PRIVATE SECTOR INTENSIVE CARE PHYSIOTHERAPISTS PROFILE AND CURRENT PRACTICES IN SOUTH AFRICA

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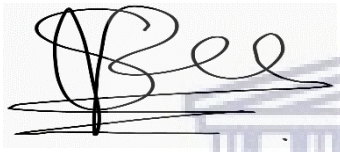
Declaration

I hereby declare that *"Private Sector Intensive Care Physiotherapists Profile and Current Practices in South Africa"* is my own work, it has not been submitted, or part of it, for any degree or examination in any other university, and that all resources I have used or quoted have been indicated and acknowledged by complete references.

Sarfaraz Peerbhay

Signature:  **Date: 27 November 2020**

Dedication

To my dearest parents:

Aysha Bibi and Abdul Rahim Peerbhay

I am here today because of all your sacrifices and hardship so that I could have an education and better life. I am forever grateful. May Allah shower his choicest blessing upon you and continue to give me the ability to make you proud.

To my Loving wife and son:

Raeesa Hoosain

I dedicate this to you for your patience and constant support, you gave me the push that I needed to take on this journey and you stood strong by my side right till the end.

Muhammed Fuzail Peerbhay

Daddy is done with his 'work' its play time!

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In the name of Allah, the beneficent the merciful, all gratitude to my Creator for giving me the courage, strength, patience and knowledge to complete this study.

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Abstract

Introduction: Variability of profile and practices (roles) of the ICU physiotherapists exists globally. The profile and current practices (roles) of the private practice physiotherapist in the private ICU has been minimally explored especially in South Africa (SA). A dearth of survey data and in-depth exploration of the latter exists in the current literature. The aim of this study was to determine and explore the profile and current practices (roles) of the ICU physiotherapists in private ICUs in SA.

Method: A mixed method sequential explanatory design was used with two phases namely i) a quantitative survey questionnaire sent via email to 257 private physiotherapy practices who rendered ICU services in the private hospitals in SA identified and ii) a qualitative study conducted with the physiotherapists who responded to the survey questionnaire via audiotaped individual face-to-face interviews and focus group discussions using a semi-structured interview guide. Quantitative data was analysed descriptively using SSPSv24 and qualitative data, transcribed verbatim was analysed using inductive and deductive thematic content analysis. Trustworthiness was ensured through the process of credibility, confirmability, dependability and transferability.

Results: Only 10.5% (n=27/257) of private physiotherapy practices responded to the survey questionnaire with a total of 42 surveys. The private practice physiotherapists were young (30.5 years [range 23-65 years]), mostly female (79%, n=33/42) with bachelor's degrees (79%, n=30/38) and varying years of ICU work experience (1-10 years) and attended few postgraduate ICU training courses. They received referrals mainly from ICU doctors (100%, n=37/37). The majority were involved in patient goal setting (97%, n=30/31), discharge planning (61%, n=19/31) and follow-up of ICU patients in the ward (93%, n=28/30), out-patient setting (83%, n=25/30) and in the community (73%, n=22/30) but were not exclusively allocated (90.5%, n=38/42) to the ICU, with no physiotherapists in the ICU at night in the week (56%, n=22/39) or weekend (60%, n=25/42) and spent less than 50% of their time [in a 24-hour period] (77%, n =23/30) in the ICUs. The majority (69%, n=20/29) rotated weekly and did not supervise students (93%, n=39/42) in the ICU. Just over half (51%, n=21/40) reported doing two treatments/patient a day. The majority said that they prescribed the frequency of treatment (87%, n=27/31), position changes (74%, n=23/31), chest physiotherapy (71%, n=22/31), mobilisation (84%, n=26/31) and rehabilitation (74%, n=23/31) following a structured physical examination followed by the ICU doctors.

Physiotherapists ranked themselves as mostly involved in mobilisation and rehabilitation activities in the ICU. Chest physiotherapy, ventilation, mobilisation, and rehabilitation activities ranked 1 or 2 as most used included manual and breathing techniques (1), the supervision and implementation of non-invasive ventilator support (2), sitting out in a chair (1), followed by active/passive transfer to chair, sitting over edge of bed and active exercises in bed (2) and active exercises in the chair, marching on the spot and ambulation without the ventilator (1), respectively. Three major themes emerged from the qualitative data namely: i) Competency (Qualifications and Training, Years of ICU Work Experience, Knowledge and Skills Acquisition), ii) Practice Patterns and Services (Structure and Organisation, Patient Management) and Professional Ethos (Communication and Professional Conflict, Awareness, Attitude and Behaviour, Autonomy and Scope of Practice and Ethics).

Conclusion: Variability in the profile and current practice patterns of Private practice ICU physiotherapists in SA exists and is affected by various challenges related to the structure and organisation of these private ICUs and physiotherapy practices. The "first line practitioner" status is affected by the reliance of referrals from ICU doctors and treatments provided are affected by ICU doctors' prescriptions, medical aid fund authorisations and billing tariffs. Lack of continuity of care due to the weekly rotation of physiotherapists in the ICU and the lack of a dedicated physiotherapist allocated to private ICU care is a concern. Physiotherapists may need to evaluate these practices and find the best organisational structure and referral system, as well as a way of creating awareness of their role in the ICU team in order to provide standardised care practices and improve ICU patient outcomes.

Key words: *Private Physiotherapy, Intensive Care. ICU, Profile, Role, Current Practice, South Africa*

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Abbreviations

ABGs: Arterial Blood Gasses

CCSSA: Critical Care Society of South Africa

CPAx: Chelsea Critical Care Physical Assessment Tool

CPRG: Cardio-pulmonary Rehabilitation Group

CPT 1: Cardiopulmonary Training 1

GSC: Glascow Coma Scale

HASA: Hospital Association of South Africa

ICU: Intensive Care Unit

IMT: Inspiratory Muscle Training

IPPB: Intermittent Positive Pressure Breathing

MDT: Multidisciplinary Team

MNM: Mortality and Morbidity Ward Rounds

PP ICU Physiotherapist/s: Private Practice Intensive Care Unit Physiotherapist/s

ROM: Range of Motion

SA: South Africa

SASP: South African Society of Physiotherapy

SOMS: Surgical Intensive Care Unit Optimal Mobilisation Score

SPSS: Statistical Package for the Social Sciences

SQ: Surprise Question for Cognitive Function Assessment in ICU

UWC: University of the Western Cape

VAS: Visual Analogue Scale for pain

WCPT: World Confederation for Physical Therapy

Ethics

Ethics approval (reference number HS16/5/36) was obtained from the Biomedical Research Ethics Committee of the University of the Western Cape [Addendum 1]. Detailed information regarding ethics principles followed can be found in the methods section of Chapter Two and Three for each study.

Conflict of Interest and Funding

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Chapter One: Introduction

1.1 Background

Globally, healthcare practices and healthcare systems have been changing dramatically and intensively reforming, developing and improving over the last 30 years (Durrani, 2016; Higgs, Refshauge, & Ellis, 2001). These changes are due to the need for more efficient and effective use of the depleting healthcare resources and the need to improve and maintain quality care and services (Durrani, 2016; Higgs et al., 2001). According to Durrani (2016) the design, culture and practices of hospitals will change to better meet the needs of patients, families and providers. These changes in hospitals are required to address the challenges faced by the global health system. Some of these challenges include the increase in population, urbanisation, behavioural changes, rise in chronic diseases, traumatic injuries, infectious diseases, specific regional conflicts and healthcare delivery security over the last 30 years (Durrani, 2016). The latter may affect specialised healthcare services such as intensive or critical care accessible and available to the growing needs of the population especially in developing countries, where the challenges are noted by Durrani (2016).

