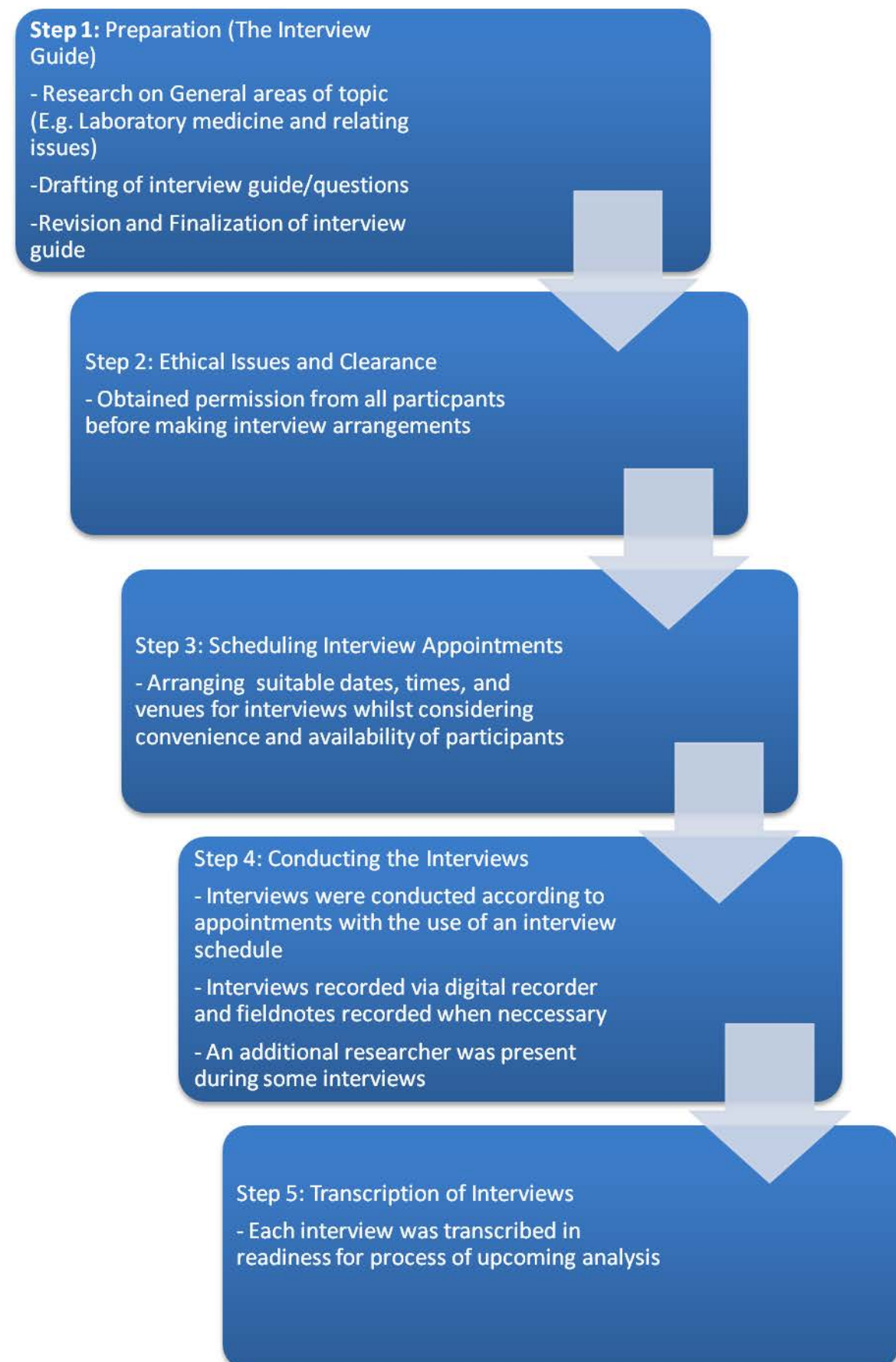
- To explore the nature of KwaZulu-Natal medical laboratory specialists' labour market mobility of from the private to public sector and *vice versa*.
- To identify the causes of the mobility of medical laboratory specialists from the private to the public sector and *vice versa*.
- To examine the effects of this mobility on the KZN health care system.
- To assess the extent to which Lee's (1966) push-pull theory of migration accounts for the labour market mobility of these specialists.

## **4.8. Data Collection**

### **4.8.1. Interviews**

In-depth interviews were the principal method of data collection for the study and were carried out on a face-to-face basis with participants. The process of conducting interviews for this project was carried out in a series of steps. The first step was the preparatory stage, during which the researcher reviewed literature relating to the research topic; thereafter, a list of questions was developed and drafted. The questions were then revised by the researcher and reviewed and approved by the supervisor. Once the questions were finalized, the researcher contacted relevant bodies and participants for permission to conduct the interviews. Step 3 involved setting up the actual times, dates and venues for the interviews. The dates and times were set according to the convenience of participants. Step 4 was conducting the interviews, which were recorded using a digital recorder. Field notes were written up where necessary. In some instances, two investigators conducted the interview, whilst some were carried out only by the researcher. The final step involved the interviews being transcribed for the next part of the research project, which is the analysis of data. Figure 4.8.1.1 depicts the interview process.

**Figure 4.8.1.1: The Interview Process and Procedure**



Interviewing is a method of collecting data through interviews with respondents in order to seek information on issues of interest (Sekaran, 2003). Interviews may be structured, unstructured or semi-structured (Saunders, Lewis and Thornhill, 2003; Sekaran, 2003), and may be carried out face-to-face, telephonically and even online (Sekaran, 2003). Put simply, an interview is a 'purposeful discussion' between two or more people (Kahn and Cannell, cited in Saunders, Lewis and Thornhill, 2003). An in-depth interview is a strategy that involves thorough, individual interviews by the researcher in an attempt to investigate specific perspectives on particular ideas or situations and areas of interest and record their responses (Gillham, 2000; Boyce and Neale, 2006; Monette *et al*, 2008: 158, 172). Semi-structured interviews were used for this study. In a semi-structured interview, the researcher has a list of questions on fairly specific topics; this is known as an interview guide (Bryman, 2004; Bryman and Bell, 2007). It is important to note that with semi-structured interviews, the participant has leeway in their choice of responses (Bryman, 2004; Bryman and Bell, 2007). In addition, Bryman and Bell (2007) argue that semi-structured interviews are flexible, as questions that were not part of the initial interview guide may be asked should the need arise. Semi-structured interview suited the purpose of this research as more than one researcher was involved in the fieldwork (Bryman and Bell, 2007). In depth interviews were conducted face-to-face. Face-to-face interviews allow the researcher to clarify doubts or rephrase questions should there be a difficulty in understanding the response of a participant (Sekaran, 2003). Face-to-face interviews also expose the researcher to non-verbal cues such as discomfort/uneasiness, stress or problems that are picked up by frowning, nervousness, or other forms of body language that signal important messages (Sekaran, 2003). Questions were open-ended as this allowed respondents to answer in the manner that they preferred (Sekaran, 2003). Probing during the interview process was also used on several occasions. Probing questions are used to further explore the responses or answers of participants in relation to the research problem (Saunders, Lewis and Thornhill, 2003).

Qualitative interviewing is different from interviewing in quantitative research. In qualitative interviewing, the interviewer may deviate from the interview schedule, and follow up on responses or replies with new questions, even altering the sequence or wording of the questions (Bryman and Bell, 2007). This is not desirable in quantitative research, as it may compromise the standardization and validity of the results (Bryman and Bell, 2007). Thus qualitative interviewing is more flexible as there is room for adjustment when new and vital issues arise during the interview process (Bryman and Bell, 2007). Qualitative interviewing

allows for detailed and in-depth answers whereas quantitative interviewing requires data that can be easily coded and processed (Bryman and Bell, 2007). Interviewees can be interviewed on more than one occasion in qualitative interviewing; however, this can only be done in quantitative research if the research is longitudinal in nature; otherwise, a participant is only interviewed once (Bryman and Bell, 2007).

The interviews were recorded using a high quality digital voice recorder and thereafter transcribed. It is vital to have access to the source of the interview aside from field notes, which will be discussed later. It is imperative that writing down notes does not distract the researcher, thus recording interviews is necessary (Bryman and Bell, 2007). Recording also captures the way in which the interviewee responds, rather than just what is said, which is useful in qualitative research (Bryman and Bell, 2007). Digital voice recorders also ensure accuracy. Their small size makes them convenient to use and they do not intrude during an interview (Bryman and Bell, 2007)

Heritage (1984, cited in Bryman and Bell, 2007: 489) cites several advantages of transcribing interviews: it assists in correcting the natural limitations of the researcher's memory as well as the intuitive glosses that we assign to what people say in an interview; it facilitates an increasingly thorough examination of what people say in an interview; and it also allows data to be reused by other researchers or for a different research project. Terre Blanche, Durrheim and Painter (2006) note that having interviews transcribed facilitates the process of moving data as well as later reflecting on particular data or words if needs be.

#### **4.8.2. Observation**

Observation involves systematic observation, recording, description, analysis and the interpretation of people's behaviour (Saunders, Lewis and Thornhill, 2003). Observation consists of a series of steps such as determining the site of observation, gaining permission to carry out the observation, identifying who will be observed, deciding exactly what role the observer will take on, and designing an observational protocol, as well as recording aspects of the surroundings (Terre Blanche, Durrheim and Painter, 2006; Creswell, 2007). There are four types of observation: complete observer, participant as observer, observer as participant and complete participant (Saunders, Lewis and Thornhill, 2003). This study did not comply with these models, but used face-to-face interviews that enabled the researcher to make visual

observations during the interview process. These included body language (such as reactions and behaviour towards certain questions), and the nature of the physical office and laboratory environments in the form of a tour of the laboratory. Observations assisted the researcher to verify claims made by the participants. Facial expressions and body language were useful in gaining a sense of how participants really felt towards certain issues that were raised in a question. For instance, certain topics made interviewees more explicit or expressive in terms of their movement and seriousness of facial expressions, which emphasized how they felt about an issue. In some cases, participants gave a positive answer to a question, but their reaction and facial expressions were notably negative.

### **4.8.3. Field notes**

Field notes are always useful due to the frailties of the human memory as explained by Bryman and Bell (2007). Interesting and unique facts were recorded in this study to reinforce emphasis on certain points or comments made by participants that might have been forgotten in the process of transcription. Certain visual observations cannot be recorded on tape, and it might be inappropriate or intrusive to use cameras (Terre Blanche, Durrheim and Painter, 2006). Taking down important notes in certain situations it easy to do without attracting much attention (Terre Blanche, Durrheim and Painter, 2006). Field notes should be brief and include details such as names, locations, dates or times (Bryman and Bell, 2007). Sanjek (1990) and Lofland and Lofland (1995) cited in (Bryman and Bell, 2007: 464) classify the different types of field notes: mental notes, jotted notes and full field notes. Mental notes are used when it is inappropriate to write down notes; jotted notes are used to refresh one's memory about events and are written up at a later stage; and lastly full field notes are those that serve as the main source of data; this includes information about people, places and conversations (Sanjek, 1990, cited in Bryman and Bell, 2007; Lofland and Lofland, 1995). Field notes for this particular study included the name of the participant, and the date and venue of the interview. Field notes for this study were useful in reminding the researcher of visual observations that were not formally recorded *via* the digital recorder and would add substance to the research study. They also reminded the researcher to follow up on certain aspects. Interesting or unusual reactions on the part of the participant were also noted, as well as significant facts or figures mentioned by the participant.

#### **4.8.4. Documentary/Archival**

Documentary sources are useful in qualitative research and are a means by which ideas and discourses are exposed to society (Terre Blanche Durrheim and Painter, 2006). Documents may be reviewed without having to interrupt the actual programme (Coldwell and Herbst, 2004). These sources include visual material such as photographs that have not been created solely for the purposes of research and may be preserved in order to be analyzed. They are also useful to a business researcher (Bryman and Bell, 2007: 554). Documentary sources refer to newspaper articles, official documents, books, reviews of applications, memoranda, financial records, and even minutes of meetings (Coldwell and Herbst, 2004; Terre Blanche Durrheim and Painter, 2006). Personal documents refer to diaries and letters (Bryman and Bell, 2007). Visual objects are also a vital part of research, especially when the focus is on organizations. For example, artworks may introduce a sense of identity for the institution (Bryman and Bell, 2007). Public documents are also a useful source of information for researchers. An enormous amount of statistical data is available (Bryman and Bell, 2007), including public documents like Acts of Parliament, health bulletins, and official reports. The latter have been used for this project. Organizational documents have also been helpful throughout this study. This study has made use of several newspaper articles as well as magazines dealing with laboratory medicine. Virtual outputs refer to the kind of documents that are available on the Internet, which offers various forms of documentary material (Terre Blanche Durrheim and Painter, 2006; Bryman and Bell, 2007). However, the authenticity as well as the credibility of documents must be kept in mind when conducting research (Bryman and Bell, 2007). Official websites such as those of laboratories have also been used extensively during the project. The HPCSA (2010) has been a source of statistics. Even though these statistics are contested they remain a credible starting point for this study. Such documents aid the researcher in confirming the validity of information acquired.

Organizational documents include annual reports, mission statements, press releases, reports to shareholders etc. (Bryman and Bell, 2007). These documents are especially necessary for case studies as they build up descriptions of the company's profile and history (Bryman and Bell, 2007). Mass media outputs have also been a source of data collection for this project. These include newspapers and magazines, television programmes and films (Bryman and Bell, 2007).

## **4.9. Validation and Reliability of Data**

### **4.9.1. Triangulation**

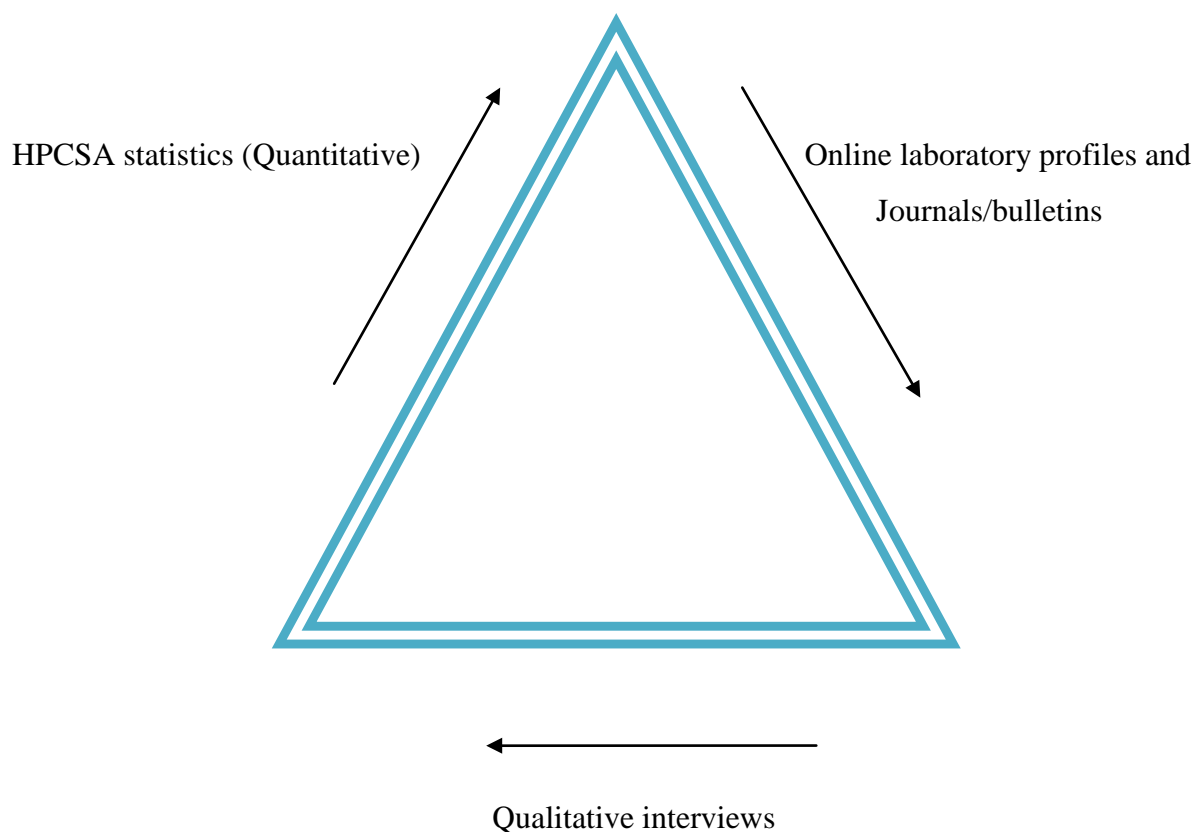
Validation has been reconceptualised by qualitative researchers within the postmodernist paradigm (Creswell, 2007). Postmodernism refers to sensitivity to the various ways that social reality is constructed (Bryman and Bell, 2004). Lather (1991, cited in Creswell, 2007: 204) argues that there is a need for new techniques for collecting and defining data that is trustworthy. Lather (1991, cited in Creswell, 2007) identifies four types of validation namely, triangulation, construct validation, face validation and catalytic validation. Triangulation is essential to verify if information or data is valid (Saunders, Lewis and Thornhill, 2003; Olsen, 2004; Creswell, 2007) and has been used for this study. Triangulation concerns the use of more than one method/different ways and the use of multiple, diverse sources of data in studying any social phenomenon to provide corroborating evidence (Olsen, 2004; Terre Blanche, Durrheim, and Painter, 2006; Bryman and Bell, 2007: 412; Creswell, 2007). For this project, forms of secondary data, which have been outlined in the previous sub-section, such as quantitative data like statistics has been used to verify or cross check data collected by the researcher. For example, the total population sizes of participants such as medical laboratory specialists established by the researcher were compared with national and provincial statistics in an attempt to establish grounding and verification.

Triangulation basically involves the mixing of data or methods in order to better understand and comprehend a topic (Olsen, 2004). It enables the researcher to ‘hone in’ on a clearer understanding of a certain issue or phenomenon (Terre Blanche, Durrheim and Painter, 2006). Denzin (1970, cited in Bryman and Bell, 2007: 412) refers to triangulation as an approach that has many observers, theoretical perspectives, sources of data, and methodologies; however, the focus is on methods of investigation as well as sources of data. Furthermore, triangulation can be defined as crosschecking the results of an investigation using a research strategy against the results of a method used in other research studies (Bryman and Bell, 2007: 646).

There are several forms of triangulation, including: data triangulation, methodological triangulation, theoretical triangulation, and investigator triangulation as well as environmental triangulation (Guion, 2000; Bryman, n.d). Data triangulation was employed in this project, in which different sources of data and information were utilized (Guion, 2002).

Data triangulation categorizes each group or type of stakeholder that is examined (Guion, 2002). Figure 4.9.1.1. illustrates the specific types and sources of data used for this study; these included qualitative sources and secondary quantitative data, such as statistics from the HPCSA (2010). This was triangulated with websites such as official online company/laboratory profiles. Thereafter this was triangulated with qualitative interviewing as illustrated in figure 4.9.1.1. Other qualitative data included academic journals, articles, reports, reviews, websites and online newspaper articles. Secondary statistical data were retrieved *via* statistical reports and reviews from the WHO, the HSPCA (as mentioned above), reports and reviews, newspaper articles, and health bulletins as well as the researcher's own findings.

**Figure 4.9.1.1. Data Triangulation**



Drawing on other types of triangulation, methodological triangulation involves using more than one method, or rather multiple usage of the different qualitative and quantitative methods in a study (Guion, 2002). Theoretical triangulation involves using many professional perspectives when interpreting a single set of data (Guion, 2002). Investigator triangulation sees the use of several investigators or researcher, a team-based unit, involved in the

evaluation of a project (Guion, 2002). Finally, environmental triangulation uses varied locations, settings and other factors associated with the environment that the research occurs in. These include the time of day, and the day of the week, as well as the season (Guion, 2002).