In healthcare, specialised services such as intensive care medicine is an expensive, resource demanding area of patient care (Joynt et al., 2019). Intensive care is a complex and dynamic setting that requires the input of a team of specialist healthcare professionals (Joynt et al., 2019). Quality of care and services in intensive care is constantly being examined as critically ill patients require best practice in order to improve patient outcomes and to reduce and maintain costs in the intensive care setting where resources are scarce (Joynt et al., 2019). Intensive Care Units (ICUs) worldwide are found in both the public and private sector hospitals and include the medical and allied

healthcare professional services, and sophisticated equipment that requires the employment and services of ICU technicians. With the challenges faced in healthcare globally and increasing technological advancement, ICUs have also seen changes in structure, organisation and the provision of services and care (van der Sluijs, van Slobbe-Bijlsma, Chick, Vroom, Dongelmans, & Vlaar, 2017) and need to satisfy the needs of not only patients but also family members of patients and healthcare managers and funders (Durrani, 2016).

In South Africa (SA), the first ICUs emerged after the polio epidemic in Europe in the 1950s (Gopalan, 2013; Scribante & Bhagwanjee, 2007) and have developed and transformed since then (Joynt et al., 2019). The health system in SA is a two-tiered system with a well-resourced private sector that services <20% of the country's population and a public sector that is under resourced and serves the rest (>80%) of the population (Joynt et al., 2019; de Beer, Brysiewicz, & Bhengu, 2011). ICUs in SA are based in both the private and public sectors. The public sector ICUs are closed units, and patients have to be accepted by the clinician (intensivist/doctor) in charge before being admitted whereas the private sector ICUs are open units and any doctor (intensivist, surgeon, neurologist, geriatrician) can admit a patient (Joynt et al., 2019). Therefore, private sector ICUs cater for patients with varying levels of need in terms of ICU staff resources, equipment and other services (Joynt et al., 2019). The policies relating to healthcare in SA differ between the two sectors due to the country's political history. The health facility design (relating to cost-effectiveness and patient safety) in the private sector is strictly regulated, whereas these same regulations do not apply to public healthcare facilities or hospitals (Joynt et al., 2019). These differences may affect how medical and allied healthcare professionals including physiotherapists working in the ICU settings in these two sectors provide their services and care to patients.

There is a total of 4 168 critical or intensive care beds in SA with 57% of these in the private sector (de Beer et al., 2011). There are 256 hospitals in the private sector, of which 216 (84%) have ICU/High Care Units (HCUs) facilities and are situated mainly in three provinces in SA namely KwaZulu-Natal, Gauteng and the Western Cape. These provinces also have 86% of the available private ICU beds. Private ICUs have mainly level II – IV high care ICU facilities. Level II units are specialised units focusing on neurological/coronary care, whereas level III units are the critical care units found in community hospitals that can provide limited invasive monitoring, and level IV units are high-dependency units (de Beer et al., 2011). Most of these private ICUs are open and have a 1:1 nurse/patient ratio, with limited input from intensivists (de Beer et al., 2011). Almost 80% of the private hospital market in South Africa is dominated by three firms namely Life Healthcare, Mediclinic and Netcare. By number of beds, Netcare has an estimated 26% of market share and comprises 59 hospitals. Mediclinic, is one of the largest private hospital groups in the world and has 52 full-service hospitals and a total of 8000 beds. Life Healthcare comprises 64 hospitals that extend across seven provinces in SA with a total of 8769 beds, which include 1230 ICU and high care beds (HASA, 2018; HASA, 2016). These three private healthcare groups and their hospitals provide acute or intensive care services and also have physiotherapy practices in these hospitals, rendering services to the acute or intensive care setting. However, it is not well known who owns these private physiotherapy practices and how the private physiotherapy services and care are provided to these private intensive care units and their patients. There is no specific database recording the private practice physiotherapists' details, employers and employees. Moreover, the South African Society of Physiotherapy (SASP) has a limited database of only registered physiotherapists who may not all be in private ICU practice, making it difficult to access these physiotherapists specifically.

Since intensive care is expensive and resources in this area of healthcare are scarce, the quality of care and services in this area of patient care requires constant evaluation to motivate and substantiate the resources spent (Hodgson & Hardcastle, 2013; de Beer et al., 2011). Unlike the public sector that is overburdened with almost 80% of the SA population that do not have medical aid and cannot attend private hospitals for care (Hodgson & Hardcastle, 2013; de Beer et al., 2011), it is relevant to determine and explore whether private healthcare including care in the private ICU is providing anything different to support patients in using private rather than public services. In SA, the National Health Insurance (NHI) is in the process of being implemented and this will require co-ordination of health provision across sectors and levels of care (Karachi, Hanekom, & Gosselink, 2018; Wilkinson, MacQuilkan, Mudara, Winch, Pillay, & Hofman, 2018). The introduction of the National Health Insurance (NHI) in SA may therefore affect the care and services provided by healthcare professionals in the private ICUs. This includes care and services rendered by private practice (PP) ICU physiotherapists. Understanding the functioning of private healthcare systems, including private ICU and private ICU physiotherapy systems, will provide a baseline of the current structure, organisation and practice patterns in this sector about the need for change or improvement.

Physiotherapy is a profession that places importance on health promotion, prevention of illness, acute care and rehabilitation and plays an essential role in the healthcare system (Acharya et al., 2011; Higgs et al., 2001) and has an essential role to play in the intensive care setting, specifically in the ICU multidisciplinary or interprofessional team (Gupte & Swaminathan, 2016; Perme & Chandreshekar, 2009; Denehy et al., 2008). Physiotherapists are deemed to be an integral part of the ICU multidisciplinary team (Lottering & van Aswegan, 2016) and should be involved in ICU

patient goal setting, treatment and management, discharge planning, and follow up of critically ill patients. They should be a part of the discussion of critically ill patients on ward rounds (Karachi et al., 2018). Hanekom (2016) has described ICU physiotherapists as rehabilitation experts and Karachi et al. (2018) has documented that ICU physiotherapists in the public sector ICUs in SA say that their role in the management of ICU or critically ill patients includes mobilisation and rehabilitation activities and that they spend between a quarter and half of their time in the ICU performing these activities. Rehabilitation activities and discharge criteria may differ between the private and public sector as while public sector ICU physiotherapists may have the option for patients to be discharged and admitted to public step-down facilities, the private ICU physiotherapists may need to discharge private ICU patients to their own or other physiotherapy practices or private rehabilitation centres for rehabilitation that is dependent on funding available to the private patient. It is unclear whether the physiotherapists employed in private physiotherapy practices and involved in rendering services to private sector ICU view or perceive their role in the same light since the PP ICU physiotherapy profile, role and current practices have not been well established in the South African literature (Karachi et al., 2018) with few available studies (Karachi et al., 2018; van Aswegan & Potterton, 2005; Lottering & van Aswegan, 2016).

Physiotherapists have provided evidence for their role and effectiveness in the ICU including treatments such as chest physiotherapy, mobilisation and rehabilitation (Karachi et al., 2018, Lottering & van Aswegan 2016; Ambrosino, Janah, & Vagheggini, 2011). Common treatment techniques used by physiotherapists in the care of critically ill patients include that of assessing cough effort and auscultation, manual chest clearance (multimodality respiratory care), early mobilisation in and out of bed, positioning, suctioning, inspiratory and upper and lower limb

muscle strengthening and breathing exercises (Karachi et al., 2018, Lottering & van Aswegan 2016; Ambrosino, Janah, & Vagheggini, 2011). However, the application of these different treatment techniques is dependent upon variations in the physiotherapists' qualifications, specialised training, referral system, autonomy, workload, and the availability of physiotherapists during the evenings and public holidays or weekends, cooperation of other ICU healthcare professionals, and the availability of ICU staff and resources such as ICU equipment (Chakravarthy, Rao, & Bhat, 2016; Skinner et al., 2015). Evidence-based protocols for the physiotherapeutic management of critically ill patients exist in international literature and in South African healthcare databases. It is not clear whether PP ICU physiotherapists are indeed utilising this evidence in the management of ICU patients in the private sector both internationally and nationally.

While physiotherapists have tried to define their role in the intensive care setting globally and in South Africa, their profile, and current practices (roles) are variable across provinces and even between units within hospitals. Many survey studies conducted internationally (Baidya et al., 2016; Sigera et al., 2016; Taito, Sanui, Yasuda, Shime, & Lefor, 2016; Malone et al., 2015; Yeole et al., 2015; Chokshi, Alaparthi, Krishnan, Vaishali, & Zulfeequer, 2013; Appleton, MacKinnon, Booth, Wells, & Quasim, 2011; Wiles & Stiller, 2010; Hodgin et al., 2009; Kumar, Maiya, & Pereira, 2007; Norrenberg & Vincent, 2000), in Africa (Oke, Birabi, & Oghumu, 2015; Tadyanemhandu & Manie, 2015), and locally in South Africa (Karachi et al., 2018; Lottering & van Aswegan, 2016; van Aswegan & Potterton, 2005) have reported variability in ICU physiotherapy practices but have not provided a clear picture of PP ICU physiotherapy rendering services and care in

private ICUs. Therefore, there is a dearth of information regarding the profile and current practices (roles) of physiotherapists working in private sector ICUs.

In the South Africa ICU Physiotherapy literature, Lottering and van Aswegan (2016) and van Aswegan and Potterton (2005) included private practice physiotherapists in their survey questionnaire. However, the limitation of these studies was that the sample did not necessarily include private sector physiotherapists working in the private ICUs across the whole country at the time of the survey. In addition, the results of the survey combined both the information gained from the public and private sector physiotherapists, thus making it difficult to attain who the private sector ICU physiotherapists are and what their particular ICU physiotherapy practices entailed. Karachi et al. (2018), described the profile and current practices of the public sector ICU physiotherapists specifically in SA and used a survey that encompassed more aspects related to the profile and practices of physiotherapists in this setting, based on questions from all existing survey studies at the time. Karachi et al. (2018) recommended that evaluating the profile and current practices of PP ICU physiotherapists would provide more information on the status of ICU physiotherapists in SA and the standard of care as a whole. Karachi et al. (2018) added that this evaluation would be beneficial as the private sector ICU resources, structure and organisation may have an effect on how these private physiotherapists render their services and that may affect outcomes in private ICU patients.

Thus, the profile and current practices of PP ICU physiotherapists is still unclear and needs investigation. In-depth exploration of ICU physiotherapy practices in South Africa was also recommended in order to fully understand the state of affairs of ICU physiotherapists in South

Africa (Karachi et al., 2018). Since private practice and private hospitals may be structured, organised and function differently, the profile and current practices (roles) of private practice physiotherapists rendering services to these private ICUs in SA may differ from that of the public sector. These possible differences may affect the quality of care and services provided by private ICU physiotherapists, as well as patient outcome in these units. Besides a survey, a deeper understanding of the factors affecting ICU physiotherapists' practice patterns through qualitative exploration will add value as to what exactly ICU physiotherapists do and why, in both the public and private sector.

There are few to almost no studies that have conducted an in-depth exploration of the profile and currents practices (roles) of the ICU physiotherapists in South African ICUs in both private and public sectors. One qualitative study by Makalla, Karachi and Phillips et al. (2015), showed that cardiac surgeons and physiotherapists working in a cardiac unit in Tanzania perceived the physiotherapists working in this critical care unit to have poor communication, a lack of training in specifically cardiopulmonary rehabilitation and a lack of standardised treatment procedures, bringing variations in an area of healthcare requiring specialised and evidence-based care for improved outcomes. A survey study followed by an in-depth exploration of the profile and current practices (roles) of PP ICU physiotherapists in SA may therefore provide richer data to substantiate survey evidence. Investigating the challenges affecting ICU physiotherapists in SA and specifically in the private sector with regards to structure and organisation, training and expertise, patient management, staffing and equipment, ICU teamwork that may affect treatment and patient outcomes is therefore a necessity to continually improve the profession and its image in the ICU setting in SA. In this study, physiotherapy practices refer to the treatment activities and frequency

used to manage the ICU patient, evidence based care and outcomes, autonomy, referral, discharge and follow-up processes/practices, on call duty that affect ICU patient management and the profile refers to the characteristics of the physiotherapists rendering ICU services such as age, gender, years of experience, qualifications and training.

1.2 Problem Statement

Physiotherapists are known as rehabilitation experts who play an important role in the intensive care setting (Alfadil, 2017; Hanekom, 2016; van Aswegen, Hanekom, Plani, & Patman, 2014). However, evidence has shown variability in the role of intensive care physiotherapists across continents, between countries and even hospitals and units within hospitals (Karachi et al., 2018, Lottering & van Aswegan, 2016, Baidya et al., 2016; Sigera et al., 2016; Malone et al., 2015; Yeole et al., 2015; Kumar, Maiya, & Pereira, 2007; Norrenberg & Vincent, 2000). Thus, substantial differences pertaining to the role of physiotherapists in intensive care management, the provision of services and the treatment techniques implemented exist (Hanekom, 2016; Stiller, 2013). Many survey studies (Karachi et al., 2018, Lottering & van Aswegan, 2016, Baidya et al., 2016; Sigera et al., 2016; Taito, Sanui, Yasuda, Shime, & Lefor, 2016; Malone et al., 2015; Yeole et al., 2015; Chokshi, Alaparthi, Krishnan, Vaishali, & Zulfeequer, 2013; Appleton, MacKinnon, Booth, Wells, & Quasim, 2011; Wiles & Stiller, 2010; Hodgin et al., 2009; Kumar, Maiya, & Pereira, 2007; Norrenberg & Vincent, 2000), report on the profile and current practices (roles) of intensive care physiotherapists more so in the public sector with minimal evidence available on the role of the PP ICU physiotherapist rendering services in the private intensive care setting where the structure and organisation as well as resources available may be different to that of the public sector ICUs. The private sector is privately funded versus public hospitals that are government funded (Basu,