## **4.10. Data Analysis**

### **4.10.1. Thematic Analysis**

The principal construct used for this study in analyzing data has been thematic analysis. Thematic analysis involves a search for themes that develop in relation to the investigation and description of a phenomenon (Daly, Kellehear, & Gliksman, 1997, cited in Feredy and Muir-Cochrane, 2006). Thematic analysis is the underlying foundation for qualitative analysis (Braun and Clarke, 2006). It may be defined as a process for the identification, analysis and reporting of ‘patterns’ or themes within data (Braun and Clarke, 2006). Flexibility is immensely beneficial in thematic analysis. It serves as an efficient research tool by way of its theoretical freedom that provides detailed and complex data (Braun and Clarke, 2006). In other words, this procedure requires the identification of themes by way of examining and repeatedly reading the data (Rice & Ezzy, 1999, cited in Feredy and Muir-Cochrane, 2006). Patterns and themes are recognised and interpreted from data, which form the basis for analysis (Feredy and Muir-Cochrane, 2006). Thomas and Hardens (2007) provide an example of the steps involved in thematic analysis, which involves three stages. These are free line-by-line coding of findings of primary studies; organizing codes into areas to create themes; and lastly the construction of analytical themes (Thomas and Harden, 2007). Themes were manually coded in this case study (categorised into different themes or patterns), and developed through consistent and thorough reading of all the interview transcripts numerous times. Themes were chosen according to their relevance to the research questions of the study. Some of the themes that were identified during thematic analysis include: causes of mobility, effects/implications of mobility, and the extent of mobility to name a few. These themes are presented below in table 4.10.1.1. They will be discussed extensively in chapter 5, where the data analysis is presented.

**Table 4.10.1.1. Themes identified by the researcher**

<b>Themes Identified</b>
<b>1. Causes of mobility</b>
<b>2. Effects/implications of mobility</b>
<b>3. Extent of mobility</b>
<b>4. National labour markets for medical laboratory specialists</b>
<b>5. Adaptation of Lee's push-pull theory</b>
<b>6. Nature of inequities between public and private sectors for medical laboratory specialists</b>
<b>7. Nature of existing partnerships and collaboration between public and private sectors for medical laboratory specialists</b>

The themes and patterns identified in the thematic analysis are those of both living and behaviour- conversation topics, vocabulary, recurring activities, meanings or feelings, and proverbs are examples of patterns through which the units called 'themes' emerge from and are identified within the data (Taylor and Bogdan, 1989, cited in Aronson, 1994; Marks and Yardley, 2004). Themes come about when various components, fragments of ideas and experiences, which are often viewed as insignificant when alone, are brought together (Aronson, 1994). Thus, themes that are identified from participants' responses are linked together in order to create a full understanding of their experience (Aronson, 1994). Such themes are identified and sought out through the transcribed interviews, and include quotations and experiences that are then noted (Aronson, 1994). Once themes have been identified, the researcher has the task of allocating all suitable data under the relevant patterns. Sub-themes are also possible (Aronson, 1994).

#### **4.11. Limitations of the Project**

Due to its elaborative nature, qualitative data is cumbersome because it relies on interview transcripts, documents and field notes (Bryman and Bell, 2007). The difficulty with coding data is that fragmentation may result in a loss of focus as well as the context of what was said in relation to its social setting or circumstance (Bryman and Bell, 2007). In other words, the narrative flow becomes disjointed (Bryman and Bell, 2007).

One of the limitations of the project with regard to conducting face-to-face interviews was interruptions and distractions during the interview process, such as telephone calls or someone knocking on the door, as well as noise from outside the office, including traffic. This lowered the clarity of the recording, which in turn prolonged the transcription process. Certain conversations were inaudible and there was a danger of mishearing and sometimes incorrect transcription, which is noted by Poland (1995, cited in Bryman and Bell, 2007). On resuming the interview after the interruption, the focus was distorted and resulted in repetition, which then made the interview time consuming, bearing in mind that participants had a limited amount of time to give to the interview in the first place.

Due to time and geographical constraints, the researcher was also unable to travel to other centres to interview other participants who may have added value to the study. Sekaran (2003) refers to this phenomenon as geographical limits.

Furthermore, the digital recorder took up a large slice of memory on any computer system and there was a risk of deleting a file unintentionally, which is less likely to happen with a cassette (Bryman and Bell, 2007). There might be a need to use external microphone, as the internal microphones of digital recorders are of poor quality in some instances (Bryman and Bell, 2007).

Triangulation is said to be unfeasible and time consuming for smaller research projects (Terre Blanche, Durrheim and Painter, 2006). In terms of thematic analysis, Olsen (2004) discusses the risk of taking on numerous 'unfocused' questions. There is a paucity of research on exactly how to conduct a thematic analysis (Marks and Yardley, 2004).

Medical specialists that were interviewed have demanding daily routines and schedules, making their availability difficult. As doctors, part of their job is conduct emergency procedures, raising the possibility of scheduled interviews being postponed. Another limitation was the unwillingness of these doctors to participate, especially given the small population of them. Financial constraints prevented the researcher from extending the study to a national level. There were also time constraints, as the thesis had to be completed within one year.

#### **4.12. Ethical Issues**

It is imperative that all research abides by ethical procedures (Saunders, Lewis, and Painter, 2003; Coldwell and Herbst, 2004; Terre Blanche, Durrheim and Painter, 2006). This study obtained ethical clearance from the Higher Degrees Committee of the University of KwaZulu-Natal before research commenced. A proposal and an ethical clearance form were submitted to the Higher Degrees Committee, and approval to conduct the research was granted. Ethics refers to the appropriateness and conduct of researchers' behaviour to the rights of all participants in the study (Saunders, Lewis, and Painter, 2003: 129; Coldwell and Herbst, 2004). Bryman and Bell (2007) explain that one must be acquainted with ethical guidelines of the University's Higher Education Organization. Ethical guidelines serve to provide protection to participants as well as institutions. Diener and Crandell (1978, cited in Bryman and Bell, 2007: 132) shed light on four main areas regarding ethical principles: firstly: whether or not there is harm to participants; whether there is lack of informed consent; whether invasion of privacy exists; and whether deception is involved. Harm refers to damage or hurt towards participants both physically and emotionally, as well as to career opportunities (Bryman and Bell, 2007).

In addition, confidentiality regarding the collecting and storing of electronic data may also be a concern (Coldwell and Herbst, 2004; Terre Blanche, Durrheim and Painter, 2006; Bryman and Bell, 2007). Confidentiality refers to the right to control information regarding oneself (Burton, 2000). The anonymity of subjects is protected through assigning numbers or aliases to them (Creswell, 2007). For this project, an informed consent form highlighting information about the study as well as the right to withdraw at any point was issued to each interviewee. Pseudonyms were assigned to conceal the identities of participants where requested. Data obtained for this project will be safely stored for five years and thereafter disposed of by being shredded.

The collection of data depends on the researcher being granted access (Saunders, Lewis, and Painter, 2003). Informed consent may be seen as a determinant of ethicality of research (Terre Blanche, Durrheim and Painter, 2006: 72). Providing sufficient information, understanding on the part of the participants, willingness to participate and ability to withdraw from the study, as well as the formalisation of consent in writing are some of the

elements of informed consent (Terre Blanche, Durrheim and Painter, 2006). Therefore, for this study, permission to participate in this project from every participant involved had first been requested before proceeding with interviews. Each subject had been given an informed consent form.

The NHLS declined to participate in the study. While heads of departments could not be interviewed due to their unavailability, specialists were approached and given informed consent forms specifying their agreement to participate in the study in their private capacities.

### 4.13. Conclusion

This chapter has presented a comprehensive analysis of the concepts, methods and techniques employed by the researcher in this research project. It has shown that this is a qualitative study, which takes the form of a case study. This chapter was divided into eleven subsections, namely, an introduction, the philosophy of research, the advantages of qualitative research, the research design, sampling strategies, research questions, data collection, the validation and reliability of data, data analysis, the limitations of the project and ethical issues.

**Figure 4.13.1. Summary of Chapter 4**



Figure 4.13.1 above illustrates the different topics discussed in this chapter. The research design took the form of a case study, as this is an exploratory study that investigated a unique topic. The sampling strategy used was purposive sampling, as the researcher interviewed specific participants, which were haematologists and anatomical pathologists. Data collection involved the gathering of data through in-depth interviews, observation, and field notes, as well as other sources such as academic articles, reviews, reports, online news articles, websites such as company profiles, and statistics from the WHO and the HPCSA. The validity of data was confirmed through data triangulation, in which multiple data types were used, including qualitative data such as academic journals as well as secondary statistics obtained from the WHO, the HPCSA, and the findings of the researcher. Finally, the data was analyzed using a process of thematic analysis. The analysis of data follows in chapter 5.

## **Chapter 5**

### **Data Analysis and Discussion**

#### **5.1. Introduction**

This chapter presents the findings of the study as well as an in depth analysis and discussion of these findings. The findings are linked to research based on the study's research questions. The chapter covers several themes, which pertain to key areas and questions of the research. These themes include the extent of mobility from public to private sectors and *vice versa*; the causes of such mobility; the effects of such mobility; the nature of the labour market for pathologists; the forms of inequity that exist between sectors; and the nature of current collaborations between sectors. Finally, the suitability of Lee's push-pull model is assessed and it is suggested that an adaptation of his theory is useful in understanding mobility between the public and private sectors.

Certain statistics were not available from the HPCSA and some of the data were unreliable; therefore, the extent of the mobility that was established by the study is based on the perceptions of haematologists and anatomical pathologists who were interviewed. While attempts were made to get the official statistics from the HPCSA, statistics on the total number of specialists practising in certain categories as well as the mobility of pathologists between sectors were unavailable (K, Sanders, personal communication, 14 October, 2011). Websites such as MedPages were recommended but these failed to confirm the statistics. Thus the statistics have been obtained by means of a headcount and fieldwork. Of all the anatomical pathologists in KwaZulu-Natal (KZN) that were trained in the public sector, 48% are now in the private sector. Fifty-five percent of haematologists in KwaZulu-Natal are now employed in the private sector. The level of mobility from the public to the private sector, as well as the level of mobility from the private sector back into the public sector, is analyzed. Where possible, participants' perceptions were evaluated against the available, but sometimes unreliable, official statistics provided by the HPSCA. The causes of such mobility are also established and discussed. These reflect on some of the reasons why pathologists might return to the state sector. In other words, the explanation for why pathologists are likely to remain in a sector, or why they would leave, is examined. The effects of mobility on laboratories and on the general health care system is also interpreted and the nature of the labour market for medical laboratory specialists is highlighted. This includes totals for medical laboratory specialists, both at a provincial and national level. The issues of race and gender within the

labour market are also explored. The various ways that Lee's (1966) push-pull theory applies to this study, given its local context, are examined, specifically the push and pull factors that were identified by the study. The possibility of any inequities, such as in resources and staffing are also studied, specifically between pathologists in both the public and private sectors. Thereafter, the forms of interaction and collaboration that currently exist between sectors are discussed, as well as the need for increased interaction. The themes throughout this chapter are based on the research questions of this study in an attempt to answer them.

## **5.2. Extent of Mobility**

### **5.2.1. Level of mobility from Public to Private Sectors as perceived by Anatomical Pathologists**

Due to the unavailability of the necessary statistical records regarding the entry and exit of pathologists in the public and private sectors, estimates provided by medical laboratory specialists themselves were used in order to explore the nature of the current levels of mobility between the public and private sectors and *vice versa*. Since the population of medical laboratory specialists in KZN is relatively small, pathologists between sectors and across disciplines know each other personally (Interview: Dr Rampersad, 2011). Therefore, the accuracy of the estimates of levels of mobility is of an acceptable standard. The level of mobility of medical laboratory specialists out of the public sector into the private sector is much higher than mobility in the opposite direction.

Approximately 27% of anatomical pathologists felt that the level of mobility out of the public sector is between 30% and 40%. Only 9% argued that the level of mobility is between 50% and 60%, while the majority (36%) felt that the mobility out of the public sector into the private sector stands at between 80% and 90%. This is an indication that the mobility out of the public sector does occur on a large scale. This is validated by the fact that all anatomical pathologists and haematologists currently working in the private sector previously worked in the public sector (Interviews, 2011). However, mobility out of the public sector is dependent on certain factors such as the availability of jobs in the private sector and so the remaining 28% of anatomical pathologists were uncertain of a 'rate' of mobility out of the public sector. This will be explored as the discussion progresses.

Once pathologists qualify in the public sector, they leave as soon as possible (Interviews: Dr Kumar; Dr Maharaj, 2011). Eight out of every 10 anatomical pathologists, for example, leave the service upon qualifying, with just two pathologists remaining behind (Interviews: Dr Maharaj; Dr vanVuuren, 2011). It must be noted that the small population of pathologists between sectors also facilitates movement out of public sector. As Dr Rampersad explained:

*“Our discipline is very specific so we know everyone in private, I mean people who are partners in the private laboratories trained in our department and when they need someone and they do, they just pick up the phone and ask if you want to come, if you want a job. And so the migration levels are high”* (Interview: Dr Rampersad, 2011).

However, mobility out of the public sector may currently be slowing down. The research participants stated that mobility out of public sector and into the private sector had been lower recently due to the competitive salaries that the public sector is offering pathologists (Interviews: Dr Chetty; Dr Govind; Dr Kumar, 2011). The compulsory community service of two years that newly qualified medical personnel must serve, is also restricting mobility (Interviews: Dr Nair; Dr Ramlall, 2011). As this is a fairly new policy, it did not apply to any of the participants in this research project.

The level of mobility out of the public sector and into the private sector largely depends on demand on the part of private laboratories (Interviews: Dr Aniruth; Dr Govind; Dr Maistry, 2011), as well as the discipline (Interview: Dr Mohun, 2011). In other words, one has to relate job availability to mobility; if there are no jobs available in private laboratories then there would be no mobility (Interview: Dr Anderson, 2011). Dr Maistry (Interview: 2011) stated that the shift from the public sector to the private sector is not very easy, due to the unavailability of jobs in the private sector, especially for haematologists. Another participant stated that the mobility of haematologists is much slower and that had there been more vacancies, they would be increased mobility (Interview: Dr Kumar, 2011). However, a decrease in mobility does not mean that there is no mobility into the private sector. Firstly, the population of pathologists as well as the number that qualify each year are small. Secondly, during the period that this research was undertaken, two pathologists moved into the private sector. Pathologists in the private sector are also retiring, and hence a need to recruit more pathologists arises (Interview: Dr Anderson, 2011). The age ‘structure’ of private laboratories may also influence mobility rates (Interview: Dr Anderson, 2011). This

implies that the availability of pathologists' posts inside the private sector may be different in a few years' time (Interview: Dr Anderson, 2011).

### **5.2.2. Level of Mobility from the Private Sector to the Public sector as perceived by Anatomical Pathologists**

As noted earlier, there is said to be mobility of pathologists even from the private sector back into the public sector. However, the majority of the anatomical pathologists were of the view that there had been no such mobility. One of the interviewees stated:

*“From private to public? I don't know who would be so stupid to do that”* (Interview: Dr Nair, 2011).

The majority of medical laboratory specialists felt that there was no mobility from private practise back into the public sector, and stated that they had never witnessed this (Interviews: Dr Aniruth; Dr Chetty; Dr Govind; Dr Mkhize; Dr Nair, 2011), as expressed by 73% of participants. However, 27% feel that there is minimal mobility from private practise back into the public sector. In addition, few respondents personally know people that have transferred back to the public sector, and attributed this to the desire to study further, in order to super-specialise or sub-specialise (Interviews: Dr Anderson; Dr Smith, 2011).

### **5.2.3. Level of Mobility from the public sector to the private sector as perceived by Haematologists**

Ten percent of haematologists believed that mobility from the public sector to the private sectors stood at 10%, whereas 22% of haematologists felt that mobility out of the public sector stands at 30% to 40%. However, the majority of the haematologists (33%) felt that the level of mobility out of the public sector is 50% to 60%. Eleven percent stated that mobility stood at 70% to 80%. In contrast to the majority of anatomical pathologists who felt that mobility was up to 90%, most haematologists felt that mobility out of the public sector was 50%-60%. There were 24% of haematologists who felt they were unable to give a percentage of mobility as it was dependent on many factors, which were outlined and discussed earlier.

#### **5.2.4. Level of mobility from the private sector to the public sector as perceived by haematologists**

In terms of mobility from the private sector back into the public sector for haematologists, 55% of haematologists stated that there was no mobility whatsoever. However, 44% of haematologists, a significant figure, believed that there is between 10% and 20% mobility back into the public sector from private laboratories. A larger number of haematologists believed that there is mobility out of the private sector and back into the public sector again, as opposed to 27% of anatomical pathologists, who stated that there was only slight movement. One of the reasons for this discrepancy might be that haematologists enjoy the scope of work provided in the public sector, compared with the private sector.

The next theme focuses on the mobility of medical laboratory specialists from the private sector back into the public sector. Only two participants out of 23 stated that they know a few medical laboratory specialists that have gone back into the public sector from the private sector (Interview: Dr Anderson; Dr Smith, 2011). Although the level of mobility from the public sector into the private sector is higher than the level of movement from the private sector back into the public sector, the findings also indicate that there are future possibilities for mobility from the private to the public. However, none of the participants interviewed for this study had returned to state sectors from the private sector.

All the public sector based anatomical pathologists that were interviewed indicated that they would definitely consider working in the private sector at some point (Interviews: Dr Mkhize; Dr Rampersad; Dr Suraj, 2011). With regard to public sector haematologists, 50% stated that they would transfer to the private sector, while the other half (50%) said that they would not consider such a move. Although the researcher explores the reasons why medical laboratory specialists move from the public to the private sectors in general under section 5.3, the specific reasons why anatomical pathologists and haematologists in KZN would do so were investigated. The level of flexibility, and working hours as well as financial rewards were cited as reasons for pathologists to switch sectors (Interview: Dr Mohun, 2011). One of the participants stated that after developing an adequate level of expertise in his field, he would move over to private practise in order to make a difference by increasing the number of junior pathologists (Interview: Dr Mkhize, 2011). Other reasons included the fact that the role of pathologists in the private sector is said to be more 'defined' and that rewards are directly related to the extent of the work one has to complete, as opposed to the public sector, where

the workload is disproportionate to the rewards (Interview: Dr Suraj, 2011). Excessive levels of stress and limited flexibility in one's working day are also reasons to move out of the public sector (Interview: Dr Suraj, 2011).

The lack of flexibility and/or overwhelming workloads (Interview: Dr Ramlall, 2011) in the public sector have been identified in previous research (*See Chapter 3*) as challenges confronting the public sector. One participant noted that if working hours became too stressful, to the extent that they infringe on one's social and personal life, then he would have to consider moving to the private sector (Interview: Dr Ramlall, 2011). Leaving work late and having insufficient time at home with one's family is reason enough to move out of the public sector (Interview: Dr Ramlall, 2011). In addition, the challenges involved in teaching students may also influence one's decision to leave the state sector. For example:

*"I enjoy teaching although it's a challenge. You are lecturing to students. Especially with the younger generation being so different. You are lecturing to students and someone is making jets and someone is talking on their cell phone and someone is talking and sharing their own jokes. So that is a great challenge and I don't know how long I will be able to handle that... However if these - if it becomes more challenging I mean, I may consider my other options like either giving up teaching or moving over to private"* (Interview: Dr Ramlall, 2011).

However, there are reasons for why pathologists remain in the public sector. Twenty-nine percent of public sector haematologists that were interviewed would not consider moving into the private sector at this point. Firstly, their strong academic interests keep them in the public sector. This includes access to research, writing articles, and training registrars (Interviews: Dr Brijlall; Dr Maistry; Dr Ramlall; Dr Rampersad, 2011). The availability of funding has also kept pathologists in the public sector (Interview: Dr Maistry, 2011). Many expressed their interest in teaching students at medical schools. For example:

*"[What] I really enjoy is ... the final year students tutorial groups, the smaller groups where you are interacting with them. You are able to explain things and share your passion of haematology with them. I think that is one of the greater reasons as well that keep me within the public sector"* (Interview: Dr Ramlall, 2011).

The exposure to specialised aspects of haematology in the public sector is another reason to stay in public sector. One participant stated:

*“Once I qualified, I joined the NHLS and I have never looked back. I don’t know if I will ever reach a stage where I would look back. The NHLS really goes out of its way to provide and support doctors and give them the opportunities and for me it’s not just all about the work. The work will happen and it’s something that I enjoy but it’s also the exposure that you get here, it’s beyond what I would get in private”* (Interview: Dr Maistry, 2011).