Andrews, Kishore, Panjabi, & Stuckler, 2012) and differences in incentives or salaries provided in the private sector versus the public sector may influence the practice and roles of ICU physiotherapists between these two sectors. A study conducted by Lottering and van Aswegan (2016) does not clarify the specific practices of the public and private sector ICU physiotherapists separately and therefore it is not clear if practices differ or are similar between the two tiers of public and private sector ICU physiotherapists. A study conducted by Karachi et al. (2018) on the profile of public sector intensive care physiotherapists across South Africa, recommends that a separate survey as well as in-depth qualitative enquiry of the profile and practices of PP ICU physiotherapists be conducted to provide additional evidence for ICU physiotherapists in SA. Furthermore, changes in evidence to support active treatment such as early mobilisation and rehabilitation above passive treatment, including respiratory physiotherapy using manual chest techniques, may affect current practice patterns of the PP ICU physiotherapists. There are also numerous factors like that of clinician and healthcare system-related barriers, which seem to affect the current practices of ICU physiotherapists and the efficacy of physiotherapy practices (Parry et al., 2016). The structure and organisation of private physiotherapy practices may also affect the current roles of the physiotherapists working in the private ICUs. Whether physiotherapists working in the private sector ICUs in South Africa are equipped with the appropriate skills and knowledge, what their current practices are, and why they practise and render services the way they do is not known and not clear from the dearth of evidence that exists in the not only international studies but South African literature in particular. It is therefore not clear whether private practice physiotherapists rendering services to ICUs are on par with international and local reported standards of care. The introduction of the NHI and transformation of the healthcare system in South Africa necessitates the evaluation of the practices of private ICU physiotherapists

to determine how the NHI may affect the profession in the private sector and in private ICU particularly. The study would provide some evidence as to the physiotherapy ICU resources available in the private sector, as a baseline to evaluate the profession's readiness for the NHI implementation process. The researcher has worked in both public and private ICUs in the Western Cape and Gauteng, has through ICU work experience noted variabilities in the ICU physiotherapy services and care, and has an interest in establishing new evidence in this area of physiotherapy. Therefore, following identification of the gap in the ICU physiotherapy research particularly in South Africa, the researcher aimed to determine and explore the profile and current practices (roles) of private practice physiotherapists rendering services to private sector ICUs in South Africa.

1.3 Overall Research Question

What is the profile and current practices of private practice physiotherapists rendering services to private sector ICUs in South Africa?

1.4 Overall Research Aim

To determine and explore the profile and current practices of private sector ICU physiotherapists in South Africa. To achieve the aim of the study, it was conducted in two phases using a mixed methods sequential explanatory design consisting of a quantitative followed by a qualitative descriptive design.

1.5 Research Objectives

1.5.1 To determine and describe the profile *(age, gender, qualifications, training and years of experience)* of private practice physiotherapists rendering services in the private sector ICUs in SA.

1.5.2 To determine and describe the current practices *(referral systems and guidelines; availability of ICU physiotherapists; prescription of ICU treatment activities; involvement in ICU treatment activities;, patient management, including frequency of treatment; percentage of patients seen and treatment techniques used; workload, including on call duty and time spent in the ICU; use of protocols and outcome measures; evidence-based practice; referral guidelines; patient goal setting; discharge planning and follow up)* of the private practice physiotherapists rendering services to private sector ICUs in SA.

1.5.3 To explore and describe the current practices [roles] of *(referral systems and guidelines; availability of ICU physiotherapists; prescription of ICU treatment activities; involvement in ICU treatment activities; patient management, including frequency of treatment, percentage of patients seen and treatment techniques used; workload including on call duty and time spent in the ICU; use of protocols and outcome measures; evidence-based practice, referral guidelines; patient goal setting; discharge planning and follow up)* and barriers/challenges facing the private practice physiotherapists rendering services to private sector ICUs in SA.

1.6 Significance of the Overall Study

The current change and transformation in the healthcare system and the introduction of the NHI in SA requires all healthcare professionals to re-evaluate, understand and be able to clearly define their role and benefit in the healthcare of the population in various areas of medicine, including

intensive care management. Physiotherapists as healthcare professionals providing services to intensive care patients have a responsibility to constantly assess their services, treatments and outcomes in this complex healthcare environment. Physiotherapists need to clearly define their role in the intensive care setting in both the public and private sectors in South Africa in order to support their professional identity in this area of healthcare. The purpose of this study was to establish the profile and current practice of private sector ICU physiotherapists in South Africa. Physiotherapists need to evaluate whether their organisation, structure, services and current practices/care rendered in ICUs will maintain and sustain their existence in the ICU setting. Private practice (PP) ICU physiotherapists also need to evaluate their role and current practices as the NHI may result in increased use of already limited private sector ICU physiotherapy resources that may have an effect on physiotherapy practice in the future. The information gained from this study provides physiotherapists with evidence and knowledge about the current state of physiotherapy in the private sector ICUs and helps identify areas for improvement in the services and treatments rendered to intensive care patients. Physiotherapists can use this evidence to support the need for the profession in intensive care and to advocate for improved human and tangible resources through discussion with healthcare management and funders in the private sector. Physiotherapists working in private intensive care units can now identify and address organisational, structural and individual as well as team needs for their practices within the private intensive care sector. The study contributes by identifying information regarding the level of care and specific treatment interventions and outcomes that play a role or assist in the provision of safe, high quality care. The information gained allows for benchmarking of services and practices not only locally across provinces, hospitals and units but also internationally. Physiotherapists can use this information to improve, maintain and sustain good quality healthcare practices that are in line with the needs of

the intensive care population and are on par with international standards in a private setting. The latter in turn can assist in improving intensive care patient outcomes and reducing healthcare costs in this highly specialised and expensive area of healthcare through improved standards and quality of physiotherapy care and services.

1.7 Ethics

Ethics clearance to conduct the study was obtained from the University of the Western Cape (Ethics reference number – HS16/5/36 [Addendum 1]). Permission to conduct the study was obtained from all private practice physiotherapy owners and, where required, the hospital in which practices were based. All participants were given an information sheet [Addendum 3 & 7] and a consent form [Addendum 4 & 8], available in English only as all participants were fluent in the English language. Participants who were involved in the focus group discussions also signed a focus group confidentiality form [Addendum 9]. All participants were informed of the right to withdraw at any time, during the study process, without facing any consequences. The data collected from each of the participants, was captured and stored on a password-protected computer in a password protected file accessible only to the researcher and research supervisor. During the study no harm or risk was caused to or experienced by the participants due to the nature of the study and the researcher had an appropriate referral plan in the event the latter did occur. As the thesis is written in an article format, ethics in each of the chapters that would comprise an article has been summarised in brief as would be presented in a publication.

1.8 Thesis Overview

The structure of this thesis is illustrated in Figure 1. The information presented in this study comprises two phases. Phase one is the quantitative survey study presented in chapter two, answering objective one and two. Phase two is the qualitative descriptive study presented in chapter three, answering objective three. Chapter two and three are presented in article format that will be edited for submission for publication. The reader is therefore alluded to the fact that as chapter two and three would comprise two separate original papers for publication, there may be some repetition in terms of the content due to the interrelated nature of the study questions. The overall discussion attempts to summarise the findings of the two studies and attempts to integrate the survey and interview findings. For the ease of reading a complete reference list will be provided at the end of the thesis following the conclusion chapter of the study. The chapters of the thesis are outlined as follows:

Chapter one consists of the background for the study highlighting current evidence in ICU physiotherapy, their reported role in the ICU and the gaps in the current evidence motivating and supporting the study question, aim and objectives. The problem statement and significance of the study is addressed and lastly the outline of the thesis is described.

Chapter two presents the results of the quantitative descriptive survey, presented in article format with a background, method, results, discussion and conclusion section. This chapter describes the profile and current practices of the private practice physiotherapists working in ICUs in the private sector hospitals in SA.

Chapter three presents the results of the qualitative study, presented in article format with a background, method, results, discussion and conclusion section. This chapter describes the profile and current practices of the private practice physiotherapists working in ICUs in the private sector

hospitals in SA using an in-depth explanatory design providing a deeper understanding of their current practices (roles) substantiated with direct quotes obtained from the interviews and focus group discussions.

Chapter four consists of an overall discussion of the study findings, integrating the survey results with findings from the qualitative study and attempts to amalgamate these findings into a concise integrative analysis of the study findings in relation to the current available evidence. The strengths of the overall study and its limitations are highlighted. Recommendations for future studies and improvements in private intensive care physiotherapy are discussed. Lastly, the summary of the findings is listed and the chapter is concluded.

Lastly, **Chapter five** presents the conclusion of the study and its findings and describes the way forward.

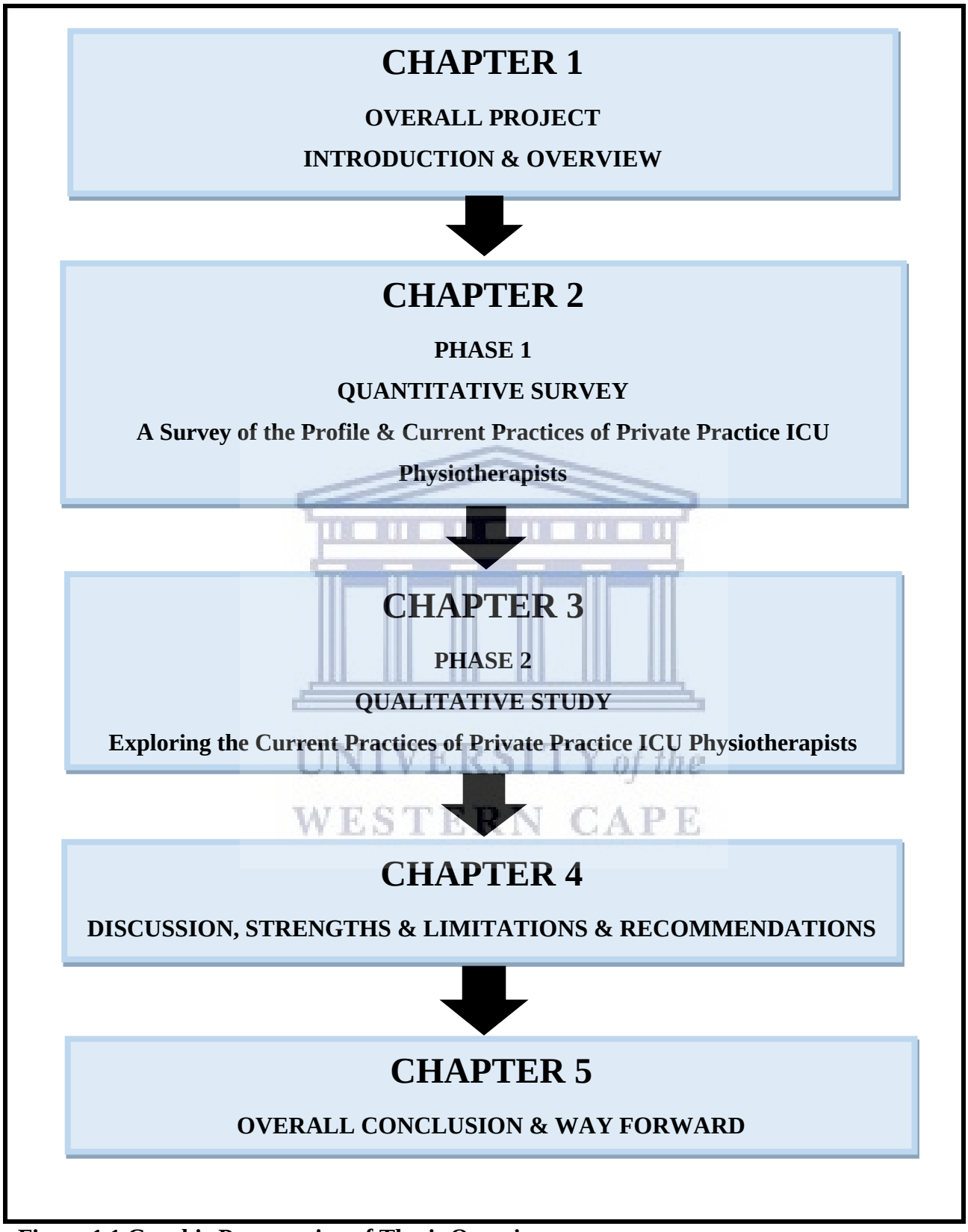

Figure 1.1 Graphic Presentation of Thesis Overvie

Chapter Two: A Survey of the Profile and Current Practices of Private Practice ICU Physiotherapists

2.1 Introduction

The ICU is considered a unique, complex and vibrant setting that provides variations in clinical and workplace experiences (van Aswegen, Patman, Plani, & Hanekom, 2017) with a variety of conditions that can be seen in this setting that require up to date clinical skills and knowledge. Critically ill patients are defined as those patients who present with life threatening conditions that require a high level of support and monitoring for one or more organ system failure and therefore require continuous care, support, and monitoring that is intensive and complex in order to promote a favourable clinical outcome (Marshall et al., 2017).

Globally, the intensive healthcare setting is expensive as it utilises a huge amount of resources and presents a high rate of mortality (Joynt et al., 2019; van der Sluijs et al., 2017; Hodgson & Hardcastle, 2013). ICUs require efficient and effective resource management to provide quality care and services to the increasing number of critically ill patients who are growing in number due to the aging population (van der Sluijs et al., 2017). Similar to international intensive care settings, intensive care services in South Africa (SA) can be found in both the public and private healthcare sectors. There are approximately 256 hospitals in the private sector of which 216 (84%) of these have private ICUs that are divided into different high care units (Naidoo, Singh, & Laloo, 2013; de Beer et al., 2011). Naidoo et al. (2013) reported that there were 4 719 ICU beds in the private and public sectors in South Africa, with 75% (3 533) of these beds situated in the private sector in 2008 and 2009, and both public and private ICU beds were located mainly in Gauteng (49%),

KwaZulu-Natal (14%) and the Western Cape (15%) representing 78% of ICU beds (n=3 703/4 719), which cater for only 54% of South Africa's population. The other provinces have many fewer ICU beds available (Naidoo et al., 2013). There are large variations across the provinces, and the availability of ICU care in some provinces is non-existent (Naidoo et al., 2013). The private sector ICUs consist of level II to level IV ICUs that are open ICUs and the majority of the time have non-intensivists as staff. In these open ICUs, patients are admitted by any of the ICU doctors and not only by one intensivist, resulting in a variety of different types of patients being admitted in the private sector ICUs (de Beer at al., 2011). Level II ICUs are units with a particular purpose such as a paediatric ICU or neurological ICU, level III ICUs provide restricted invasive monitoring which are found in community hospitals and level IV are highly specialised units. The private sector ICUs cater for the minority of the population (20%) who have medical aid plans (de Beer et al., 2011, Mathivha, 2002). Similar to the public ICUs, the private ICU includes healthcare professionals from both the medical and allied health fields that include intensivists, medical doctors, ICU nurses, dieticians and other allied healthcare professionals, including physiotherapists (Karachi et al., 2018). However, the physiotherapists and other allied healthcare professionals work in a variety of private practices within the private hospitals and may or may not render ICU services and ICU patient care. The researcher who has worked in both the public and private ICU physiotherapy sectors in South Africa has noted observable differences in the structure, organisation, financial and patient management aspects of the public versus private ICU physiotherapy practice. However, there is no clear evidence in the literature that can support this observation. The dearth of existing evidence on the private sector ICUs and the profile and current practices of the private ICU healthcare professionals including physiotherapists has not been well

described and does not provide in-depth information of the current situation of the PP ICU physiotherapists in South Africa.