Financial considerations also motivate pathologists to remain in the public sector, in the form of opportunities to work overtime (Interview: Dr Rampersad, 2011). This adding to the list of reasons that one might remain in public sector.

Other reasons relate to personal choice or aspirations, as discussed in detail under section 5.3.6. One participant said that he remains in the public sector due to the shortage of haematologists and his ‘love’ for the public sector (Interview: Dr Brijlall, 2011). Some remain to promote and encourage the growth of pathologists, especially Black pathologists, by training them and serving the government (Interview: Dr Mkhize, 2011).

Other reasons for remaining in the public sector include whether a specialist had recently qualified and their level of experience (Interviews: Dr Mohun; Dr Mkhize, 2011). The findings show that medical laboratory specialists prefer to build their expertise and confidence as a pathologist before moving to the private sector (Interview: Dr Mohun, 2011). The public sector also offers pathologists a sense of security (Interview: Dr Mohun, 2011). As one participant noted:

*“I think it makes a difference when you are recently qualified. I think that very few people leave immediately after qualifying. Once you qualify it helps to stay and consolidate your knowledge and get your grounding, experience. A lot of things you only gain after your exams, after you have passed that exam. So, I think that when you want to go into private you need to be sure and certain and confident of yourself before you go because you are on your own. A certain degree of security and protection in state [sector] is that there are a lot of other seniors around so if you encounter any problems there is always someone to go to”* (Interview: Dr Mohun, 2011).

### **5.2.5. Private-based Haematologists and Anatomical Pathologists feelings about transferring back into the Public Sector**

Approximately 38% of the anatomical pathologists who work in private laboratories would consider working in the public sector again; however, the majority (62%) would not consider seeking employment in the private sector again. Their reasons are discussed further below. Haematologists from the private sector on the other hand, display a different mindset. Whilst only 38% of the anatomical pathologists working in the private sector would consider working in the public sector again, 60% of haematologists working in private laboratories would consider moving back to the public sector. Forty percent of haematologists said that they would not consider doing so.

#### **Reasons for possible mobility back into the public sector**

Thirty-eight percent of private-based anatomical pathologists and a significant 60% of private sector haematologists stated that they would consider moving back into the public sector. Among the reasons given were the academic environment offered by the public sector (Interviews: Dr Aniruth; Dr Govind; Dr Maharaj; Dr Ndlovu, 2011). Enjoyment of teaching undergraduates and post-graduates was another reason to go back into the public sector (Interviews: Dr Aniruth; Dr Ndlovu, 2011). Training registrars was another attraction in the public sector (Interview: Dr Maharaj, 2011).

However, it would seem that academic stimulation may not always be enough to lure pathologists back in to the public sector in all cases. As one participant stated:

*“We always get people saying that they miss the academic environment but what people say and what they actually do doesn’t result in the CV coming back to our desk. No I miss the academy, the journal clubs, the seminar presentation but at that stage, those people are close to retirement or partners and our company cannot afford even an equivalent salary package and it’s not worth their while to come back so...”* (Interview: Dr Rampersad, 2011).

One of the medical laboratory specialists said that they would consider going back to the public sector in order to gain academic stimulation, adding that working dynamics amongst colleagues in the private sector tend to be ‘territorial’, often to the detriment of patients (Interview: Dr Govind, 2011). Some of the participants indicated they might work in the

public sector on a part-time, rather than a full time basis (Interviews: Dr Maharaj; Dr Aniruth, 2011).

Personal choice is also a factor in deciding which sector to work in. As explained by Dr Smith (Interview: 2011):

*“I think that there is still a big part of me that still thinks that in the career path that one’s chosen that it is about service delivery. So that is one big motivating factor”*  
(Interview: Dr Smith, 2011).

Participants also cited the possibility of studying further as a reason to move back to the public sector (Interview: Dr Smith, 2011), as well as their interest in diversifying the scope of their work done; this applied specifically to the haematologists. For instance, certain tests are not done in some private laboratories in KZN and have to be sent to Johannesburg (Interview: Dr Narayan, 2011). Dr Narayan explained that (Interview: 2011):

*“Some of the things are not done on site, it’s done in Johannesburg so we do miss out whereas in state they probably do it on site- they have all the services on site so that’s good to actually be there and do tests. Some of the tests - we are not doing here, we sending them to our laboratories outside. Somehow you miss out on those - interpretation and analyzing stuff.”*

A medical laboratory specialist working in the private sector said that had the public sector offered her a half-day job, which she currently has in private practise, she would probably move into state (Interview: Dr Narayan, 2011). This suggests that the level of flexibility in the public sector needs to increase.

### **Reasons not to go back into Public Sector**

A significant 51% of private based pathologists were not interested in returning to the public sector after having worked in private laboratories. Dr Aniruth (Interview: 2011) sheds some light on why this is the case:

*“But once you see... the income in private practise, very few will want to go back”*  
(Interview: Dr Aniruth, 2011).

The working environments in state and private sectors differ greatly, as will be discussed further below (See section 5.3.2). One of the reasons why medical laboratory specialists might opt not to return to the state sector is their interest in the business orientated nature of the private sector. One participant said that the business- oriented environment of the private sector was stimulating and motivating (Interview; Dr Smith, 2011).

Others simply felt that there is nothing more that the state sector can offer them in any respect. As one participant stated:

*“Well, there’s nothing they can offer now, you still keep up with your academic side, attend conferences, academic meetings - I’m still in touch, I was even teaching post grads until recently, I still get involved so why would I want to back and be frustrated?”* (Interview: Dr Kumar, 2011).

The participants’ tendency to return to the public sector also depends on the availability of suitable positions. One medical laboratory specialist said that he would not move back into the public sector as there are no ‘attractive’ posts on offer (Interview: Dr Watkins, 2011). For Dr Watkins (Interview: 2011), an attractive post would offer a ‘decent’ package in terms of salary and leave, attendance at conferences, teaching, and lighter workloads than the private sector in order to free up time for research (Interview: Dr Watkins, 2011). Dr van Vuuren (Interview: 2011) stated that he would not move into the public sector unless the right conditions were available. Another private-based medical laboratory specialist stated that she would not return to the public sector as that would mean starting from the bottom, whereas in the private sector she is already a partner (Interview: Dr Chetty, 2011).

Management systems also play a role in deciding which sector to work in (Interview: Anonymous, 2011). One pathologist expressed dissatisfaction with the management styles in one of the public sector departments and stated that that would be a reason they would not consider going back to the public sector at this point (Interview: Anonymous, 2011). The issue of conflict was highlighted. In addition, Dr Kumar (Interview: 2011), in the statement below expresses her view:

*“Also, each department has its own internal politics- that is another thing that you don’t get in private, you are your own boss, so why would I want to get involved?”*

*Each department has some sort of politics attached to it”* (Interview: Dr Kumar, 2011).

When combined, findings show that the majority of medical laboratory specialists would prefer to remain in the private sector. However, although the majority of medical laboratory specialists, that is, 51% would opt to remain in private laboratories, the percentage of those would go back to the public sector is still relatively high, at 49%. This is a clear illustration of the potential for mobility out of the private sector in the future, but also, an indication that many privately employed pathologists are satisfied where they are, that is, in the private sector.

### **5.3. Causes of Private-Public Mobility of Haematologists and Anatomical pathologists**

Investigating the reasons for the mobility of medical laboratory specialists is a core concern of this study. Numerous causes for the mobility of medical laboratory specialists *out of the public sector* and into the private sector were identified in this study, which displayed great correspondence with the literature (Chanda, 2002; Vertovec, 2002; Ward-Cook, 2002; Bach, 2003; Beckering and Brunner, 2003; Chen *et al*, 2004; Hagopian *et al*, 2004; Stilwell, 2004; Guidi and Lippi, 2006; Connel *et al*, 2007; Kuehn, 2007; Pogue, 2007; OECD Report 2004 cited in Breier and Erasmus, 2009; Allsop *et al*, 2010; Khadria, 2010). However, the reasons for mobility of medical laboratory specialists specifically, rather than the causes of general migration internationally of any field of workers, are as follows: more attractive salaries or remuneration, better working conditions and environments, a higher level of flexibility, improved career advancement, more autonomy or control, and greater access to resources and personal factors. These factors can be viewed in Table 5.3.1. below:

#### **Table 5.3.1. Causes identified for mobility out of the public sector for medical laboratory specialists:**

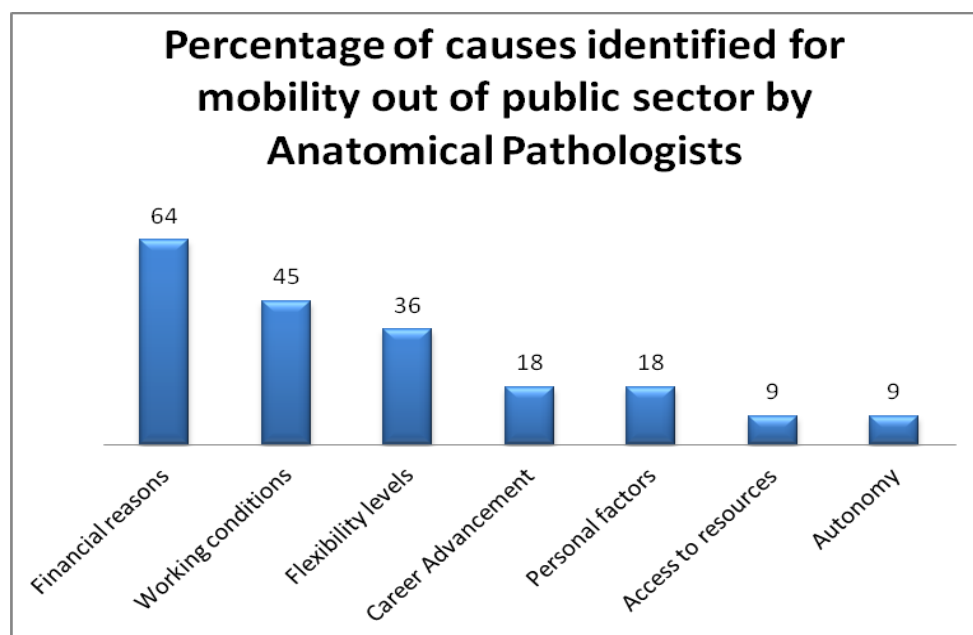
The development of the discussion based on each of the causes identified in table 5.3.1. will be presented further below.

Causes identified for mobility out of the public sector for medical laboratory specialists:	
1.	Financial reasons
2.	Working conditions and working environments
3.	Flexibility
4.	Career advancement
5.	Access to resources
6.	Autonomy and control
7.	Personality and personal factors

*Source: Interviews, 2011*

Figure 5.1 below indicates that the majority of anatomical pathologists (64%) cited financial reasons as the core reason to migrate out of the state sector. Working conditions were identified as the second most important reason for mobility (45% of pathologists). Another reason for mobility out of the public sector is the lack of flexibility (36% of anatomical pathologists). Career advancement as well as personal factors were cited by 18% of anatomical pathologists. Access to resources as well as levels of autonomy levels were identified by the lowest percentage of anatomical pathologists (9%).

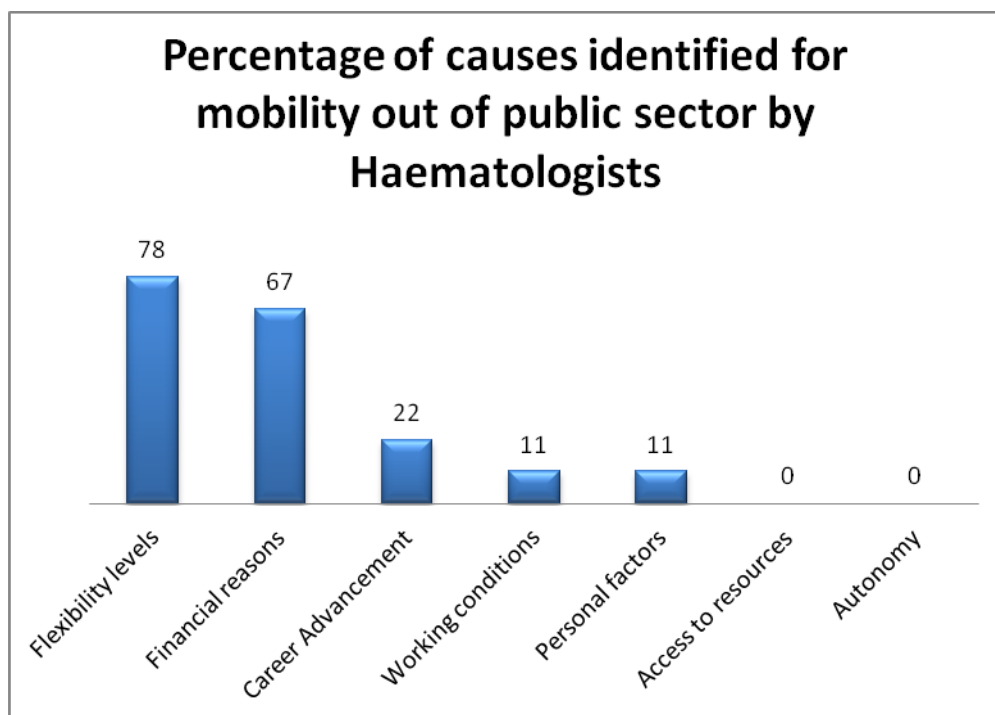
**Figure 5.1.**



*Source: Interviews, 2011*

On the other hand, figure 5.2 shows that the majority (78%) of haematologists felt that levels of flexibility were reason to migrate into private laboratories. Financial reasons were identified as the second highest reason for mobility by haematologists (67%), while 22% felt that career advancement was a reason for mobility into private practise. Finally, only 11% that felt that working conditions were a cause of mobility. In contrast, 45% of anatomical pathologists agreed that working conditions are a reason to switch sectors. This implies that haematologists are more satisfied with their working conditions than anatomical pathologists. It could also be that anatomical pathologists suffer more onerous working conditions than haematologists. Personal factors were identified as a cause of mobility by 11% of haematologists, with none identifying access to resources or autonomy as a cause of mobility to the public sector.

**Figure 5.2.**



*Source: Interviews, 2011*

### **5.3.1. Remuneration**

Financial considerations were a prominent theme throughout the interview process (Interviews: Dr Anderson; Dr Aniruth; Dr Kumar, 2011; Dr Maharaj; Dr Mandere; Dr Mohun; Dr Ramall, 2011). However, as much as higher salaries have motivated medical laboratory specialists to move to the private sector, it was found that this was not the core

reason for the movement for all medical laboratory specialists. Whilst some haematologists and anatomical pathologists said that a higher salary was their main reason for having left the public sector and joined the private sector, other factors also explain this mobility. It should be noted that salaries for medical laboratory specialists in the public sector are competitive (Interview: Dr Narayan, 2011).

Dr Maharaj (Interview, 2011) said that financial considerations led him to leave the public sector. He added that he was better able to cater for his family's needs with what he earned in the private sector (Interview, Dr Maharaj, 2011). When asked about the causes of mobility of medical laboratory specialists, one of the participants answered:

*“And I think one of the biggest is the remuneration because the public sector cannot compete with the private sector”* (Interview: Dr Rampersad, 2011).

Although the public sector is striving to improve salaries, the private sector is still more lucrative at this stage. Dr Mandere (Interview, 2011) noted that economic considerations mean that it is common sense to move out of the public sector, as the private sector pays higher salaries than the public sector (Interview: Dr Mandere, 2011). Dr Watkins (Interview: 2011) said that:

*“Pay is lower and [are] they struggling to retain people in the public sector”* (Interview: Dr Watkins, 2011).

The findings of this research show that the salaries of medical laboratory specialists in the public sector have been aligned to salaries paid in the private sector in order to retain specialist staff (Interview: Dr Rampersad, 2011). This decision requires a lengthy process, involving an executive committee as well as the Chief Executive Officer for the whole country (Interview: Dr Rampersad, 2011). Due to the different nature of ownership in the private sector, it is a much easier process for a private laboratory to match a medical specialist's salary. This is often accompanied by shorter hours of work (Interview: Dr Rampersad, 2011). However, there are more opportunities to work overtime and get paid for it in the public sector (Interview: Dr Ndlovu, 2011). While this may, in fact result in medical laboratory specialists in the public sector being paid more than those in the private sector in certain cases, people continue to resign and move into the private sector (Interview: Anonymous, 2011). This implies that financial reasons may not be the only cause of mobility out of the public sector, as will be discussed further below.

### 5.3.2. The Working Environment and Working Conditions

Working conditions and the working environment have a major impact on mobility between sectors in more ways than one. The literature also indicates that the working environment plays a role in migration (*See Chapter 3*). One of the explanations for migration out of the public and into the private sector is that the latter is said to be more affluent (ICAD, 2006). The working environment, as well the people who are part of it, can be very influential with regard to staff satisfaction (Interviews: Dr Aniruth; Dr Ramlall, 2011). The findings of the research show that the working environment in the public and private sectors is different (Interviews: Dr Aniruth; Dr Rampersad, 2011) and is a reason for mobility, as explained by Dr Maharaj (Interview, 2011). The level of communication or interaction between the patient, the physician, the primary referring doctor, and the pathologist is higher in the private sector for anatomical pathologists, than in the public sector. Dr Maharaj stated:

*“Because I mean the working environment is so much different, forget the financial rewards, that is obviously a big factor but in the public sector one of the biggest problems there is that you have a very poor communication between the patient, the physician, the primary referring doctor and eventually the pathologist. As a pathologist you are like a super speciality, you are the last port of call kind of thing. So when you get a specimen coming to you, you are almost looking at it in isolation. There is very limited interaction. Whereas here you are on the phone, or even the doctor or the patient visits you like you are doing now and you get a well informed background to the patient before you look at the specimen. There you work in kind of isolation”* (Interview: Dr Maharaj, 2011).

The interview that had been arranged with Dr Maharaj had to be rescheduled due to the need for him to go to theatre while the patient was being operated on in order to guide the surgeon (Interview: Dr Maharaj, 2011). Such interaction may be seen as an advantage (Interview: Dr Maharaj, 2011).

Dr Nair (Interview, 2011) stated that if the environment is not conducive, then you would have to leave. Long working hours in the public sector were also identified as a reason for moving to the private sector (Interviews: Dr Govind; Dr Suraj, 2011). Dr Suraj noted that:

*“Firstly, it’s the working conditions in terms of the working hours. In the public sector - because of the volume of work that we have, our working hours are quite*

*long. So we actually extend beyond what is expected of it because we just need to complete the work.”*

Dr Govind (Interview: 2011) explained:

*“I worked as a sessional doctor for approximately three years after I had a twin pregnancy. Then when I was ready to go back into full time employment, I had another child. A limited working day became critical .The public sector was not able to accommodate me at that point”* (Interview: Dr Govind, 2011).

If flexibility is restricted, pathologists are more likely to seek a package that suits their needs. In the private sector, there is an option to work part time, unlike in the public sector according to Dr Brijall (2011). In the public sector, staff is required to work a full shift, with no option of doing private sector work (Interview: Dr Brijall, 2011). Jobs in the private sector are said to come with laptops, travel allowances and cell phone allowances, which are added attractions (Interview: Dr Brijall, 2011).

A stressful working environment as well as the excessive workload are further reasons for medical laboratory specialists to leave the public sector (Interview: Dr Brijall, 2011). For example, Dr Aniruth (Interview, 2011) stated:

*“I know people who were very unhappy at work. And we have got some pathologists who resigned from there [public sector], senior people, and came to private practice and it's because of the work environment.”*

The working environment differs from department to department (Interview: Anonymous, 2011). Anonymous (2011) noted that:

*“Maybe in Cape Town their experience is different, but for me, here in Durban, public is hell... It could have been different.”*

Departmental dynamics and problematic interpersonal relationships can prompt the decision to leave the public sector. Another element of the working environment is resources, to which medical specialists have greater access in the private sector. For example Dr Maharaj (Interview: 2011) said that new equipment such as the latest cameras, microphones, information technology software, and access to the Internet and journals is available in the private sector. Anatomical pathologists are expected to keep up-to-date with developments in molecular biology. There are a lot of genetics involved and hence a need for ongoing research

(Interview: Dr Maharaj, 2011). Breast cancer for instance, is a common diagnosis made by anatomical pathologists, and different forms of new testing as well as stains are being uncovered on a regular basis (Interview: Dr Maharaj, 2011).

One participant noted that the public sector might have more access to technology because there are fewer financial restraints, whereas in the private sector one may be restricted according to whatever is viable (Interview: Dr Anderson, 2011). The public sector medical laboratories are well equipped in terms of technology and equipment, which is at the same level as it would be in the private sector (Interview: Dr Kumar, 2011). Therefore, the physical environment in terms of equipment and technology might not be a cause for mobility. This is not to suggest that there is a limited range of technology or equipment in the private sector, but rather that the public sector may have more access to technology than the private sector as a certain laboratory may avoid duplicating equipment in other branches of their chain of laboratories in, say, Cape Town or Johannesburg (Interview: Dr Anderson, 2011).

For example, leukaemia flow cytometry<sup>3</sup> will be sent to Johannesburg instead of equipping all the laboratories belonging to one private company to be able to perform this analysis, as this doesn't make financial sense (Interview: Dr Anderson, 2011). In the public sector, such facilities are duplicated in each province (Interview: Dr Anderson, 2011). Depending on where their interests lie, this might motivate a specialist to move from the private to the public sector.

Still on the note of technology and physical aspects of medical laboratory specialists' working environment, it is important to note that the public sector presents a tertiary setup, which is relatively new (Interview: Dr Kumar, 2011). However, Dr Kumar (Interview, 2011) stated that not all the equipment in the public sector is functional, as there is a lack of funding to run it. Cytogenetics<sup>4</sup> could be performed in the public medical laboratories in KwaZulu-Natal, but is sent instead to Johannesburg (Interview: Dr Kumar; Dr Narayan, 2011).

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<sup>3</sup> Flow cytometry can be used to simultaneously measure and analyze multiple physical characteristics of single cells or particles as they pass through the measuring apparatus in a fluid stream (Interview: Dr Mohun, 2011).

<sup>4</sup> Refers to chromosome analysis and provides a tool for diagnosis and classification of haematological malignant diseases (Interview: Dr Mohun, 2011).

Another important finding of this study is that the working environment in the public sector is largely ‘supervisor dependent’ (Interview: Dr Aniruth; Dr Nair, 2011). The literature review revealed that a healthy and motivated workforce is vital (Narismahn *et al*, 2004). Skilled and appropriate management as well as treating workers in an appropriate manner is essential to build staff morale. This means that the skill of the supervisor in managing staff influences the nature of the working environment. An encouraging supervisor would create a more conducive and positive working environment that increases productivity and cooperation (Interview: Dr Nair, 2011). This can influence the decision to move sectors. For example: *“So it’s a huge thing, so I think largely its supervisor dependent. If the supervisor wants to micromanage and things like that, you are not going to get happy staff. So I think therefore people move to private as well because they are not micromanaged.”* (Interview: Dr Nair, 2011).

One participant explained that, had there been a different head of department, he would not have left the public sector. He said that he wanted to grow in terms of his career without any ‘obstruction.’ Management in the public and private sectors is also said to differ (Anonymous, 2011). He elaborates:

*“But when you come into private practise it’s a different ball game. You have got to manage. You manage perceptions, you manage attitudes, and you manage people...if you treat someone badly they will have to leave...you just listen and be compassionate...if you manage people’s emotions at work, you will go far as a leader. And in the state sector, you are a number, you are not a person. You are just a number”* (Interview: Anonymous<sup>5</sup>, 2011).

The above quotation is a clear indication that ‘mismanagement’ influences the mobility between public and private sectors (Interview: Dr Mandere, 2011). One participant indicted the importance of having heads of department that are adequately trained in leadership and management and that one cannot appoint a person as a head of department based only on their strong academic profile (Interview: Anonymous, 2011). Furthermore, the working environment in the private sector is said to offer support at various levels of staffing as well as the allied diagnostic services that focus on turn-around time (Interview: Dr Govind, 2011).

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<sup>5</sup> Identity of participant was deliberately concealed due to sensitivity of information given.

In addition, different departments display their own dynamics, which might influence the mobility of medical laboratory specialists (Interview: Dr Mohun, 2011).

A major difference found between the public and private sectors is that the public sector incorporates the academic sphere (Interviews: Dr Aniruth; Dr Chetty, 2011).

*“The downside of the private sector includes a relative academic isolation, the public sector tends to have a more regulated academic environment”* (Interview: Dr Govind, 2011).

The public sector runs a training department and the private sector does not (Interview: Dr Rampersad, 2011). Medical laboratory specialists in the public sector are tasked with lecturing, and consultants train registrars in addition to their ordinary duties (Interviews: Dr Aniruth; Dr Chetty, 2011). Furthermore, research is also an important part of the working environment in the public sector (Interview: Dr Aniruth, 2011). While those in private practise and do undertake research, there is inadequate time for this (Interview: Dr Aniruth, 2011). Dr Smith (Interview: 2011) offered a contrary view, stating that whereas in the past more research was done in the public sector, this has been turned on its head; due to the availability of funding in the private sector more ‘academic medicine’ can be conducted in this sector.

Another issue that might motivate medical laboratory specialists to leave the public sector is the way they are treated (Interview: Dr Nair, 2011). Dr Nair (Interview, 2011) felt that people who work in the public sector are not treated as professionals, despite having achieved a particular status. The literature shows that job autonomy, discussed in detail below (See section 5.3.3) leads to increased productivity and flexibility, and enhances an organization’s ability to retain workers (Jacob, Bond, Galinsky and Hill, 2008; Richman *et al*, 2008). Professionals such as those in medical laboratory medicine need a degree of flexible management when they reach a certain stage in their career. Involvement in management and decision making as well as supervisor support for job success are an integral part of achieving efficiency in any work environment (Jacob, Bond, Galinsky and Hill, 2008). Thus, it is essential in any working environment to display a level of respect and acknowledgement of staff members in order to maintain a healthy and balanced workforce.

Another difference between the sectors is that the private sector medical laboratories are more commercialised, thus making it more demanding compared with the public sector (Interviews: Dr Anderson; Dr Smith; Dr Van Vuuren, 2011). In order to remain in business and make a profit, private sector businesses are driven to attract more work. It is the responsibility of the private laboratory to ensure that their customers/clients are satisfied, as with any other service provider, whereas in the public sector, staff are more concerned with completing their tasks than with worrying about pleasing clients or customers (Interviews: Dr Smith; Dr Van Vuuren, 2011). Pathologists in the private sector have to be at 'the beck and call' of their clients 24 hours a day, whereas the state sector has a certain level of hierarchy in terms of the responsibility to deal with calls and queries (Interview: Dr Anderson, 2011). In the private sector, there is less hierarchy and only the pathologists and technologists are available (Interview: Dr Anderson, 2011). The private sector presents the stress of handling various aspects of the job such as profits, staff and management as well as the academic side of it, whereas the public sector offers a more secure environment that allows one to focus on academia and patient care (Interview: Dr Anderson, 2011). Competition is another facet of the private sector. Laboratories compete with one another for work, thus work pace and workload in the private sector is said to be much higher than in the public sector (Interview: Dr Smith, 2011). In the private sector, the profit motive forces staff to be more aware of being a service provider (Interview: Dr Smith, 2011). Notwithstanding these factors, there is still greater mobility out of the public sector than into the public sector.

Although the findings showed that medical laboratory specialists in both the public and private sectors are advanced and exhibit high standards, one participant disagreed:

*"Oh, there is no comparison. Okay, in terms of the laboratory side previously when I came into private practise here, well we still do clinical procedures in hospitals so I do not go out a lot into the hospitals, this service level is incomparable- the private versus the state. We [the private sector] give a phenomenal first world service as compared to the state. Obviously, academic level would be the same because we all train there. But in terms of what we give the doctor and the service...and what we can offer the patient is far superior, and also, for us to do procedures, it's easier because everything is readily available-even the quality of the bone marrow needle is far more superior, we just use it once and throw it away"* (Interview: Dr Kumar, 2011).

The quotation above illustrates that there is more of a hands-on environment in the private sector. However, in terms of a broader perspective, the difference is that the private sector is a business environment, which accounts for their 'hands on' nature. In addition, although workloads in both the private and public sectors are heavy, and pathologists work very hard in both sectors, the public sector services 60% of the population, as opposed to the 40% that private sector deals with (Pillay, 2009). Private laboratories must seek out customers and maintain clients, their workloads may fluctuate. In the public sector, there is always a constant, if not increasing workload. The turn-around time in the two sectors is also said to differ. The maximum turn-around time in the private sector is 24 hours, whereas it is much longer in the public sector (Interview: Dr Kumar, 2011). For example, if a bone marrow procedure is done on a certain day, the private sector haematologist will look at it on the same day (Interview: Dr Kumar, 2011).

Another difference between the public and private sectors reflects on the diversity of the scope of the work as touched on briefly under section 5.2.4. For example, haematologists in the public sector go out and perform the bone marrow procedures, whereas in the private sector clinicians, medical physicians or registrars perform the bone marrow procedure and it thereafter proceeds to the haematologists in the laboratory (Interview: Dr Maistry, 2011). In the public sector, haematologists are said to be more specialised in that they deal with coagulation queries, cytogenetics and molecular flow cytometry (Interview: Dr Maistry, 2011). Hence, the public sector presents a wider scope as well as more exposure (Interview: Dr Maistry, 2011). This may attract haematologists to the public sector.

### **5.3.3. Autonomy**

Another factor causing mobility out of the public sector is that of 'freedom' (Interview: Dr Maharaj, 2011). The public sector is said to have a high level of rules and regulations, and a very hierarchal structure, as well as numerous protocols and red tape, which lead to frustration among professionals (Interview, Dr Maharaj, 2011). This sector is also perceived as having a more rigorously controlled working environment as compared to the private sector (Interviews: Dr Watkins; Dr Van Vuuren, 2011). Autonomy and freedom, as well as flexibility are needed for career advancement, and these are found to a greater degree in private practise. Job autonomy refers to the extent to which a job provides freedom, independence, and most importantly, discretion in work content and methods of working, as well as the pace one chooses to work at (Jacob, Bond, Galinsky and Hill, 2008). Highly

skilled professionals such as medical laboratory specialists expect a level of recognition and responsibility on reaching a certain level, and as argued by the above authors, they should be allowed to act at their own discretion.

#### **5.3.4. Flexibility**

The nature of, as well the level of flexibility attached to a job also influences movement from the public to and private sector and *vice versa* (Interview: Dr Rampersad, 2011). The degree of flexibility in terms of working hours differs greatly between the two sectors (Interview: Dr Brijlall, 2011). Working hours for medical laboratory specialists in the private sector are more flexible than in the public sector (Interview: Dr Mohun, 2011). Dr Suraj (Interview, 2011) explained that in the private sector, one might leave once one's work is done, whereas even if that option exists in the public sector, one may not have the opportunity to exercise it due to the onerous workload. There are fewer rules about reporting for and leaving work at set times in the private sector (Interview: Dr Maharaj, 2011). The level of flexibility in the private sector is said to make the working environment more 'conducive' to work in (Interview: Dr Maharaj, 2011). In the public sector employees have to clock in and out at certain times (Interview: Dr Maharaj, 2011). One is even able to work from home in the private sector (Interview: Dr Maistry; Dr Narayan, 2011). Whereas a private sector pathologist can sign off work in the comfort of their own home, this option is non-existent in the public sector (Interview: Dr Maistry, 2011). Whatever is required by a private pathologist can be delivered, as he/she does not have to be physically present at a certain hospital (Interview: Dr Narayan, 2011). However, in the public sector, pathologists are required to sign off reports/results on site (Interview: Dr Maistry, 2011).

Many specialists, especially those with a family, have opted to move into the private sector because the working hours are more flexible (Interviews: Dr Mohun, 2011; Dr Suraj, 2011). One of the key reasons that two participants left the public sector and joined a private practise was long working hours (Interviews: Dr Chetty; Dr Nair). Dr Nair (Interview, 2011) explained that he needed more family time, which was not possible in public sector where he worked until nine or ten o' clock at night. Dr Chetty described the working hours in the public sector as "ridiculous" (Interview: Anonymous, 2011). It was added that the private sector offered the participant a half a day post with a competitive salary, which enabled more family time. One participant requested a half-day job, however, the cut in her salary was dramatic, which caused her to move to the private sector (Interview: Dr Brijlall, 2011). In

fact, her salary would have been halved, whereas when she went into the private sector they offered her one and a half times the full day salary she had earned in the public sector (Interview: Dr Brijlall, 2011).

The findings show however, that one can negotiate flexible working hours in the public sector if one is close to retirement or is a mother needing to spend time at home (Interview: Dr Ramlall, 2011). But while flexibility is possible in the public sector only under certain circumstances, these types of arrangements are much more easily negotiated in the private sector (Interview: Dr Ramlall). As stated by Dr Maistry (Interview: 2011):

*“The reason they have also gone into private is they were offered what they wanted and most of them are doing half day jobs as opposed to full day jobs.”*

Although the flexibility in working hours in the private sector might make it appear as though it is more beneficial to women, as shorter working hours mean that female specialists can also fulfil their role and functions as a wife and mother, the findings show that flexible working hours also appeal to male medical laboratory specialists (Interview: Dr Ramall, 2011). Flexible working hours are available to both genders in the private sector and are a compelling reason for pathologists to transfer into private practise. The literature on flexibility notes that it is associated with increased job satisfaction and greater work commitment (Jacob, Bond, Galinsky and Hill, 2008; Richman *et al*, 2008). Flexibility arrangements that are family-supportive would increase job satisfaction (Jacob, Bond, Galinsky and Hill, 2008; Richman *et al*, 2008). Richman *et al* (2008) add that workplace flexibility increases retention and influences employees to remain with their current employer.

Another important form of flexibility that is unique to haematology is that it offers a dual speciality (Interviews: Dr Ramlall; Dr Smith, 2011). Haematology offers the flexibility of doing both clinical haematology as well as laboratory haematology work (Interviews: Dr Brijlall; Dr Ramlall; Dr Smith, 2011). A haematologist is able to perform a bone marrow biopsy, see the patient, and return to the laboratory and interpret the results of the sample (Interview: Dr Ramlall, 2011). One has to study further in order to qualify to do both laboratory haematology and clinical haematology. Haematology is thus more flexible than other pure pathology disciplines such as histology, chemistry or microbiology (Interviews: Dr

Brijlall; Dr Smith, 2011). Clinical haematology itself has two branches: oncology and general non-malignant haematology (Interview: Dr Brijlall, 2011).

The findings reveal that this form of flexibility is different in the public and private sectors. Once a haematologist is part of the private sector, they have to select which type of haematology they will practise, whereas in the public sector there is an overlap and they may do as much of each as they desire (Interview: Dr Smith, 2011).

In terms of haematology specifically, there is also more flexibility with regard to turn-around time (Interview: Dr Mohun, 2011). As discussed earlier, turn-around time in the private sector is much quicker than that in the public sector. The public sector has more flexibility with regard to turn-around time due to an enhanced ‘understanding’ on the part of clinicians (Interview: Dr Mohun, 2011). In addition, there is much more time and less pressure with regard to releasing reports (Interview: Dr Mohun, 2011).

#### **5.3.5. Career advancement**

Long term career prospects are better in the private sector than in the public sector (Interviews: Dr Anderson; Dr Govind; Dr Nair, 2011). In other words, one can further oneself and one’s career in the private sector (Interviews: Dr Kumar; Dr Govind; Dr Smith, 2011). As one participant noted:

*“They have frozen posts...the people who qualified are still stagnant, not moving up- no job offers. So, if jobs are frozen, people are going to leave. They are not going to stay at that level- registrar or whatever level because they are now qualified. There is a need for more consultants but they are not opening it up. So there is an exodus at the moment. People are leaving and it is a lot”* (Interview: Dr Kumar, 2011).

Restrictions on upward mobility in the public sector may cause professionals to leave. Movement between the sectors is said to depend on what exactly the medical laboratory specialist is looking for in each sector (Interview: Dr Anderson, 2011). The private sector is said to offer a sense of business-orientated growth and stimulation, which may be seen as a reason to seek employment in this sector (Interview: Dr Anderson, 2011).

#### **5.3.6. Personality and Personal Factors**

In keeping with the literature on migration (Stilwell *et al*, 2004), there are personal reasons why medical laboratory specialists might move between the private and public sectors. Their

preference for a certain type of work may determine their priorities. For example, based on type of personality, one may prefer the academic side of the work, such as research and attending conferences and writing articles, whereas others may want a high-pressured job with quick turn-around time and a better salary (Interview: Dr Watkins, 2011). If one is very academically inclined, then due to access to research funding, one may opt to be part of the public sector (Interview: Dr Kumar, 2011). However, if this activity is not promoted or encouraged, frustration will prompt one to move to the public sector (Interview: Dr Kumar, 2011). Funding and sponsorship are available in the public sector for academic meetings both locally and abroad, whereas in the private sector individuals have to provide their own funding (Interview: Dr Govind, 2011). Other personal reasons include moving to a sector where one's spouse is located (Interview: Dr Watkins, 2011).

A striking example of personal reasons for staying in the public sector is Dr Mkhize (Interview: 2011) who decided to remain in this sector in order to serve the government and provide a role model to encourage other Black pathologists to join the public sector.

Another personal factor that may motivate a medical laboratory specialist to change sectors is their desire to work in a challenging business environment. As seen in section 5.3.2, the private sector is more business-orientated, and geared towards service delivery. As Dr Anderson stated:

*“...I enjoy the challenge of private practise and the complexities of private practise...it's a personal thing really”* (Interview: Dr Anderson, 2011).

With specific reference to haematologists, the findings reveal that although the private sector offers attractive salaries, transferring to this sector would mean working in laboratories that are not as specialised (Interview: Dr Ramlall, 2011). Once again, it all depends on the preference of the medical laboratory specialist.

There is also the issue of the 'work ethic' that is said to differ between the public and private sectors. As noted earlier, the private sector, focuses more on service delivery. (Interview: Dr Kumar, 2011). This is not to suggest that the medical specialists in the private sector work harder than those in the public sector. However, the specialists in the private sector have a strong commitment to the doctors they are providing a service to. The issue of work ethic

may be more important to some specialists than others, thus personality is important in determining which sector one decides to work in.

#### **5.4. Impacts of Private-Public Mobility of Haematologists and Anatomical Pathologists**

The literature indicates that the mobility of human resources may have several impacts (Pogue, 2007), including increased challenges and a strain on the health sector (Hagopian *et al*, 2004). The mobility of medical laboratory specialists between sectors has a number of consequences, not just for themselves, but for those who are left behind. Previous research has shown that when some workers migrate, the remaining workers have to cope with the workload (Beckering and Brunner, 2003). In the case of anatomical pathologists and haematologists, challenges are experienced at all levels of the laboratory (Interview: Dr Maharaj, 2011). This means that the remaining pathologists are subjected to an escalation in stress and strain (Beckering and Brunner, 2003). Laboratory staff are also affected, including clerical staff and technologists that work for the pathologists (Interview: Dr Maharaj, 2011). Therefore, there is an increase in workload and stress (Interviews: Dr Brijlall; Dr Maharaj; Dr Mandere; Dr Mkhize; Dr Nair, 2011). The mobility of medical laboratory specialists from the public sector to the private sector may influence others to leave as well. As Dr Nair explained (Interview, 2011):

*“Obviously if you are going to have people moving from public to private you are going to have an increased work load and stress on the people who are currently there. I mean that is given. So that is obviously going to have an impact on them because more people want to leave, it will have a negative knock-on effect. That is understandable why people leave after other people have left. Ja its happening and it happens on a daily basis.”*

One of the most severe effects of the shortage of pathologists in the public sector has been the delay in diagnoses (Interviews: Dr Rampersad; Dr Suraj, 2011). As Dr Brijlall observed:

*“We cannot treat patients adequately if we have a huge shortage”* (Interview: Dr Brijlall, 2011).