The role of the physiotherapist in intensive care has long been scrutinised for efficiency of patient treatment and management and for the benefits of the profession to patient outcome and reduced ICU costs (Rotta, da Silva, Fu, Goulardins, Pires-Neto, & Tanaka, 2018; Hanekom, Louw, & Coetzee, 2012). Current evidence for physiotherapy treatments in the ICU, including early mobilisation and rehabilitation instead of passive interventions, have proven beneficial to patient outcomes and for reducing ICU length of stay and the need for ICU readmissions that directly influence ICU costs (Rotta et al., 2018; Hodgson & Tipping, 2017; Hanekom et al., 2012). The role of the ICU physiotherapist continues to expand and the inclusion of physiotherapy interventions as part of a multidisciplinary team (MDT) approach in the management and care of ICU patients is considered vital not only to improve their functional prognosis but ultimately the health-related quality of life of these patients (Berney, Haines, & Denehy, 2012). To further investigate the role of the ICU physiotherapist many surveys have been conducted globally and provide insight as to the profile and current practice of ICU physiotherapists across countries and continents internationally (Baidya et al., 2016; Sigera et al., 2016; Taito et al., 2016; Malone et al., 2015; Yeole et al., 2015; Chokshi, Alaparthi, Krishnan, Vaishali, & Zulfeequer, 2013; Appleton, MacKinnon, Booth, Wells, & Quasim, 2011; Wiles & Stiller, 2010; Hodgin et al., 2009; Kumar, Maiya, & Pereira, 2007; Norrenberg & Vincent, 2000) and in Africa including Nigeria (Oke, Birabi, & Oghumu, 2015), Zimbabwe (Tadyanemhandu & Manie, 2015) and South Africa (Karachi et al., 2018; Lottering & van Aswegan, 2016; van Aswegan & Potterton, 2005). These surveys all show variability in the role and practices of these physiotherapists across continents

and countries, hospitals and units within hospitals. The South African surveys (Karachi et al., 2018; Lottering & van Aswegan, 2016; van Aswegan & Potterton, 2005) provide evidence for the profile and current practice of ICU physiotherapists mainly in the public sector as the surveys by van Aswegan and Potterton (2005), and Lottering and van Aswegan (2016) did not specifically clarify the PP ICU physiotherapists profile and current practices as some of the results were combined and the response rate was very minimal and not from the physiotherapists who were directly working in the ICUs at the time. Karachi et al. (2018) used a comprehensive survey that included questions from more than eight to ten other survey studies and included aspects of ICU physiotherapy practice not covered in those surveys such as use of evidence-based protocols, ICU-related outcome measures, prescription of ICU treatment activities, time spent in the ICU and time spent on performing certain treatment activities. The survey study by Karachi et al. (2018) provided information specifically about the profile and current practices of physiotherapists directly working in the public ICUs at the time of the survey providing a more accurate reflection of the status of these ICU physiotherapists but did not include the private sector. Karachi et al. (2018) therefore recommended a similar survey to be conducted with PP ICU physiotherapists to determine whether their profile and practices were different and why.

An integral part of the health services is the private healthcare system that is integral at all levels including ICU. The private sector hospitals employ seventy percent of medical specialists and account for sixty percent of healthcare spending (Hodgson & Hardcastle, 2013). The private hospitals in SA that are registered with the Hospital Association of South Africa organisation include three main firms namely Life Healthcare, Mediclinic and Netcare (HASA, 2018). Only twenty percent of the South African population have medical aid insurance that entitles them to

care in private hospitals, including care in private ICU settings. (Unicef, South Africa, 2017; Hodgson & Hardcastle, 2013). Patients who have access to medical aid may expect that the care they receive in these private sector hospitals including intensive care management be of a high quality and standard and may expect value for money as they may perceive private healthcare to be better resourced with highly qualified and trained healthcare professionals to provide the care they pay for. Therefore, private patients and medical aid funders expect best practice care for improved outcomes and reduced hospital stay in order to minimise costs. In an article by a staff writer in the online newspaper, Businesstech (2019), dated 30 September 2019, it is stated that: "These facilities [referring to private hospitals in SA] operate without any scrutiny of the quality of their services and the clinical outcomes that they deliver because there are no standardised publicly shared measures of quality and healthcare outcomes to compare one against the other." Furthermore, with limited funds available to patients for allied healthcare, including physiotherapy services that include ICU physiotherapy, it is the healthcare professionals' responsibility to provide evidence for their care and services in the private sector in order to motivate for increased funds and benefits for treatments such as physiotherapy in all areas of medical care including intensive care.

The private sector ICUs and private physiotherapy practices in South Africa may be managed, organised and structured differently than the public sector ICUs and physiotherapy departments and may therefore affect the way in which the healthcare professionals including PP ICU physiotherapists provide services and care to the private ICUs and patients. According to the report in the Businesstech (2019), the Competition Commission stated: "The market [referring to private healthcare] is characterized by highly concentrated funders and facilities markets, disempowered

and uninformed consumers, a general absence of value-based purchasing, practitioners who are subject to little regulation and failures of accountability at many levels". The staff writer from the Businesstech (2019), further added that "while it was recognised that much of this private healthcare system is set to be replaced by the National Health Insurance (NHI) within the next 10 years, private healthcare would continue to operate in the interim and beyond the NHI's implementation. Thus, the commission recommended that a number of changes be made to provide a better environment in which a fully implemented NHI can function." The latter indicates that identifying the current situation (profile and current practice) of PP ICU physiotherapist may be beneficial to identify any changes or improvements needed in this professional sector that may be incorporated into the NHI system.

Currently there is no evidence stating how PP ICU physiotherapists function and practice in the private ICU setting with no clear indication to their structure and organization, workload, patient management, use of evidence-based treatments, and outcome measures, referral system, discharge and follow-up procedures and involvement in any post-graduate ICU training in order to upskill themselves for marketability in the private sector. While we have the Hospital Association of South Africa (HASA) database with a listing of HASA registered private hospitals there is no indication of the number and type of ICUs in each private hospital and no database with the number and location of private physiotherapy practices in SA and a list of which of these practices render ICU services. This paper describes the recruitment of this PP ICU physiotherapy population and describes their profile and current practices (role) of private practice physiotherapists rendering services to private ICUs in South Africa. The paper focusses specifically on the private sector ICU physiotherapists in order to provide clear evidence of the profile and current practices of this group

of ICU physiotherapists in the country. The study was motivated by the researcher's interest in private ICU physiotherapy practice and the gap identified by Karachi et al. (2018) who recommended that a survey of the private sector ICU physiotherapists would add to the body of evidence on the role of the ICU physiotherapists in SA, be beneficial in providing evidence to motivate their role in the private sector ICUs, and promote the need for an increased portion of medical aid funds to be allocated to physiotherapists providing care in private ICUs in order for patients to better access these services for improved outcomes.

2.2 Methodology

2.2.1 Research Design

An observational cross-sectional, descriptive survey design was used. This research design allows for the establishment of what the current practice of the private sector physiotherapists rendering services to private sector ICU services are at one point in time also referred to as taking a "snapshot" of the current situation (Carlson & Morrison, 2009).