The hundreds of specimens that come through to the laboratories increase the stress and workload levels of pathologists. Dr Rampersad (Interview: 2011), an anatomical pathologist explains:

*“Basically if you can imagine there are hundreds of specimens coming and the timetable is done with the maximum numbers so that we don’t burn out, so the timetable is sort of the funnel and then we have all of these specimens and when they reach that funnel, then its starts backing up and then you have a problem because specimens will wait for diagnosis. We have methods of triaging everything so a patient’s gall bladder that was removed, gall stones is not as important as a lung biopsy for cancer. But the pathologist does that not the technologists or the other staff, we are responsible for triaging. But at the end of the day it is the turn-around time that gets affected of the results.”*

In other words, the turn-around time increases, and this delay forces doctors to put further treatment of patients on hold as they require the results of tests such as biopsies (Interview: Dr Suraj, 2011). If a patient suffers from cancer, which requires treatment, efficiency and the best form of treatment may be compromised due to delays caused by the shortage of pathologists (Interview: Dr Suraj, 2011). Mwenda (2010) notes that shortages of laboratory staff increase delays in diagnosis. In simple terms, fewer pathologists are now doing the same amount of work (Interview: Dr Mandere, 2011; Beckering and Brunner, 2003). Anatomical pathology is closely associated with accuracy, turn-around time and completeness (Interview: Dr Mandere, 2011). If two specialists are doing the work of ten people, there must be adverse effects (Interview: Dr Mandere, 2011). Apart from delays in diagnosis and increased workloads and stress, this situation could result in misdiagnosis. The literature shows that increased pressure, stress and exhaustion may lead to higher risks of medical error (Beckering and Brunner, 2003; Bersch, 2003; Blanckaert, 2010). Another effect of the loss of medical laboratory specialists in the public sector is the loss of skills and expertise (Interview: Dr Mandere, 2011).

The underlying effect on the overall health care system is that a greater burden is placed on fewer people (Interviews: Dr Brijlall; Dr Ramlall, 2011). When people move between sectors, the work still has to be completed by those remaining behind (Interviews: Dr Anderson; Dr Smith, 2011). The findings show that one or two departments have imploded due to the shortage of pathologists (Interview: Dr Smith, 2011). The entire department

collapsed because too many people left (Interview: Dr Smith, 2011). Fortunately the haematology department in the public sector has more consultants than registrars (Interview: Dr Ramlall, 2011). Although staff do take strain and there are backlogs, the department of haematology is said to be quite stable (Interview: Dr Kumar, 2011).

The training of registrars is also affected by the loss of medical laboratory specialists to the private sector. The number of registrars trained depends on the number of consultants available (Interview: Dr Brijlall, 2011). If a consultant leaves the public sector, the registrar may have to then book time with the consultant to discuss a case, such as a bone marrow report, before it is signed off (Interview: Dr Brijlall, 2011).

The consultant may not always be available due to other work commitments (Interview: Dr Brijlall, 2011). The loss of medical laboratory specialists in the public sector therefore also represents a loss of the expertise that is used to train registrars, as well as a loss of those that are authorized to sign off reports and results (Interview: Dr Brijlall, 2011). This will once again lead to delays.

Since the majority of the population is cared for in the public health system, the pathologists that remain in this sector are compelled to try and service this population (Interview: Dr Mohun, 2011). This results in heavy workloads, and less time to conduct research (Interview: Dr Mohun, 2011). For example, the haematology registrars in the public sector are unable to complete their work due to the high volumes of work and the small number of staff; thus the pathologists are actually doing what the registrars are meant to do (Interview: Dr Mohun, 2011). Dr Maistry (Interview: 2011) stated that:

*“But at the same time to actually expand and actually see the growth and actually do some of the research and be on the same par as some of the first world countries like the US and UK I think we need to be spending more time actually getting involved in that type of thing. But with the work and the service delivery and I think even when we are short staffed everyone just doubles whatever they are supposed to do. It does get very stressful but we manage to complete the...”*

## **5.5. Nature of the Medical Laboratory Specialists Labour Market**

One of the biggest problems facing the South African health care sector is the shortage of pathologists (Interviews: Dr Maharaj, 2011; Dr Suraj; Dr Watkins, 2011). This shortage exists on a global scale (Interview: Dr Maharaj, 2011). The WHO (2010) has noted a global shortage of four million health care workers. South Africa has only eight physicians per 10 000 people (WHO, 2010) (*See chapter 3*). In addition, as noted in chapter 3, there are 245 anatomical pathologists, 115 haematologists, 28 virologists and 115 chemical pathologists in South Africa (HPCSA, 2010). The findings of this study indicate that there is only one anatomical pathologist and one virologist for every two million people in South Africa, with one haematologist and one chemical pathologist per 500 000 people (*See chapter 3*). In KwaZulu-Natal, where this study is based, the researcher found that there are 23 anatomical pathologists and 11 haematologists to serve a population of 10 819 130 people (StatsSA, 2011). Hudson (2011) notes that statistics may not always represent the true picture. This study has attempted to establish the correct statistics concerning the labour market by means of available information and fieldwork. The findings show that there were indeed 11 haematologists as per the 2010 HPCSA statistics. Moreover, although the statistics put the number of anatomical pathologists in KZN at 26, only 23 were traceable. This study has therefore attempted to address the current incompleteness of data (Khadria, 2010). The literature also indicates that there has been a lack of research on the complexities and detail of the public health sector, such as its workforce profile (Beaglehole and Dal-Poz, 2003); thus this study has attempted to provide an in-depth analysis of the medical laboratory specialist workforce.

There is also a serious lack of registrars, especially in haematology (Interview: Dr Brijlall). While this may be due to a lack of funding, the precise reasons for this shortage are not known (Interview: Dr Brijlall, 2011). There should be a consultant allocated to each specialist area in the laboratory in order to facilitate adequate reporting and progress (Interview: Dr Mohun, 2011), but there is a shortage of anatomical pathologists in South Africa (Interviews: Dr Maharaj, 2011; Dr Nair). With respect to haematologists, not enough haematologists are currently being trained (Interview: Dr Anderson, 2011). The field of haematology is said to be full at times, whereas at other times there will be shortages (Interview: Dr Anderson, 2011). South African pathologists are said to leave the country due to poor working conditions and salaries (Interview: Dr Maharaj, 2011). The participants were of the opinion

that the current number of haematologists is enough to manage the workload, but there is still a need for more haematologists (Interviews: Dr Mohun; Dr Rampersad; Dr Narayan, 2011). The set up in the private sector, where some haematologists work half-day may be problematic if one doctor takes leave, and therefore, more haematologists are required (Interview: Dr Narayan, 2011).

The public sector is said to have positions that have been vacant for years (Interview: Dr Maharaj, 2011). This was described by one participant as a ‘chronic’ problem (Interview: Dr Maharaj, 2011). The private sector however, is better staffed (Interviews: Dr Rampersad, 2011; Dr Watkins, 2011). Although there is a shortage of pathologists in both sectors, the shortage is more severe in the public sector (Interview: Dr Watkins, 2011). Cases are sometimes outsourced to the private sector; however, this kind of arrangement is avoided currently due to the costs incurred by the state (Interview, Dr Rampersad, 2011). Not many doctors qualify and pursue pathology, because the training is intensive and poses numerous challenges (Interview: Dr Maharaj, 2011). Instead, doctors choose to specialize in gynaecology or general surgery, which is said to be easier (Interview: Dr Maharaj, 2011). One interviewee observed (Dr Nair, Interview: 2011):

*“...you need people who are intelligent enough to do this field. You need people who are smart.”*

In light of the above, the issue of occupational returns emerges. People often compare the length of time they have to study to qualify with their financial rewards. This research study revealed that anatomical pathology is more difficult than other disciplines within laboratory medicine. This does not, however, imply that the other disciplines are ‘easy’.

Dr Rampersad (Interview: 2011) explained that increased workloads and delays in diagnosis cannot be resolved until staff numbers increase. There are also vast differences between the different disciplines within medical laboratory science. For example, haematology and chemical pathology use large machines in which many test tubes are inserted. Results go into the programme automatically and the report is printed (Interview: Dr Rampersad, 2011). In contrast, an anatomical pathologist may be working on a brain biopsy, for instance, for almost half a day (Interview: Dr Rampersad, 2011). In other words, the work of an anatomical pathologist (such as staining of slides and cutting) is completely human resource

based and dependent largely on manual labour and is carried out by individuals (Interview: Dr Rampersad, 2011). This requires more staff who must be retained. Furthermore, senior staff need to be retained as they possess a higher level of expertise due to experience, and may solve problems faster than junior specialists (Interview: Dr Rampersad, 2011).

In examining the mobility of health professionals in general terms, this research study has shown that individuals will migrate out of a sector after they have specialized and also after they have gained enough hospital experience (Interview: Dr Pather, 2011). Another example of the 'stage' in life when a doctor or health professional may decide to leave is when he/she has been in hospital practise while also maintaining a part time practise and finds that he/she is unable to manage both, thus leading them to make a choice between the two (Interview: Dr Pather, 2011). At a general level, health professionals tend to move out of the public sector due to poor working conditions, but also if the rewards offered by the public sector do not match their expectations (Interview: Dr Pather, 2011). At this point, they would move into the private realm. Working conditions in the public sector are not always easy to deal with (Interview: Dr Pather, 2011). The number of hours spent at work per day are determined by the hospital one works in and doctors deal with large numbers of patients (Interview: Dr Pather, 2011). It may also be restrictive to a certain degree as doctors are confined to treatment modalities and medication that is accepted by the state (Interview: Dr Pather, 2011). In the private sector however, they are able to determine their own working hours and conditions of service, as well as treatment modalities (Interview: Dr Pather, 2011). However, the positive aspect pertaining to the public sector is that doctors are not generally involved in administration and that all patients are given the same type of care (Interview: Dr Pather, 2011).

In private practice, the level of care patients receive is dependent on what they can afford (Interview: Dr Pather, 2011). Not all patients are covered by medical aid schemes (Interview: Dr Pather, 2011). The public sector can also offer a form of stability in terms of salary in that despite fluctuations in the economy, state employees are protected from an economic downturn by a guaranteed income every month. This protection is not offered in the private sector (Interview: Dr Pather, 2011).

Given South Africa's racialised history and the perpetration of inequality based on race and gender (Coovadia *et al*, 2009), it was pertinent to explore the issue of race in the medical

laboratory specialist's labour market. At the time the research was undertaken, there were only two Black medical laboratory specialists in KZN. This in itself is an indication of the racial skewedness in this labour market. One of the participants stated that while Black pathologists did not face any challenges in the private sector, the same cannot be said for the public sector (Interview: Anonymous<sup>6</sup>, 2011). One of the challenges faced by Black medical laboratory specialists in the public sector was that there were no role models or leaders (Interview: Anonymous, 2011). Interestingly, Anonymous (Interview, 18 May 2011) stated that he would remain in the public sector to serve as a role model to future specialists. However, it was later discovered that this participant had left the public sector to join the private sector. It was not possible to interview the subject after this move. It may be that working conditions influenced his decision, specifically, the treatment he was subjected to as being a Black specialist.

However, Dr Mkhize (Interview: 2011) felt that the treatment of medical laboratory specialists in the public and private sectors was the same. Another participant said that it was difficult to do research in the public sector as there was a lack of guidance (Interview: Anonymous, 2011). However, the issue of racial stereotyping was also highlighted as illustrated below.

*"I have been chased out of a doctor's room...they assumed I was not supposed to be there...it was just someone who stereotyped me and assumed I was not meant to be there"* (Interview: Anonymous, 2011).

Dr Mkhize (Interview: 2011) also highlighted racial stereotyping by stating that as a Black pathologist you are undermined and your level of knowledge and expertise is doubted. He (Interview: 2011) added that people may not want to use your services because you are Black and they that they believe that a Black specialist will know less than an Indian specialist. One participant felt that the medical laboratory communities themselves needed to be transformed (Interview: Anonymous, 2011). The private sector laboratories are said to be in the lead as they acknowledge the need for more Black specialists, provide for their career growth and treat them well (Interview: Anonymous, 2011).

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<sup>6</sup> Given the sensitive nature of information provided, the identity of participant was deliberately concealed.

The issue of gender in the medical laboratory labour market was also explored. Gender is believed to affect the type of speciality one chooses to pursue (Interviews: Dr Ramlall; Dr Ramlucken; Dr Suraj, 2011). There is a disproportionate number of men and women in different disciplines, which is not always appreciated (Interview: Dr Ramlucken, 2011). Pathology may be seen as providing a stable working environment with hours that attract women (Interviews: Dr Maistry; Dr Ramlall, 2011). Women generally move into disciplines that have more flexible hours as they also have to fulfil the traditional roles imposed on them by society as wives and mothers (Interviews: Dr Brijlall, 2011; Dr Ramlucken, 2011). Laboratory disciplines are appropriate as they abide by office hours and provide shift work (Interviews: Dr Narayan; Dr Ramlucken, 2011). As one interviewee explained:

*“As a mother and a wife it is easier to have your certain hours so that you have your second job to go home to once you leave here [the office/laboratory]”*(Interview: Dr Narayan, 2011).

In other words, gender was found to be a dimension in the labour market for medical laboratory specialists, especially haematologists and anatomical pathologists. Gender does affect the choice of specialization (Interview: Dr Mohun, 2011). For haematologists, for instance, calls are telephonic instead of being on site and are once a week (Interview: Dr Mohun, 2011). Working hours for haematologists in the public sector are from 8h00 to 16h00 (Interviews: Dr Brijlall; Dr Mohun: 2011). The private sector is thus more accommodating of women’s needs (Interview: Dr Mohun, 2011). Tables 5.5.1 and 5.5.2 below are an illustration of the divisions of race and gender of anatomical pathologists and haematologists respectively, that were interviewed, as previously discussed in chapter 4.

**Table 5.5.1: Division of Participant’s Race and Gender (Anatomical pathologists)**

	Race			Gender	
	White	Black	Indian	Male	Female
<b>Anatomical Pathologists</b>	<b>2</b>	<b>2</b>	<b>7</b>	<b>10</b>	<b>1</b>

**Table 5.5.2: Division of Participant’s Race and Gender (Haematologists)**

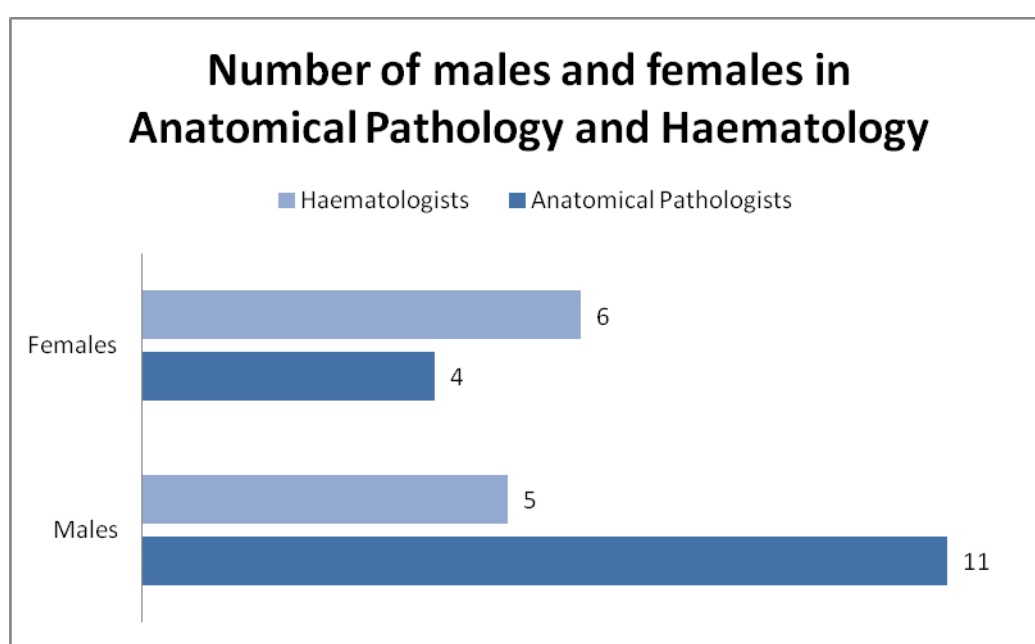
	Race			Gender	
	White	Black	Indian	Male	Female
<b>Haematologists</b>	<b>2</b>	<b>0</b>	<b>7</b>	<b>3</b>	<b>6</b>

Anatomical pathology previously attracted more women than men (Interview: Dr Ndlovu, 2011). Although anatomical pathologists do not do calls over the weekend, their working hours are extensive. Anatomical pathologists work from 7h00 to 18h00 in the public sector, which may be a possible why women and even men are not keen to enter this profession (Interview: Dr Mohun, 2011). However, the University of Witwatersrand is said to have more women studying anatomical pathology than men (Interview: Dr Ndlovu, 2011). The dearth of female anatomical pathologists in KZN may be due to the long working hours that in the public sector (Interview: Dr Ndlovu, 2011). Half a day jobs were not available in the public sector, which drove away medical laboratory specialists from this sector (Interview: Dr Ndlovu, 2011). Even at conferences one will find that there are a lot more females than males (Interview: Dr Ramlall, 2011).

One of the participants felt that there are more men in private haematology than women (Interview: Dr Anderson, 2011). This could be due to the fact that there were only two haematologists in total at one of the branches of a laboratory in KZN, one of which is a men, and the other a women. However, there are certainly many female than male haematologists (Interview: Dr Anderson, 2011). Dr Anderson (Interview: 2011) believed that it was not haematology that restricted women, but rather an individual's personal choice. Another participant stressed that haematology should not be seen as a 'soft job' for a woman (Interview: Dr Narayan, 2011). Dr Narayan (Interview, 2011) added that any discipline within the medical laboratory specialization including anatomical pathology, chemical pathology, virology or microbiology would give one a certain degree of flexibility.

Pathology *per se* is female dominated (Interview: Dr Kumar, 2011). Such a large number of women have graduated that it is difficult to find a male pathologist (Interview: Dr Kumar, 2011). Dr Ramlall (Interview, 2011) said that there are currently eight female registrars in the field of haematology. Even conferences are dominated by women (Interview: Dr Kumar, 2011). This finding is at odds with the literature that states that there are few women medical graduates (*See Chapter 3*). Figure 5.3 below shows the gender division in the disciplines of anatomical pathology and haematology based on available information. Anatomical pathology has 11 males and just four females, while haematology has five males and six females. Anatomical pathology may thus be seen as a more male dominated discipline, whereas haematology may be viewed as a female dominated area of specialization. However, this does not imply that haematology is a 'soft job' (Interview: Dr Narayan, 2011).

**Figure 5.3**



*Source: Interviews, 2011*

The shortage of medical laboratory specialists has been the biggest problem as this profession is skills-based and experience is gained over time (Interview: Dr Kumar, 2011). The biggest challenge facing the private sector at large is financial concerns (Interview: Dr Anderson, 2011). Lack of access to libraries is also a problem (Interview: Dr Anderson, 2011). It also seems that specialists in the private sector have less free time.

NHI was identified as another challenge for the private sector (Interview: D Kumar, 2011). There is a great deal of uncertainty as to how NHI will unfold (Interview: Dr Kumar, 2011). Another challenge to haematologists specifically is locating qualified haematology technologists (Interview: Dr Kumar, 2011).

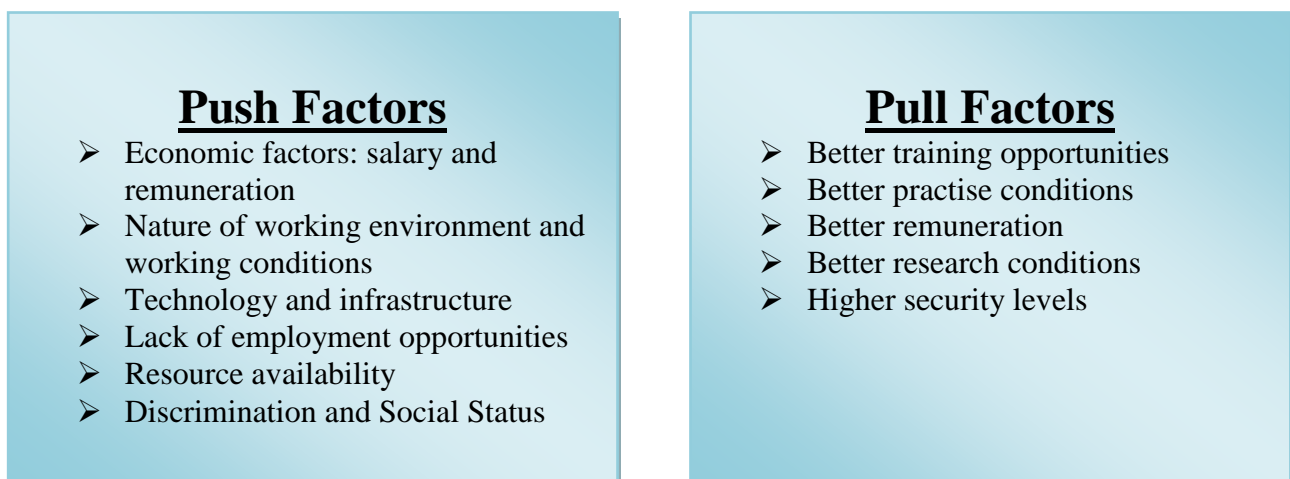
Mechanisation was identified as a further challenge (Interview: Dr Kumar, 2011). Certain disciplines such as chemistry and microbiology are becoming increasingly mechanized, whereas haematology and anatomical pathology still require the pathologist to do the slide work. Haematologists are also needed to do bone marrow procedures (Interview: Dr Kumar, 2011).

## 5.6. Application of Lee's (1966) Push-Pull Theory of Migration

Lee's (1966) push-pull theory was discussed extensively in Chapter 3 of this study. This subsection aims to discuss how Lee's push-pull theory is relevant to this study. Lee's push-pull theory is based on the idea that people migrate due to certain factors (*See chapter 3*). One of the reasons that this theory is pertinent to this study is that Lee (1966) placed no restriction on the distance involved in migration. In other words, there is no distinction between internal or external migration (Lee, 1966). Hence, mobility on a local scale, between the public and private sectors, which this study explores, can be located within Lee's push-pull theory. Several of Lee's push and pull factors directly relate to the causes of mobility between the public and private sector and *vice versa* of medical laboratory specialists. As illustrated in figure 5.12 below, only certain push and pull factors within Lee's theory may apply to this study on local private-public mobility. These factors include poor salaries or remuneration, poor working environments or conditions, inadequate technology and infrastructure, a lack of employment opportunities, resource availability, discrimination and low social status. The pull factors that apply include better training opportunities, better practise conditions, better research conditions and higher levels of security.

**Figure 5.4:**

**Lee's Push-Pull Theory: Applicable Factors in the context of public-private mobility in KwaZulu-Natal**



In terms of mobility from the public sector to the private sector, specifically, Lee's (1966) push factors that can be applied are: economic factors, the nature of working environments and the conditions offered, employment opportunities, discrimination and social status.

Participants in the public sector were attracted by the salaries offered by the private sector, which were better than what they earned. In order to secure the future interests of their family, medical laboratory specialists have opted to switch sectors (Interviews, 2011). However, the public sector has offered public sector pathologists a better salary in order to retain their services (Interview: Dr Ramlall, 2011). There are also opportunities to work overtime and earn more money in the public sector (Interview: Dr Rampersad, 2011). Therefore, when adapting Lee's financial factor as a reason to move into the private sector, it should be understood that even though medical laboratory specialists do migrate out of the public sector in search of improved financial prospects, the salary offered by the state is still competitive. However, the findings do reveal that financial considerations have indeed been a factor causing mobility towards the private sector (Interviews: Dr Anderson; Dr Aniruth; Dr Kumar, 2011; Dr Maharaj; Dr Mandere; Dr Mohun; Dr Ramall, 2011). In terms of discrimination, participants noted a certain level of racial discrimination; another of Lee's factors.

The second factor responsible for mobility out of the public sector, which is a push factor outlined by Lee (1966) is a poor working environment and poor working conditions. These factors were found to prompt medical laboratory specialists to move out of the public sector (*See section 5.3.2*). A poor working environment in the public sector will cause pathologists to move out of this sector (Interview: Dr Nair, 2011). Long working hours is also a cause for mobility out of the public sector (Interviews: Dr Nair, Dr Rampersad, 2011), especially amongst anatomical pathologists. An excessive and stressful workload is another reason for the movement of medical laboratory specialists out of the public sector (Interview: Dr Brijall, 2011). In addition, limited flexibility in terms of not being able to sign off work from home, which is possible in the private sector, is a push factor (Interview: Dr Maistry, 2011).

In terms of employment opportunities and prospects for career growth, medical laboratory specialists also choose to leave the public sector if their interests are not promoted (Interview: Dr Nair, 2011). Importantly, Lee's (1966) personal factors have also emerged within the context of this study. For instance, participants moved out of the public sector due to their personal interest in business (Interview: Dr Anderson, 2011). Lee's (1966) push-pull theory indicates that personal factors may be influenced by circumstances pertaining to one's lifestyle, which is also reflected in this study; thus some participants opted to leave the public sector as they simply wanted a change (Interviews: Dr Aniruth; Dr Subramoney, 2011). Thus,

the pull factors of the private sector have been identified as better salaries, better access to the latest technology and equipment, and better working conditions in terms of the option of working half day (Interview: Dr Narayan, 2011). In terms of flexibility, the findings show that this is an attraction for both men and women. Levels of communication in the private sector are also said to be superior, and there is less internal departmental conflict than in the public sector (Interviews: Dr Maharaj; Dr Kumar, 2011). Therefore, in relation to Lee's pull factors, better salaries, a better working environment in the form of technology, communication, autonomy, working and signing off results from home, and the flexibility of working hours have been pull factors towards the private sector.

Lee's push-pull factors are also appropriate to this study in terms of mobility from the private sector back into the public sector. Higher educational opportunities may be a pull factor to go back into the public sector, as this sector provides better opportunities to study further and specialize (Interview: Dr Smith, 2011). Better research conditions and opportunities, as part of Lee's push-pull theory are also found to be a significant pull factor of the public sector. Many participants stated that they would return to the public sector in order to be able to conduct research and work in an academic environment (Interviews: Dr Aniruth; Dr Govind; Dr Maharaj; Dr Ndlovu, 2011). There is more access to research funding in the public sector, as well as opportunities to attend conferences at the state's expense, whereas private sector pathologists who attend conferences are responsible for their own costs (Interview: Dr Narayan, 2011). Resources that support research are also more accessible in the public sector than in the private sector (Interview: Dr Anderson, 2011). For example, pathologists in the public sector have access to a library and are constantly writing articles, while private sector pathologists are so heavily involved in diagnostics that there is little time for research, which is essential in order to stay up-to-date.

### **5.7. Nature of the inequity between public and private sectors of medical laboratory specialists**

Previous research has highlighted the issue of inequalities and inequities between the public and private health sectors (Castro-Leal, Dayton, Demery, and Mehra, 2000; Crisp, 2000; Sanders and Chopra, 2006; IOM, 2007; Rispel and Setswe, 2007; Coovadia *et al*, 2009; Pillay, 2009) (*See Chapter 3*). South Africa is said to have a dual health care system, with inequalities relating to health expenditure, and the distribution of health professionals

between races, urban and rural areas, and between the public and private health care sectors (Rispel and Crisp, 2000; Sanders and Chopra, 2006; Setswe, 2007; Coovadia et al, 2009). Hudson (2011) notes the mal-distribution of doctors between the public and private sectors. In terms of the distribution of medical laboratory specialists in the public and private sectors, there may not be such inequity. The research findings show that there are 12 anatomical pathologists in the public sector, and 11 in the private sector. There are five haematologists in the public sector and six in the private sector. However, it is important to note that the public sector provides health care to a larger proportion of the population than the private sector. In terms of racial distribution, the findings indicated that there are only two black pathologists (haematologists and anatomical pathologists). This is a stark indication of racial mal-distribution in the disciplines of haematology and anatomical pathology.

Literature shows that the South African public health care sector is in poor condition and often under resourced (Rispel and Crisp, 2000; Sanders and Chopra 2006; Setswe, 2007; and Coovadia *et al*, 2009) (*See Chapter 3*). In terms of medical laboratory specialists, however, the findings of this research study show that this may not be entirely true (Interview: Dr Narayan, 2011). The public sector for medical laboratory specialists in KZN was found to be strong and stable; in other words, they are quite self-sufficient (Interview: Dr Narayan, 2011). In addition, they offer good services and have resources that are of the same standard, if not better than the private sector (Interview: Dr Narayan, 2011). In fact, many of the participants who stated that the public sector offered high quality and expertise in terms of service delivery were working in the private sector itself. Machines are upgraded every five years in the public sector (Interview: Dr Masitry, 2011). Technology is updated. Automation is also said to play a vital role in keeping up with turn-around time and the number of people that are needed in each area of the laboratory (Interview: Dr Maistry, 2011). Thus, inequalities between sectors are not a motivation to move out of the public sector (Interview: Dr Masitry, 2011). The only discrepancy with regard to the public sector, is that its hospitals run out of beds for patients and the clinics have up to 60 patients per session (Interview: Dr Maistry, 2011).

The public sector for medical laboratory specialists is said to have the same opportunities as the private sector (Interview: Dr Ndlovu, 2011). The quality of expertise in the public and private sectors is the same and no inequality exists in that regard (Interview: Dr Kumar, 2011). In terms of clinical patients however, the private sector is able to offer better isolation

facilities, as well as more intensive care (Interview: Dr Kumar, 2011). For example, in the case of acute leukaemia's, which are dealt with by haematologists, the private sector is said to have 'an edge' (Interview: Dr Kumar, 2011). However, an overall comparison between medical laboratory specialists in the public and private sectors shows that the state is able to still offer first world standards (Interview: Dr Kumar, 2011). As Dr Kumar (Interview, 2011) states:

*"I refer patients to state sector so I know it's much of a muchness. I know I won't be doing wrong"* (Interview: Dr Kumar, 2011).

Although technology may be seen as efficient in both the public and private sectors of haematologists and anatomical pathologists, there may exist what is known as an equipment advantage, where the state pays for whatever is required by the public sector, but those in private practise have to be cautious about their investments in technology (Interview: Dr Anderson, 2011).

A prominent difference, or inequity between the public and private sectors of medical laboratory specialists may concern the issue of remuneration (Interview: Dr Anderson, 2011). Generally, a pathologist in the private sector earns more than one in the public sector (Interview: Dr Anderson, 2011). Furthermore, those that work in the public sector have better access to the academic sphere than those in the private sector. Private sectors specialists may have to work a little harder to access academic research by for example, spending more time online, than those in the public sector, who have libraries available to them (Interview: Dr Anderson, 2011).

## **5.8. Nature of Partnerships, joint collaborations and interaction between public and private sectors of medical laboratory specialists (haematologists and anatomical pathologists)**

The Global Health Council (2011) notes that there is a need for collaboration between the public and private sectors, especially in the health sector, in order to maintain efficiency and combat challenges. Chanda (2002) states that the private sector should work hand in hand with the public sector in order to produce and develop a more stable sector. The findings of this research study show that there is little interaction between the public and private sectors of medical laboratory specialists (Interview: Dr Maharaj, 2011).

There are certain aspects available in the public sector that are missing in the private sector. As explained below:

*“We definitely need that interaction here because some of the stuff they do in the state- we are not doing it. Now, you sitting in private, you don’t get access to some of the stuff so you miss out and its good to keep in touch and see what they are doing on their side. You can easily get closeted off here. Because you just concentrate on your stuff and that is it. There is always that bigger picture you missing out on if you are not interacting”* (Interview: Dr Narayan, 2011).

There are no formal partnerships between medical laboratory specialists in the public and private sectors (Interview: Dr Kumar, 2011). Private laboratories act independently (Interview, Dr Anderson, 2011). The private laboratories fall under the umbrella of the National Pathology Group (NPG) (Interview: Dr Maharaj, 2011). All haematologists, including both clinical or pathology, and whether employed in the public or the private sector, are able to join the South African Society of Haematology (SASH) (Interview: Dr Mohun, 2011). However, membership is not compulsory (Interview: Dr Mohun, 2011). There have been recent attempts to create a separate clinical haematology society, but this has not yet materialised (Interview: Dr Mohun, 2011). Aside from SASH membership and attendance and participation at the annual pathology congress or meetings, there is no other collaboration in KZN (Interview: Dr Mohun, 2011). Departments such as anatomical pathology have out-sourced work to pathologists in private practise when they have experienced high volumes of work, but no such arrangements exist for state haematology laboratories, aside from Grey's hospital in Pietermaritzburg (Interview: Dr Mohun, 2011).

The main interaction is said to be the annual pathology conference held over one weekend (Interview: Dr Maharaj; Dr Mohun; 2011). The findings of this research study show that there is a need for more interaction between the public and private sectors (Interviews: Dr Anderson; Dr Mohun; Dr Narayan; Dr Ndlovu, 2011), especially relating to academic research and teaching and sharing interesting/unusual cases (Interview: Dr Maharaj, 2011). Other forms of interaction that are encouraged include formal agreements to do research together, attend conferences together, and the training of registrars (Interview: Dr Anderson, 2011). Joint meetings are held in the private sector for haematologists, and specialists try to

find time to attend them (Interview: Dr Narayan, 2011). Dr Narayan (Interview: 2011) adds that:

*“There’s only limited resources to go around, if the NHLS for example is short of resources for training, then perhaps we could together in terms of setting up training for new registrars for training to increase the pool...we wouldn’t be able to offer libraries for example- no private libraries - but if we get together, we [private sector] could do lots of practical aspects of training and the state could actually offer the library facilities etc.”*(Interview: Dr Anderson, 2011).

Importantly, Dr Maharaj (Interview: 2011) states that a local HOD in the state department may be seen as uncooperative. Seeing that the private sector is perceived as efficient, management from the private sector could collaborate with public sector in an effort to raise the standards in the public sector (Interview: Dr Ndlovu, 2011). An example illustrating the need for collaboration between the sectors is patients in distant areas, who have to wait for up to a month for the results of their tests (Interview: Dr Ndlovu, 2011). The private sector could lend a hand to reverse such delays.

Some forms of interaction do exist. Some private laboratories send their leukaemia cytogenetics to the NHLS for analysis (Interview: Dr Anderson, 2011). Strikingly, Dr Anderson (Interview: 2011) points out that the private laboratories use the NHLS more often than the NHLS needs to use their facilities. However, when the NHLS experiences a crisis, private laboratories do assist them (Interview: Dr Anderson, 2011).

One of the haematologists in the private sector had been an external examiner for examinations for post-graduate students, in which slides were given (Interview: Dr Kumar, 2011). There is a definite need for such partnerships (Interview: Dr Kumar, 2011). For example, if a certain stain is not offered by the private sector, it should be sent to a state laboratory as a matter of course, because at this point in time this service is offered free of charge (Interview: Dr Kumar, 2011). Building a formalized arrangement between the sectors would facilitate such interaction and save time (Interview: Dr Kumar, 2011). Such collaborations have always been positive (Interview: Dr Kumar, 2011). It is vital that pathologists discuss their cases with one another across sectors and this is currently the case (Interview: Dr Kumar, 2011). This will help to ensure accuracy (Interview: Dr Kumar, 2011). A recent example involves a case where the diagnosis that was not agreed on after review at

the participant's laboratory. It was sent for a consensus study in which six consultants were present to review the diagnosis (Interview: Dr Kumar, 2011). Furthermore, it is always positive for a laboratory to be associated with an academic institution such as those that exist in the public sector (Interview: Dr Kumar, 2011).

An example that illustrates the need for collaboration between the public and private sectors is the issue of certain tests being done in Johannesburg instead of by the local public sector laboratory (Interview: Dr Narayan, 2011). Currently, the private laboratories have not received the go ahead to send their specimens to the public sector (Interview: Dr Narayan, 2011). In addition, some pathologists employed by the state also do work for the private sector. State employed doctors may tend to private patients and perform their bone marrows and blood tests (Interview: Dr Narayan, 2011). Private haematologists have referred work from private hospitals to public haematology departments for a second opinion. A consensus is reached and a decision on the way forward is discussed (Interviews: Dr Mohun; Dr Narayan, 2011). However, apart from this, there is a low level of regular interaction (Interview: Dr Mohun; 2011).

## **5.9. Conclusion**

This chapter has provided a synthesis of the findings of this study as well as how these findings correspond to the literature. The findings reveal the nature of the national labour market of pathologists; their perceptions of the extent of mobility from the private to public sectors and *vice versa*; the causes of such mobility; the effects of such mobility on the overall health care system; the ways in which Lee's (1966) push-pull theory can be adapted to the local context of this study; and possible inequities that may exist in the labour market for medical laboratory specialists; as well as current forms of collaboration between the public and private sectors. The causes of mobility between sectors included, but were not solely restricted to, salaries. Other causes of mobility were the working environment and working conditions, levels of flexibility, access to resources, autonomy and personal factors. Among some of the effects of mobility, increases in stress levels and workloads and delays in diagnosis, which affect patient care, to name but a few, were identified. The factors of Lee's theory that are appropriate to this study were expanded on and adapted to the context of this study. Lastly, current forms of collaboration between the sectors, as well as the need for increased interaction, were investigated and discussed.

## **Chapter 6**

### **Conclusion**

#### **6.1. Aim of thesis**

The aim of the thesis was to explore the mobility of medical laboratory specialists such as anatomical pathologists and haematologists between the public and private sectors in KwaZulu-Natal. The aim of this study has been achieved by answering five key research questions: What are the labour markets for medical laboratory specialists in KwaZulu-Natal? What are the causes of private-public mobility and *vice-versa* of medical laboratory specialists in KZN? What is the extent of labour market mobility of KZN medical laboratory specialists from the public to the private sector and *vice versa*; What are the impacts/effects on the KZN health care system; and what is the extent to which Lee's (1966) push-pull theory of migration may be applied to account for the labour market mobility of these specialists.

In order to answer these research questions, four arguments were engaged with. Firstly, it is argued that there is a lack of research regarding the labour markets of medical laboratory specialists. This argument relates to research question 1 and focused on examining the national and global labour markets for medical laboratory specialists, which is addressed in chapters 2, 3 and 5. The second argument is that mobility of medical laboratory specialists from the public to the private sector and *vice versa* is occurring, which is discussed in chapter 5. This is represented by the research question based on the possible levels of mobility that occur from the public sector into the private sector, as well as from the private sector into the public sector. Establishing the above was essential, as exploring such a case would require one to firstly develop an idea of what exactly the magnitude of such mobility may be.

The third argument is an attempt to answer research question 3, which is that reasons for the mobility of medical laboratory specialists are multi-causal and not simply based on financial considerations. It is argued that such mobility has effects, as based on research question 4. Because there are several causes that motivate the mobility of medical laboratory specialists, many effects of such mobility arise. This argument is presented in chapter 5. The final argument pertains to research question 5 on the application of Lee's (1966) migration theory in accounting for private-public mobility and *vice versa* on a local scale. It is argued that

certain push and pull factors of Lee's (1966) theory of migration can be adapted to explain the causes of mobility of medical laboratory specialists such as haematologists and anatomical pathologists. This is addressed in chapter 5 of the thesis.

## **6.2. Contribution to the discipline**

Empirically, this study has contributed to the body of knowledge of human resources management, Industrial, Organisational and Labour studies (IOLS), and Sociology. As noted in chapter 4, authors such as Standing have observed that there is a paucity of research on occupational labour markets, with even mainstream texts failing to include such topics (<http://www.youtube.com/watch?v=YeQHgLS1WZI>). This research will therefore add to current bodies of knowledge such as IOLS, Industrial Sociology and related disciplines as outlined above through its focus on labour markets for medical laboratory specialists. In addition, Gorman and Sandefur (2011: 281) explain that while the sociology of the professions is quiescent, research on professional and expert work has continued by going underground. However, sociologists of medicine have indeed explored the 'response' of physicians to changes regarding the social organization of health care (Gorman and Sandefur, 2011). This study however, differs in its specific focus on what drives these 'responses' or the causes behind the mobility of medical laboratory specialists, a category that is insufficiently represented in the literature. It can be argued that research on professional and expert work has not simply disappeared, even though the classical sociology of professions did indeed come to a halt (Gorman and Sandefur, 2011). However, the significance of professional and knowledge-based work in the present era ensured that writers would eventually focus on it once again (Gorman and Sandefur, 2011). Gorman and Sandefur (2011) add that although there has been increased attention towards such research, the outcome has sadly been fragmented across many sociological and interdisciplinary fields.