2.2.2 Research Setting

The setting included all South African Private Sector Hospitals that house level II-IV ICUs that are registered with the Hospital Association of South Africa (HASA) and that are listed on the 2018 HASA list of hospitals. It was not known which of these private sector hospitals and their respective ICUs had private practice physiotherapists rendering services to these ICUs as this information is not readily available in any database. The number of private hospitals per province and number of existing private physiotherapy practices in South Africa were determined through the recruitment procedure described in 2.2.3.1.

2.2.3 Population and Sample

2.2.3.1 Population Recruitment

In order to obtain the population and sample to be studied, the HASA website (https://www.hasa.co.za/) was accessed and the 2018 HASA list of registered private sector hospitals per province was retrieved. The researcher then captured the names and contact details of each hospital in each province on an excel database. The researcher identified three main hospital groups namely Life Healthcare, Mediclinic and Netcare from the list. The excel database included information obtained pertaining to the HASA member hospitals located within the nine provinces in South Africa and included information such as the province, the various cities/towns within each province, names of the private hospitals in each of the cities/towns, the hospital contact number and the availability of intensive care units per hospital that was obtained either on each hospital's website and/or via telephone enquiry by the researcher. Information available regarding the amount of ICU beds and type of ICUs per hospital was documented if provided by the hospital administration. The researcher also telephonically queried the existence and availability of private physiotherapy practices and services in each hospital that reported to have ICU facilities. The researcher contacted each hospital in each province telephonically and introduced himself and gave a brief summary of the survey to be conducted and its purpose. The researcher explained why the information requested was required and information obtained was then captured in the excel database. In some instances, unit managers of the ICUs first had to obtain consent from the physiotherapists/physiotherapy practices to provide their contact numbers. In addition, there were hospitals that refused to provide contact details of physiotherapists/physiotherapy practices. The names and contact numbers of physiotherapy practices who were linked to each of the hospitals on the list were telephonically contacted and were also provided with the brief summary of the

survey to be conducted and its purpose. The researcher telephonically enquired from each physiotherapy practice whether they provided ICU services and if they did, the researcher asked whether they would participate in the survey (first consent) and provide the researcher with a contact email for the survey link. The excel database has been saved and password protected and has not been added as an addendum due to the ethics regarding the confidentiality of information and anonymity. Table 2.1 presents the number of private HASA registered hospitals per province in SA and the number of ICUs per province and number of physiotherapy practices identified per province. According to data obtained from HASA, there were approximately 197 private hospitals with approximately 142 ICUs across the nine provinces. In addition, some of the facilities were clinics with no ICUs. However, the researcher identified more than 142 ICUs that were reported in the HASA list [Table 2.1].

2.2.3.2. The Population

The population consisted of all physiotherapy private practices in the private sector hospitals registered on the HASA 2018 list of hospitals. There were 197 private sector hospitals identified on the HASA list 2018 [Table 2.1]. There was a total of 221 ICUs identified that existed in these private sector hospitals in the country. The researcher identified 257 private physiotherapy practices that render ICU services and care and that agreed telephonically to participate in the study [Table 2.1]. The study population therefore included the 257 private physiotherapy practices and their employed physiotherapists.

Table 2.1 Private Hospitals, ICUs and Physiotherapy Practices per Province (n, %)

Province	Number of hospitals (N)	Number of ICU's (N)	Number of physiotherapy practices (N)	Number of physiotherapy practices identified who agreed to participate in the survey (N)
Eastern Cape	10	20	15	15
Free State	12	16	12	12 *(n=2)
Gauteng	72	72	87	87 *(n=5)
KwaZulu-Natal	33	40	50	50 *(n=1)
Limpopo	8	8	9	9
Mpumalanga	9	10	16	16
Northern Cape	5	3	5	5
North West	8	8	9	9 *(n=1)
Western Cape	40	44	54	54 *(n=5)
TOTAL	**197**	**221**	**257**	**257 *(n=14)**

**(n=x) number of hospitals who refused to provide information regarding existing private physiotherapy practices.*

2.2.3.3 Sampling Method and Sample

A total population (inclusive) sampling method was used including all identified private physiotherapy practices (N=257). The sample included the total number of practices that responded to the survey. Based on the identified number of practices, using the Yamane Formula, the desired sample size calculated (number of practices to be included) and required for generalisability of the findings was 156 practices. The number of surveys completed were dependant on the number of physiotherapists employed by the various practices to provide services and care to the different number of ICUs. The total population of physiotherapists working per practice could not be clearly established as physiotherapists work for different practices and more than one practice at different times. The sample size was therefore determined by the number of survey responses and physiotherapists obtaining the survey were asked to only respond once even if they worked for more than one practice.

2.2.4 Instrumentation

An electronic self-reporting survey that was developed by (Karachi, et al, 2018) using Survey Monkey, was adopted and slightly adapted for this study [Addendum 2]. The survey was constructed by using similar questions from other international survey studies to meet the objectives of the study conducted by Karachi et al. (2018). Since the nature of this current study was similar but with private practice physiotherapists and taking into account the limitations of the length of the survey as described by Karachi et al. (2018), the survey was slightly adapted. The adaptation was related to questions regarding general data of the private practice physiotherapists. Questions related to job level or description was changed to accommodate the levels as defined in private practice namely practice owner, practice partner, permanent physiotherapist or part-time/locum physiotherapist was used instead of the levels used in the public sector. Other changes were just related to using the word private practice physiotherapy instead of public sector physiotherapist and included the CPAx outcome measure under the section of outcome measures. The survey questions included general data (job level or description, age, gender, which physiotherapists work in the private ICUs, physiotherapy rotation roster, ICU types, levels, bed numbers and multidisciplinary team) and inductive training provided for the ICU physiotherapists regarding emergency on call or call-out duties, physiotherapy services in terms of physiotherapy assessment, treatment, documentation and referral letters in the ICU and organisation/operation of the ICU (Karachi et al., 2018). It also included questions about qualifications, training and work experience, the referral system, patient goal setting, discharge and follow-up, prescription of and involvement in ICU treatment activities, treatment activities, outcome measures and evidence-based protocols utilised in the ICU, workload and time spent in the ICU and lastly, a section for any comments about aspects of current practices not covered in the survey according to the private

practice physiotherapists. The survey is available in English only as all participants have been trained and are fluent in the English language medium. The adapted survey was sent to two clinicians and two academics with ICU knowledge and clinical experience for face and content validity (to meet the objectives of the study) as well as to determine the time taken to complete the electronic survey, understanding and ease of administration and any logistical aspects that would affect completion. There were no changes to be made, and it was reported to take 30 minutes to complete the survey. The option to use the survey link generated by the Survey Monkey database was chosen by the researcher so that individual emails could be sent with the link together with the attached information sheets and consent forms in order to maintain confidentiality. The survey responses could not be changed once completed and another survey could not be completed by the same person once one was submitted. The survey was closed after the last survey completion reminder. Reminders could be sent to non-responders and those whose surveys were still captured as incomplete.