Furthermore, studies have illustrated that more 'popular' categories of health workers such as nurses or clinical doctors in general have been the focus of research (Chen *et al*, 2004; Muula, 2005; ICAD, 2006; IOM, 2007; Pillay, 2009; Allsop *et al*, 2010). This study is different in that the mobility of medical laboratory specialists such as haematologists and anatomical pathologists is its core element. Importantly, this study has focused on local mobility between the public and private sectors of medical laboratory specialists, rather than simply migration of popular groups of health workers internationally.

This study has contributed to the discipline of IOLS by way of examining the national and global labour markets of the category haematologists and anatomical pathologists. The study was based mainly on the mobility of human resources, that is, haematologists and anatomical pathologists, as well as their motivation for mobility between sectors, which then contributes to the field of human resources management. Inadequate managerial styles were also found to cause movement between the sectors; hence addressing these issues and providing leadership training may assist in this regard. The necessary steps for future action can then be taken, as will be outlined below in the recommendations. The HPCSA's statistics were found to be inconsistent with the findings in one instance; hence the study's specific findings on the number of pathologists may add value and understanding to the nature of the labour market for pathologists in KwaZulu-Natal.

The role of medical laboratory specialists has been almost invisible, with their importance in health and patient care being insufficiently recognised (*See chapter 3*). However, the significance of haematology may be established through its link with HIV/AIDS (*See chapter 3*). In addition, this study has shown that the effects of mobility may increase stress levels and the workloads of pathologists, impede training, and strikingly, impact on patient care, treatment and efficiency, as is also illustrated in the literature (*See Chapters 3 and 5*). Thus, this is a stark indication of the significance of medical laboratory specialists in health care. Gormar and Sandefur (2011: 284) stress that organizational efforts in controlling expert work are crucial in the discipline of medicine, in which high costs as well as the provision of services to the public have been a challenge to efficiency. The discipline of haematology, for example, is intricately associated with one of South Africa's health pandemics, HIV/AIDS.

Once a patient is infected with HIV/AIDS, the most common complications that result are haematologically-related, as HIV/AIDS affects the blood in various ways (Interviews, 2011). There has been a significant increase in the haematological malignancies that are specifically AIDS-related (Interviews, 2011).

Patients have to first be diagnosed as infected with HIV/AIDS. This diagnosis is done by the microbiologist as part of the pathology discipline (Interviews, 2011). However, after the patient has been diagnosed with HIV/AIDS, he/she is required to be staged (Interviews, 2011). The importance of the haematologist comes in at this juncture, as they are responsible for the staging of the patient (Interviews, 2011). This is a further indication of their

significance in the life of HIV patients. Furthermore, haematologists are responsible for bone marrow procedures and should any HIV/AIDS patient require bone marrow tests at some stage of their disease process or if TB cultures arise, then it is the haematologist that is responsible for performing the bone marrow procedures (Interviews, 2011). Haematologists perform bone marrow aspirates, as mentioned above, including the marrows that are HIV-related due to malignancies and complications (Interview, 2011). These haematological complications of HIV/AIDS may also affect the workload of the haematology laboratory, including the haematology technologist and pathologist (Interviews, 2011). In other words, basic and specialised testing to reach a diagnosis as well as the cause of cytopaenias, or evaluation of stage of malignancy is required (Interviews, 2011).

Although there have been major advancements in the world of medicine, including among HIV-physicians as well as various specialists that deal with HIV infected patients, should there be haematological malignancy, only the haematologist can deal with it (Interviews, 2011). A large percentage of AIDS-related malignancies are sent to haematologists for further investigation as well as management (Interviews, 2011). This study has shown that there is currently an increase in consultations and referrals to haematologists (Interviews, 2011). The role of the haematologist also goes a step further as the haematologist will advise the referring doctor in relation to necessary investigations and management of such a patient. A follow-up for the patient at a haematology centre/clinic may also be arranged when necessary (Interviews, 2011).

As this study has shown, the increase in volume of workloads due to the shortage of pathologists and their mobility have several impacts on the health system, that affect patient treatment through delays in diagnosis. This is also an indication of the importance of medical laboratory specialists with respect to diagnosis, treatment and the overall health care system of the country.

### **6.3. Theoretical Contribution**

Although Lee's (1966) theory might appear to be outdated, it remains valuable and pertinent even today. This theory has been used in a number of current studies, such as Kline (2003); van Dalen, Groenewold and Schorol (2004); Kirigia *et al* (2006); Oberoi and Lin (2006); Gubert and Nordman, (2008); Allsop *et al* (2009); Jones, (2009); Van der Kruk, (2009);

Nelson, (2011) and Ryan (2011) (*See Chapter 3*). It has also been extended to fit the context of this study. Certain push and pull factors of Lee's theory have been applied to the local context of mobility between the public and private sectors. Certain push and pull factors of Lee's (1966) theory may apply to the causes of private-public mobility and *vice versa* of medical laboratory specialists.

Although Lee's (1966) push-pull theory may be used in cases of international migration, this study has illustrated that it also applies to local mobility. Lee's (1966) push-pull theory places no boundaries or restrictions on the concept of the distance involved in migration/mobility. This has made it both easy and valid to adapt to a study of this nature, which is based on the mobility of medical laboratory specialists from the public to the private sector within a province. More so, it can be deduced that the specific reasons that study participants moved from one sector to the other do indeed correlate with those of Lee's (1966) theory of migration. It should be noted however that only some of the factors apply, and this does not imply that all of the factors apply to this study.

#### **6.4. Methodological contribution**

Methodologically, this study has been the first example of an exploratory qualitative case study on medical laboratory specialists. It has been the first qualitatively based approach to uncovering the causes, effects and extent of the mobility of medical laboratory specialists specifically from the private to the public sector and *vice versa*.

#### **6.5. Recommendations**

Firstly, in the light of the importance of medical laboratory specialists as well as the destructive effect of their shortage and mobility, it is clear that there is a dire need for more specialists to be recruited and retained. Human resource policies for medical laboratory specialists must be adjusted to take this need into account. This study has shown that although salary is a factor that attracts specialists to the private sector, public sector salaries remain competitive if not higher in some cases; however, pathologists are still driven to leave the public sector. Mobility is also influenced by flexibility and by the level of autonomy. For example, autonomy is said to augment staff's commitment to organizations (Gorman and Sandefur, 2011).

In relation to the above, it is recommended that record keeping of the statistics relating to medical laboratory specialists should also be prioritized as a way of being able to address the shortage of pathologists in the country. The first step in responding to any problem is to be fully aware of both its nature and magnitude. The lack of data concerning the mobility of medical laboratory specialists is an obstacle itself in terms of resolving the challenge. This would impact on policy making.

This study has underlined the importance of medical laboratory specialist in diagnosis and their important link to HIV/AIDS. This requires that their overall profile as professionals be properly illustrated to the public. In other words, increased awareness and recognition with regard to their importance and status should be encouraged and promoted, thus ensuring that medical laboratory specialists are provided with the level of acknowledgment and appreciation from the wider society that they rightfully deserve. The public may not be aware of, or comprehend what the role and meaning of a medical laboratory specialist is (Interviews, 2011).

Another recommendation involves the issue of private-public partnerships. It is strongly recommended that the levels of facilitation and mechanisms by which medical laboratory specialists interact with one another be increased. Facilitating the means for interaction between sectors will allow for the possibility for growing interaction in terms of medical cases and sharing of resources. Although there is interaction between public and private medical laboratory specialists, no formalized partnerships exist. As this study has shown, if formal partnerships were in place, access to shared resources and interaction across sector boundaries would be much easier, resulting in the elevation or acceleration of the efficiency of testing and turn-around time. Participants spoke of restricted access to send through their required specimens for testing to the other sector. If this problem were addressed, patients and physicians would receive feedback and results faster, resulting in better treatment. This would also address the shortage of certain resources in a sector, such as equipment or technology. Another example mentioned by a medical laboratory specialist is the availability of libraries in the public sector, as research is crucial to pathology as a discipline. Moreover, private medical laboratories should assist in training registrars working in the public sector, as the shortage of pathologists in this sector limits the training process in some cases. The private pathologists are willing to collaborate, thus, this should be seen as an opportunity for the growth of both sectors.

Improvements in the management style of pathology departments should also be emphasized. Consensus between employees and employers should be achieved regarding what type of working structure is conducive for all sections of the department. Those that hold managerial positions should be required to undergo the necessary, relevant training before taking up their positions, and those already occupying such positions should receive additional training. Personality, attitude and character should form an essential part of the criteria according to which candidates for managerial posts are appointed. Rather than simply appointing someone on the basis of academic achievement or on their resume, personality traits should be taken into account, as this may affect the running and functionality of the department. This does not, of course, imply that academic qualifications should be ruled out.

## **6.6. Recommendations for Future Research**

National Health Insurance (NHI) although not currently in place, will impact greatly on medical laboratory specialists in both the private and the public health sectors. This research study was conducted outside of the context of NHI. However, it would be suitable topic for future research as many participants shared their views on it. NHI might be viewed as an opportunity owing to limited state resources with respect to pathology (Interviews, 2011).

One of the effects of NHI on the private sector might be that they would be required to adjust their pricing structures to a lower level. However, this will be balanced by an escalation in the volumes of work (Interview: Dr Maharaj, 2011). Another view on the NHI sees it as a threat rather an opportunity for the private sector. In terms of stability between the public and private sectors of medical laboratory specialists, NHI could be seen as a source of instability in private hospitals and private pathology laboratories as compared to the public sector (Interviews, 2011). It could be that health professionals would prefer to come back the public sector as it would offer more stability or security than the private sector, in contrast with the past.

A number of participants expressed the view that NHI still has a very long way to go before hospitals come on board (Interviews, 2011). Furthermore, there still needs to be confirmation and formalization of what exactly patients will be offered and this process will take a long time (Interviews, 2011). The process will have to be 'phased in' (Interviews, 2011). There is

also an element of doubt that NHI is sufficient to resolve the current health care crisis in South Africa (Interviews, 2011). South Africa spends more on health care than any other African country (Interview, 2011). The amount allocated from the budget to state health care measures up to that of some upper middle-class countries. Sadly, state hospitals in South Africa do not meet the standards of those in upper middle countries and this suggests the need for further investment to improve the standard of care (Interviews, 2011). One of the major obstacles to improving the quality of health care is the gross mismanagement of funds, fraud and inefficiency in provincial hospitals. While the implementation of NHI might increase funding for state hospitals, the quality of care and facilities will not be improved unless the abovementioned concerns are dealt with (Interview, 2011).

Therefore, there are other issues that must be addressed before the introduction of NHI. Although private hospital fees are very expensive, until provincial hospitals improve their standard and quality of care, the majority of South Africans who subscribe to private medical aid schemes and use private hospitals, will continue to do so, regardless of having to contribute to NHI through additional taxation (Interviews, 2011). Thus, NHI contains several possibilities that may or may not materialise. It might have drastic effects on the overall health care system, or make room for improvement. It is recommended that future research studies focus on NHI, especially after its implementation. It would also be interesting to investigate the causes for the difference in responses and reactions towards NHI. As Gormar and Sandefur (2011: 285) note, the task of future research should be to identify the ‘individual and contextual’ characteristics behind different research.

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# Appendix 1

**University of KwaZulu-Natal (Howard College)**

**Suveera Singh**

***A case study of private-public sector labour market mobilities of  
South African medical laboratory specialists***

**Interview Schedule: Haematologists**

**Private Sector Based Haematologists:**

1. What do you feel is the level of movement or mobility between public and private sectors and vice versa of medical laboratory specialists such as haematologists, anatomical pathologists, virologists and chemical pathologists? (i.e. a percentage from public to private sectors, and private to public sectors?)
2. Is there a shortage of haematologists in public sectors AND private sectors?
3. Can you provide a comparison of the working environments of medical laboratory specialists (haematologists) in the public sector versus private sector and could this be a possible reason for mobility between sectors?
4. Have you ever worked in the public sector previously aside for compulsory reasons such as in-service training? If yes, what were your reasons for leaving the public sector and how would you describe your experience?/ **if no**, what made you come into the private sector rather than working in public sector?
5. Now that you are part of the private sector and having experienced it, would consider working in the public sector? Why/why not?
6. What do you feel are some of the reasons that medical laboratory specialists transfer from the public sector to the private sector and vice versa?
7. Do you know of any medical laboratory specialists that have moved from private to public sectors AND vice versa? If yes, has this movement affected the working conditions in laboratories and in what ways? For example, was there an increase in workloads or stress etc.?
8. There is a general conception illustrated by previous research of inequalities between public and private health sectors, but with **specific reference** to public and private

sectors of **MEDICAL LABORATORY SPECIALISTS**, such as haematologists or anatomical pathologists, would you agree that this is the case?

9. Would you say that gender and flexibility are determining factors in your choice of speciality and do they differ in public and private sectors? (For example, do private sectors offer more flexibility than public sectors, or does haematology attract more males or females?)
10. Are there enough females graduating? (are there more than males?)
11. Do any joint collaborations exist between public and private sectors of medical laboratory specialists, in general, and between haematologists specifically, and would you say that there is a need for such collaborations between public and private sectors of medical laboratory specialists?
12. Can you provide a description of these collaborations as well as its effectiveness in terms of the health sector at large?
13. What are some of the challenges faced by haematologists?
14. Can you describe the importance of the link between haematologists and HIV/AIDS?
15. What are your views on the NHI and its effects on the private sector?

## **Public Sector Based Haematologists**

16. What do you feel is the level of movement or mobility between public and private sectors and vice versa of medical laboratory specialists such as haematologists, anatomical pathologists, virologists and chemical pathologists? (i.e. a percentage from public to private sectors, and private to public sectors?)
17. Is there a shortage of haematologists in public sectors AND private sectors?
18. Can you provide a comparison of the working environments of medical laboratory specialists (haematologists) in the public sector versus private sector and could this be a possible reason for mobility between sectors?
19. Is it a requirement after you qualify as a haematologist to serve a certain period of service in the public sector? If so, how long is this designated period and how did you find your experience?

20. Have you ever worked in the private sector previously? If yes, what are your reasons for leaving the public sector?
21. What are your reasons for remaining in the public sector?
22. Now that you are part of the public sector and having experienced it, would you consider working in the private sector and why?
23. What do you feel are some of the reasons that medical laboratory specialists transfer from the public sector to the private sector and vice versa?
24. Do you know of any medical laboratory specialists that have moved from private to public sectors AND vice versa? If yes, has this movement affected the working conditions in laboratories and in what ways? For example, was there an increase in workloads or stress etc.?
25. There is a general conception illustrated by previous research of inequalities between public and private health sectors, but with **specific reference** to public and private sectors of **MEDICAL LABORATORY SPECIALISTS**, such as haematologists or anatomical pathologists, would you agree that this is the case?
26. Would you say that gender and flexibility are determining factors in your choice of speciality and do they differ in public and private sectors? (For example, do private sectors offer more flexibility than public sectors, or does haematology attract more males or females?)
27. Are there enough females graduating? (are there more than males?)
28. Do any joint collaborations exist between public and private sectors of medical laboratory specialists, in general, and between haematologists specifically, and would you say that there is a need for such collaborations between public and private sectors of medical laboratory specialists?
29. Can you provide a description of these collaborations as well as its effectiveness in terms of the health sector at large?
30. What are some of the challenges faced by haematologists?
31. Can you describe the importance of the link between haematologists and HIV/AIDS?

32. What are your views on the NHI and its effects on the private sector?

## **Interview Schedule: Anatomical Pathologists**

### **Private Sector Based Anatomical Pathologists**

1. What do you feel is the level of movement or mobility between public and private sectors and vice versa of medical laboratory specialists such as haematologists, anatomical pathologists, virologists and chemical pathologists in general? (i.e. a percentage from public to private sectors, and private to public sectors?)
2. Is there a shortage of anatomical pathologists in public sectors AND private sectors?
3. Can you provide a comparison of the working environments of medical laboratory specialists (anatomical pathologists) in the public sector versus private sector and could this be a possible reason for mobility between sectors?
4. Have you ever worked in the public sector previously aside for compulsory reasons such as in-service training? If yes, what were your reasons for leaving the public sector and how would you describe your experience?/ **if no**, what made you come into the private sector rather than working in public sector?
5. Now that you are part of the private sector and having experienced it, would consider working in the public sector? Why/why not?
6. What do you feel are some of the reasons that medical laboratory specialists transfer from the public sector to the private sector and vice versa?
7. Do you know of any medical laboratory specialists that have moved from private to public sectors AND vice versa? If yes, has this movement affected the working conditions in laboratories and in what ways? For example, was there an increase in workloads or stress etc.?
8. There is a general conception illustrated by previous research of inequalities between public and private health sectors, but with **specific reference** to public and private sectors of **MEDICAL LABORATORY SPECIALISTS**, such as haematologists or anatomical pathologists, would you agree that this is the case?

9. Would you say that gender and flexibility are determining factors in your choice of speciality and do they differ in public and private sectors? For example, do private sectors offer more flexibility than public sectors, or does anatomical pathology attract more males than females?
10. Do any joint collaborations exist between public and private sectors of medical laboratory specialists, in general, and between anatomical pathologists specifically, and would you say that there is a need for such collaborations between public and private sectors of medical laboratory specialists?
11. Can you provide a description of these collaborations as well as its effectiveness in terms of the health sector at large?

## **Public Sector Based Anatomical Pathologists**

1. What do you feel is the level of movement or mobility between public and private sectors and vice versa of medical laboratory specialists such as haematologists, anatomical pathologists, virologists and chemical pathologists in general?
2. What is the level of mobility of **anatomical pathologists** from the public sector to the **private sector**?
3. What in your opinion, if any, is the level of mobility of **anatomical pathologists** from the private sector to the **public sector**?
4. Can you provide a comparison of the working environments of medical laboratory specialists in the public sector and private sector?
5. Is it a requirement after you qualify as an anatomical pathologist to serve a certain period of service in the public sector? If so, how long is the designated period and how did you find your experience?
6. Have you ever worked in the private sector previously?
7. If yes, what were your reasons for leaving the private sector?/ **if no**, what made you remain in the public sector?

8. Now that you are part of the public sector and having experienced it, would consider working in the private sector? Why/why not?
9. What do you feel are some of the reasons that medical laboratory specialists transfer from the public sector to the private sector and vice versa?
10. Do you know of any medical laboratory specialists that have moved from private to public sectors? If yes, has this movement affected the working conditions in laboratories and in what ways? For example, was there an increase in workloads or stress etc.?
11. There is a general conception illustrated by previous research of inequalities between public and private health sectors, but with **specific reference** to public and private sectors of **MEDICAL LABORATORY SPECIALISTS**, such as haematologists or anatomical pathologists, would you agree that this is the case?
12. Would you say that gender and flexibility are determining factors in your choice of speciality and do they differ in public and private sectors? (For example, do private sectors offer more flexibility than public sectors, or does anatomical pathology attract more males or females?)
13. Are there enough females graduating? (are there more than males?)
14. Do any joint collaborations exist between public and private sectors of medical laboratory specialists, in general, and between haematologists specifically, and would you say that there is a need for such collaborations between public and private sectors of medical laboratory specialists?
15. Can you provide a description of these collaborations as well as its effectiveness in terms of the health sector at large?
16. What are some of the challenges faced by anatomical pathologists? E.g. are these challenges made worse for you being an African anatomical pathologist given our country's racial history?
17. Would you say that racial stereotyping exists in public sectors, e.g. Are there differences in the treatment of African anatomical pathologists in public and private sectors distinctively which may result in being a cause for mobility?

## **Appendix 2:**



# Organizational Profile:



**By:**

**Nadeem Cassim**

**Dheshni Marimuthu**

**Suveera Singh**

**University of Kwa-Zulu Natal**

**31/3/2011**

## **1. Mission Statement**

The National Health Laboratory Services is to provide a cost-effective and efficient health laboratory services to all public sector healthcare providers; that support and conduct health research; as well as provide training for health science education.

## **2. What is the NHLS**

### **i) Who is the National Health Laboratory Services – NHLS**

The National Health Laboratory Services – NHLS was founded under the 2001 Act of Parliament and is an merger of the former South African Institute for Medical research (SAIMR); National Institute for Virology; the National Centre for Occupational Health as well as the University and Provincial pathology laboratories. It is the largest diagnostic pathology service in South Africa, consisting of laboratories in all nine provinces served by 6.700 members of staff and covering 80% of the countries population. The NHLS plays a vital role in many aspects of the countries health care namely: in the public health in South Africa through epidemiology, surveillance and outbreak response activities; the national antiretroviral roll-out programme through CD4+ viral load studies and HIV treatment monitoring; tuberculosis diagnosis and treatment monitoring; the screening for cervical cancer; and the support of occupational health services.

### **NHLS Board members consist of the following:**

Ms Sesi Baloyi, Chairperson represents the Minister of Health; Dr Ralph Mgijima, Vice Chairperson represents the Minister of Health; Mr Andre Venter represents the National Department of Health; Dr Yogan Pillay represents the National Department of Health; Mr John Coates represents the Western Cape Health Department; Dr Nokuphila Mazamisa represents the Gauteng Health Department; Mr Jake Ntjana represents the North West Health Department; Ms Sylvia Khokho represents the Free State Health Department; Dr Jonathan Mallet represents the Northern Cape Health Department; Dr Litha Matiwane represents the Eastern Cape Health Department; Dr Thokozani Mhlongo represents Mpumalmanga Health Department; Miss Sibongile Shezi represents KwaZulu-Natal

Health Department; Ms Mariaan Malherbe represents Limpopo Health Department; Prof Adriaan Sturm represents the Council on Higher Education (Universities); Dr Nanette Smith represents the Council on Higher Education (Universities of Technology); Prof Gregory Hussey public nominee (research); Ms Nozuko Yokwana public nominee (community development); Mr Ronald Moyo - public nominee (Finance); Ms Antoinette Richardson South African Local Government Association; Mr Sagie Pillay - CEO: NHLS; Mr Nkululeko Ndebele Company Secretary.

NHLS Executive Committee members consist of:

Mr Sagie Pillay - Chief Executive Officer; Prof Barry Schoub – Acting Executive Director: National Institute for Communicable Diseases; Dr Barry Kistnasamy - Executive Director, National Institute for occupational Health; Dr Johan van Heerden - Executive Manager: Academic Affairs, Research & Quality Assurance; Mr Sipho Mahlati - Executive Manager: Central Region; Mr Jone Mofokeng - Executive Manager: Northern Region; Mr Patrick Lucwaba - Executive Manager: Coastal Region; Ms Nelly Mkhize - Executive Manager: KwaZulu-Natal Region; Mr Devendra Erriah - Chief Finance Officer; Mr Stelios Michas - Executive Manager: Information Technology; Ms Mpho Lecoge - Executive Manager: Human Resources; Mr Nkululeko Ndebele -Company Secretary; Mrs Kaamini Reddy - Executive Manager: Communications, Marketing & Public Relations.

ii) Division

The NHLS' has 4 specialised divisions:

The *National Institute for Communicable Diseases - NICD* is one of the major global role players in infectious disease intelligence and is directed by Prof Barry Schoub (Acting Executive Director). It was created to be a centre for disease surveillance and control in Southern Africa. The NICD replaced the National Institute for Virology and has been complimented by the addition of microbiology, parasitology, and entomology laboratories from the previous South African Institute for Medical Research to produce an all-inclusive public health infectious diseases institution. They gather intelligence and information on communicable diseases so as to build competence on the subject. Therefore provide expertise to all southern regions regarding epidemic and problems.

The *National Institute for Occupational Health - NIOH* supports the development and provision of occupational health services in South Africa run by Dr Barry Kistnasamy (Executive Director). They provide a number of services as will be discussed below.

- The NIOH provides an advisory service that comprises of giving advice on establishing occupational health services at all levels (provincial, district and enterprise levels) thus serving on technical committees, consultations with individuals and enterprises on hazard control as well as the monitoring of workers.
- Information services that include South Africa's national reference library, a toxicology query handling service and the SADC Clearing House for occupational health.
- Support services, eg. specialised laboratories and health hazard evaluations.
- Applied laboratory and epidemiological research.
- Surveillance of occupational disease and indicators of occupational health practice.
- Development of occupational health professionals and specialists.
- The statutory autopsy services in terms of the Occupational Diseases in Mines & Works Act (ODMWAct).

The *National Cancer Registry – NCR* supervised by Mrs Patricia Kellett. It was created in 1986 and falls under the executive management of the NIOH. NCR is a pathology-based cancer registry whose source of data is public and private histopathology, cytology and haematology laboratories nationwide. The National Cancer Registry plays key roles in providing epidemiological information for cancer surveillance, maintaining and developing national awareness of this growing disease in the South African population. They also gather and analyse newly diagnosed cancer cases and report annual cancer incidence rates.

The *Antivenom Unit* within the South African Vaccine Producers, an entirely owned supplementary of the NHLS and is the solitary manufacturer of snake and spider bites and scorpion stings in southern Africa. This division is managed by Mrs Megan Saffer (Managing Director). Additionally, the Antivenom Unit supplies normal horse, sheep and goat blood/serum for use in the production of diagnostic media and reagents. The unit is supported by an up-to-date animal facility, which supplies animals of a defined status and related services, not only within the NHLS but also to outside institutions. The Quality

Control laboratories offer safety testing to the pharmaceutical industry, as well as a diagnostic test for diphtheria antibody.

### iii) Regions

The NHLS has over 300 laboratories that offer a pathology service to all public clinics and hospitals. For the purposes of the NHLS' work, the laboratories are located in areas that are referred to as service regions, explicitly Central, Northern, Coastal and KwaZulu-Natal region. Each region is headed by an Executive Regional Manager. The regions are separated into sets of laboratories and each set is run by a Business Manager.

Central region is run by Executive Regional Manager - Mr Sipho Mahlati; Coastal region consists of Executive Regional Manager - Mr Patrick Lucwaba; Kwa Zulu Natal region is run by Executive Regional Manager - Ms Nelly Mkhize; and Northern region is run by Executive Regional Manager - Mr Jone Mofokeng.

## **3. Priority Programmes of the NHLS**

The NHLS has developed priority programs with the motive of making laboratory services more accessible, affordable, and appropriate. These programs largely address two prominent diseases in Africa: HIV and Tuberculosis. Whilst these diseases are of distinct nature, the NHLS ensures that the HIV laboratory services are interlinked and integrated with those laboratory services for tuberculosis, to ensure that both these diseases are given equal priority. The main objectives/aims of the priority programmes are: to provide affordable and sustainable laboratory services to those adults and children affected by HIV/AIDS; to undergo constant research to ensure that the services of NHLS are appropriate and efficient; to increase the activities of the NHLS regarding combating prime diseases such as HIV/AIDS; and to train health personnel to ensure that future services are adequate and up to standard.

Priority programmes of the NHLS all fall under a primary programme, *The National Priority Areas Programme (NPP)*. This initiative comprises of an interlinked unit mainly

focuses on including HIV and Tuberculosis as key activities within the NHLS, by managing and co-coordinating the diagnosis and monitoring services of these diseases.

A key initiative that falls under the NPP is the *Point of Care Research Group Programme*, which aims to increase the access of patient testing and treating of HIV/AIDS around the country, specifically in remote areas and regions. To achieve this objective, the NHLS has developed a research team to investigate the feasibility and appropriateness of developing Point-of-care facilities and laboratories to allow for the efficient and convenient monitoring and treatment of HIV/AIDS and TB. The NHLS has developed a team that is currently embarking on a pilot project to conclude on the feasibility and relevance of Point-of-care facilities.

A second related programme entails prioritizing the Johannesburg CD4 laboratory of the NHLS. This laboratory is the busiest and most efficient laboratory of the NHLS. Additionally, the NHLS has transformed this laboratory into embarking on research functions such as clinical trials etc. A research team of the CD4 laboratory is responsible for producing innovative developments concerning operations of NHLS laboratories that can be applied and utilized across all laboratories of the NHLS. This includes support services to all NHLS laboratories such as: instrument implementation; site inspections; audits; training initiatives; and workshop based teaching programmes.

The third priority programme is the development of the Paediatric HIV Diagnostic Unit which is allocated the responsibility of diagnosing the early infection of infants. This objective is achieved through another priority programme of the NHLS, which is *The Prevention of Mother to Child Transmission (PMTCT) Programme*, which simply aims to identify HIV- infected infants. This is achieved through: constant research to deliver accurate results; training health workers to sample infant blood and interpret results; service delivery efforts concerning logistic ramifications; monitoring test performed; advocacy for infant diagnosis; and the provision technical assistance for diagnostic guidelines.

The final priority programme of the NHLS involves *HIV Genotyping*. The NHLS has developed a genotyping unit whose primary concern is to investigate what HIV viral and

host factors influence the treatment outcome of the disease. There are a number of projects created by the genotyping unit to achieve this. The most prominent of these are:

- **SPARTAC Project:** This project evaluates the utilization of antiretroviral as therapy for recent HIV infections
- **Adult AIDS Trial Group:** This project utilizes adults infected with HIV/AIDS in drug resistant testing trials for patients that are being treated with various drugs.
- **PASER:** A project funded by the Government of Netherlands, which is, briefly put, involved in bringing resistance testing techniques from across the world into Africa.
- **SATuRN Project:** A developed network in South Africa that focuses on performing surveillance tests on HIV-1 drug resistance in South Africa's public health sector.
- **ART-A:** A European funded project that embarks on the research and development of creating a more affordable and accessible method of testing to monitor HIV-1 drug resistance.

#### **4. Diagnostic Services of the NHLS**

##### **i) Diagnostic services**

The National Health Laboratory Service (NHLS) is the sole provider of diagnostic pathology services to the public sector in South Africa. As mentioned above, the NHLS provides these services across the country at all tiers of health service delivery, covering over 80% of the population. NHLS diagnostic laboratories are found in provincial and district hospitals in large metropolitan centres and remote rural areas as well as in the teaching hospitals of university medical schools as explored above.

The focus of the NHLS is to guarantee access to laboratory diagnostic services to all South Africans as it is a national network of pathology laboratories throughout SA that make use of similar management systems and transport systems. This allows for uniformity in the transportation of specimens, referrals of tests to reference laboratories and delivery of results.

An all-inclusive diagnostic service is accessible at all tiers of health services delivery. These laboratory services include consultation on the correct specimen to be collected,

the management of the specimen (including its storage, transport, safety and ultimate disposal), the performing of tests on the specimen, the provision of a result and, finally, the interpretation of that result. All laboratories provide laboratory diagnostic services to the national Department of Health, provincial and district hospitals, primary healthcare clinics and other state institutions (prisons, etc).

The NHLS offers a referral diagnostic service for private sector healthcare providers for seldom requested tests and expensive tests. Additionally diagnostic services for environmental services such as water and food are also provided.

NHLS diagnostic laboratories are found in the teaching hospitals of university medical schools, i.e.

- Charlotte Maxeke (Johannesburg) Hospital and Chris Hani Baragwanath Hospital (University of the Witwatersrand)
- Steve Biko Academic Hospital (University of Pretoria)
- Dr George Mukhari Hospital ( University of Limpopo, MEDUNSA Campus)
- Universitas Hospital (University of the Free State)
- Tygerberg Hospital (University of Stellenbosch)
- Groote Schuur Hospital and Red Cross Children's Memorial Hospital (University of Cape Town)
- Nelson Mandela Tertiary Hospital (Walter Sisulu University)
- Inkosi Albert Luthuli Central Hospital (University of KwaZulu-Natal)
- In provincial and district hospitals in large metropolitan centres and remote rural areas.

As discussed above the four regions that these laboratories are divided into Central, Coastal, KwaZulu-Natal and Northern regions. Each region is headed by its own Executive Regional Manager. Each region is further divided into sets of laboratories and that is run by its own Business Manager.

## ii) Diagnostic Media Products

Diagnostic Media Products DMP this service is based at the NHLS' Sandringham headquarters, manufactures and supplies a wide range of high quality diagnostic reagents,

ready to use kits and microbiological culture media. The DMP comprises of three departments: a production department boasting state-of-the-art equipment; a quality control department that consist of highly qualified medical technologists; and a sales department.

DMP's products vary from routine microbiological media to more specialised media for specialised laboratories such as food microbiological media and environmental testing media such as legionella media. They produce a wide range of stains used for microbiology as well as histology and haematology. DMP provides made up kits and reagents for selected haematology and chemistry sets.

There are a few points that DMP take into consideration to guarantee that the high quality of their products is maintained:

- always store media/reagents according to the storage conditions prescribed on the label;
- store all products away from direct sunlight and do not expose to excessive temperatures such as too hot or freezing conditions;
- always utilize products with expiry date stated on the product label;
- use the correct media/products for the accurate tests according to the standard operating procedures of the laboratory; and
- follow correct staining procedures when staining slides as this will influence the value of the stain.

### iii) Paternity Testing

A Paternity/parentage test covers a laboratory determination of the parentage of a child.

There are many types of parties that may require this test, such as:

- A person who wishes to prove/disprove that they are the biological parent of a child.
- A mother who wishes to prove/disprove that a certain man is the biological father of her child or children.
- A man that is already paying maintenance for a child but has doubts about his alleged paternal status.
- The parents of babies that may have been mixed-up soon after birth.

- The relatives of a deceased man when there is a claim against the estate by a woman claiming that the deceased man is the father of her child.
- Individuals wishing to immigrate to certain countries where one or both of their parents are living.
- Individuals that were adopted and who are trying to trace their biological parents.

This type of test Paternity/parentage test is closely linked to Kinship testing, which is a DNA test that will analyze the relationship between two or more individuals to review an alleged relationship (e.g. full or half siblings, grandparents and aunts or uncles).

## **5. Research**

The National Health Laboratory Service (NHLS) conducts research that reflects a vast range of activities in disciplines such as pathology and surveillance. Priority diseases that exist in South Africa, such as HIV and AIDS, tuberculosis, malaria, pneumococcal infections, occupational health, as well as the screening for cervical cancer and malnutrition are part of the research agenda.

The National Health Laboratory Service (NHLS) employs internationally established scientists in academic pathology departments of university medical schools in South Africa with which it associates itself with. Staff within these academic departments hold joint NHLS and university appointments. These pathology schools include universities of Cape Town, Free State, KwaZulu-Natal, Limpopo (MEDUNSA Campus), Pretoria, Stellenbosch, Witwatersrand, Walter Sisulu University for Technology and Science and the Oral Pathology Department of the University of the Western Cape. Academic staff contribute significantly to the national and international medical literature as well as medical welfare of our citizens as they engage in research pertaining specifically on diseases apparent in South Africa.

Aside from the NHLS financing itself to a large degree, support grants of research are made by the South African Medical Research Council, the Cancer Association of South Africa, Poliomyelitis Research Foundation, National Research Foundation, pharmaceutical companies, private donors and numerous international institutions.

Diagnostic services are provided by the academic departments to the hospitals in which students are taught.

The National Health Laboratory Service (NHLS) Research Trust funds pathology research that is carried out by registered students and staff of the pathology departments or schools of pathology in South African medical schools. A board of trustees govern the NHLS Research trust, which has been empowered by the founding Trust to create a peer review mechanism or committee for purposes of management and evaluation of applications for funds from the Trust. The aims of the NHLS research grant are to reinforce and enhance the research capacity in medical pathology through provision of research grant support to young and new staff members who have just started their research careers by facilitating them to be independent generators of knowledge in the medical pathology field. Secondly, to allow for experienced/established academic medical pathology staff/researchers to conduct high quality research that will significantly affect knowledge and practise in medical pathology.

The NHLS Research Trust grants have two grant types which are pathology research development grants as well as pathology research awards. The former refers to a grant that assists inexperienced researchers and staff in involving themselves in research in an attempt to enhance their research and knowledge levels. The latter caters for established and experienced researchers in medical pathology which enables them to conduct competitive and meaningful research in order to improve knowledge and practise.

## **6. Training at the NHLS**

The NHLS, associated with Universities of Technology, developed a teaching programme aimed at training and developing medical technologists and technicians. This includes both, undergraduate and post-graduate health professionals, and is administered through public health and pathology departments based at public hospitals, medical schools and dental schools. Included access to training programs are: pathologists of all spectrums (i.e. anatomical; chemical; etc.); pathology medical scientists, technicians, and technologists; and occupational health practitioners and staff. The NHLS training programme focuses on a range of disciplines such as: anatomical pathology;

immunology; virology; chemical pathology; microbiology; haematology; and human genetics.

The NHLS ensures that all their staff and trainees are given the optimum and most contemporary forms of training and development through the establishment of a national training division. This division functions as a branch of the Human Resource division that ensures that staff and trainees undergo constant skilled development programmes to ensure that their skills are contemporary. Training is available at all four regions on the NHLS (KwaZulu Natal; Northern; Coastal; and Central Regions).

## **7. Quality Assurance**

The National Health Laboratory Service engages in benchmarking against international standards by means of accreditation of laboratories, conducting external quality assessment and internal quality control through the evaluation of proficiency testing performance as well as the analysis of assayed control materials on all patient samples thereby ensuring high a standard of services. The Quality Assurance Division aims at setting and implementing policy in terms of research, quality assurance as well as accreditation of laboratories. The Quality Assurance Division is an active member of the Clinical Laboratory Standards Institute (CLSI) which offers practical guidance that is an educational tool for NHLS.

Drawing on accreditation, the NHLS laboratories are accredited by the South African National Accreditation System (SANAS). The South African National Accreditation System (SANAS) is an independent legislated body responsible for compliance with international standards. This entails the assessment and implementation of quality standards in addition to the competence of a laboratory's ability to perform designated tests.

Strikingly, sixty percent of NHLS academic laboratories and twenty one percent of regional laboratories are accredited to international standards.

All National Health Laboratory Service (NHLS) laboratories engage in NHLS proficiency testing, which refers to external quality assessment schemes that comprises all disciplines of pathology testing as it is compulsory. Proficiency testing schemes are performed on a monthly, every second month or quarterly basis, depending on the scheme. Results are monitored on an on-going basis to guarantee timely interventions when problems are sought out. The percentage compliance of NHLS laboratories positively stands at a soaring ninety five percent within the last two years which are above international norms. There is also participation of academic laboratories in international proficiency testing schemes that includes those coordinated by the Royal College of Pathologists of Australia, United Kingdom National External Quality Assessment Scheme and College of American Pathologists.

Importantly, The NHLS chemistry, flow cytometry and haematology proficiency testing schemes are accredited to ISO Guide 43 and ILAC Guide 13. A current project being undertaken by the NHLS is the accreditation of the microbiology proficiency testing schemes.

Internal quality control is imperative to the NHLS as all NHLS laboratories run samples of known value/s at pre-determined intervals in order to determine the effectiveness of their test systems. Notably, daily quality control is charted and analysed in keeping with criteria that is internationally acclaimed.

The monitoring of internal quality control data occurs continuously by technical staff in all laboratories in real time. In doing so, should there be a failure of internal quality control, corrective action can then be executed before generation of patient results.

A sub-division of the Quality Assurance Division is health and safety. This has a responsibility to ensure that the National Health Laboratory Service is a safe and healthy environment for its members of staff.

## 8. Publications

The National Health Laboratory Service (NHLS) along with its divisions, that is, the National Institute for Communicable Diseases (NICD) and the National Institute for Occupational Health (NIOH) are responsible for publications compiled by their expert-staff relating to their fields of work and research.

A stronger alignment of the NHLS strategy with the Department of Health during the period of the 2009-2010 financial year had resulted. The organisation aimed at increasing its focus towards the customer; strengthening stakeholder relations with its partners and clients; developing a more conducive working environment for employees; positioning itself as a viable employer for young health professionals; encouragement of suitable research, and lastly to investigate ways of decreasing service costs to customers.

The 2009-2010 annual report emphasises how the NHLS dealt with these aims as well as the outcomes of them. The NHLS has been successful in its contribution to the public health system by focusing on cost effective diagnostic tools, laboratory service delivery as well as revolutionary research.

In offering current information and sources on communicable diseases in South Africa, the NICD Communiqué is published by the National Institute for Communicable Diseases (NICD) every month. Additionally, a quarterly publication called the NICD Communicable Diseases Surveillance Bulletin of the National Institute for Communicable Diseases (NICD) is also available.

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