2.2.5 Procedure

2.2.5.1 Ethics

Ethics Clearance [Addendum 1] was sought and obtained from the Senate Research Committee of the University of the Western Cape and updated yearly. The study was conducted according to the ethics practices pertaining to the study of human subjects, as specified by the Faculty of Community and Health Sciences Research Ethics Committee of UWC. Permission was requested and obtained from the private practice physiotherapists providing intensive care physiotherapy services to private sector ICUs by the researcher telephonically after explaining the aim, purpose and significance of the study. The researcher also obtained the private practice physiotherapists

email addresses following the verbal permission to participate in the survey in order to be able to send the survey link to them. The survey link together with the information sheet [Addendum 3] and consent [Addendum 4] was sent to all PP ICU physiotherapists who had provided their emails addresses. The participants were requested to complete and return the consent form and completed survey and were informed that completion of the survey alone would also imply consent. Participation was voluntary and participants were informed of their rights to withdraw from the study at any given time without consequence. The email addresses were linked to the survey responses and non-respondents and respondents that did not complete the survey could be tracked and prompted to complete the electronic survey. The database was locked with a password, therefore only the researcher was able to track and prompt non-responders by accessing the database through the password. The email addresses were removed from the data for confidentiality and anonymity once the data collection period was completed. No data was therefore identifiable. Following completion of the survey study, the data was scrambled so that even the researcher was unable to identify or relate data to any particular participant. Anonymity and confidentiality were thus maintained. All electronic data has been stored in a password protected electronic file in a password protected computer. There was no hard copy data that needed to be stored nor protected.

2.2.5.3 Data Collection

The data was collected via the electronic survey sent as a link via email to each physiotherapy practice and their ICU physiotherapists working in the respective private ICUs. A time period of two weeks was given for completion of the survey. Two reminders were sent following the first request with each reminder giving another two weeks to complete the survey. Physiotherapists who did not respond or had an incomplete survey response following the second reminder were

telephonically contacted to request completion of the survey in order to maximise the response rate. No further reminders were given after this.

2.2.5.4 Data Capturing

All survey responses were automatically captured in the Survey Monkey Database and exported in a Microsoft excel database. Data was checked by the researcher for accuracy, coded and then imported to the Statistical Package for Social Sciences (SPSS) version 24.

2.2.5.5 Data Analysis

Descriptive analysis of the data using frequencies, means and standard deviations if data was normally distributed and medians and interquartile ranges if data was not normally distributed was done. The response rate was expressed in frequencies and percentages. Data was illustrated in charts, tables and box whisker plots as appropriate.

2.3 Results

2.3.1. Response Rate

Only a total of 10.5% (n=27/257) of practices responded to the survey. Responses were mainly from private physiotherapy practices and their physiotherapists working in the private ICUs in the Western Cape, Gauteng and KwaZulu-Natal. There was no response from any private physiotherapy practices in Mpumalanga, Northern Cape, North West Province [Table 2.2]. There was a total of 42 private practice physiotherapists rendering services to the respective private ICUs who responded to the survey with 74% (n=31/42) of surveys completed and 26% (n=11/42) of surveys incomplete. However, all surveys were included in the final analysis. It was not possible to determine the exact number of private practice physiotherapists who render services to the private sector ICUs as some physiotherapists only locum and work part-time while others work

for more than one practice at a time making it difficult to determine these numbers. Responses were mostly from the permanent private practice physiotherapists (48%, n=20/42) and private physiotherapy practice owners (38%, n=16/42), followed by a few physiotherapy practice partners (7%, n=3/42) and locums (7%, n=3/42).

Table 2.2 Physiotherapy Practices (n, %) and Individual Survey Responses per Province (n, %)

Province	Physiotherapy practices who agreed to participate (N)	Physiotherapy practices who responded % (n)	Physiotherapists who responded to the survey % (n)
Eastern Cape	15	13% (n=2/15)	5% (n=2/42)
Free State	12 *(n=2)	0% (n=0/12)	0% (n=0/42)
Gauteng	87 *(n=5)	7% (n=6/87)	38% (n=16/42)
KwaZulu-Natal	50 *(n=1)	12% (n=6/50)	14% (n=6/42)
Limpopo	9	11% (n=1/9)	2% (n=1/42)
Mpumalanga	16	13% (n=2/16)	5% (n=2/42)
Northern Cape	5	0% (n=0/5)	0% (n=0/42)
North West	9 *(n=1)	0% (n=0/9)	0% (n=0/42)
Western Cape	54 *(n=5)	19% (n=10/54)	36% (n=15/42)
TOTAL	**257 *(n=14)**	**10.5% (n=27/257)**	**100% (n=42/42)**

**(n=x) number of hospitals who refused to provide information regarding existing private physiotherapy practices.*

2.3.2 Organisation and Structure of Private ICUs

2.3.2.1 ICU Type and Level and Bed Numbers

The type of private ICUs covered by the physiotherapists were reported to be mainly medical (71%, n=30/42), medico-surgical (67%, n=28/42), surgical (67%, n=28/42) and respiratory (64%, n=27/42) units [Table2.3]. The physiotherapists reported covering a median of 20 beds (range 3-40 beds) and mainly reported working in Level I (n=33/42) and Level II (18/42) units. [Table 2.3].

2.3.2.2 Multidisciplinary Team

More physiotherapists reported working with ICU nurses (98%, n=41/42) and dieticians (93%, n=39/42) and other physiotherapists (95%, n=/42) followed by medical doctors (81%, n= 34/42) and nurses (81%, n= 34/42) and speech therapists (79%, n= 33/42) [Table 2.3].

2.3.2.3 Induction Training

The majority of physiotherapists who worked in the private ICUs stated that the private practice owners were responsible for the induction training on organisation and operation of the ICU (42%, n=16/38), physiotherapy assessment and treatment and documentation (55%, n=21/38) and 39% (n=15/38) said that physiotherapy practice owners mainly provided induction training on emergency and on call duty and responded with not applicable as there was no on call duty respectively. The majority (32%, n=12/38) reported the duration of the induction training to be either an hour or half a day respectively [Table 2.3].

Table 2.3 ICU Type and Level, Bed Numbers, Multidisciplinary Team and Induction Training

Variable	% (n)
Type of ICU	
Burns	21% (n=9/42)
Cardiac	38% (n=16/42)
Cardiothoracic	43% (n=18/42)
Coronary	24% (n=10/42)
Medical	**71% (n=30/42)**
Mixed/Multidisciplinary	50% (n=21/42)
Medico-surgical	**67% (n=28/42)**
Neonatal	19% (n=8/42)
Paediatric	33% (n=14/42)
Obstetrics and Gynaecology	14% (n=6/42)
Neurosurgical	33% (n=14/42)
Renal	33% (n=14/42
Respiratory	**64% (n=27/42)**
Spinal	26% (n=11/42)
Surgical	**67% (n=28/42)**
Trauma	43% (n=18/42)
Other (transplant unit)	2% (n=1/42)
Level of ICU	
Level I	**79% (n=33/42)**
Level II	**43% (n=18/42)**
Level III	17% (n=7/42)
Level IV	12% (n=5/42)

Multidisciplinary Team Members in the ICU	
Dietician	**93% (n=39/42)**
ICU Nurse	**98% (n=41/42)**
ICU Technician	24% (n=10/42)
Intensivist	50% (n=21/42)
Medical Doctor	**81% (n=34/42)**
Nurse	**81% (n=34/42)**
Occupational Therapist	67% (n=28/42)
Pharmacist	67% (n=28/42)
Physiotherapist	**95% (n=40/42)**
Psychologist	50% (n=21/42)
Social Worker	24% (n=10/42)
Speech Therapist	**79% (n=33/42)**
Other (Psychiatrist, Radiographer, cardiologists, neurologists, neurosurgeons, pulmonologists)	12% (n=5/42)

2.3.3 The Profile of Private Practice Physiotherapists working in the Private ICUs

2.3.3.1. Demographics (Age, Gender, Job Position/Rank)

There were 38% (n=16/42) private physiotherapy practice owners, 7% (n=3/42) physiotherapy practice partners, 48% (20/42) permanent private practice physiotherapists working for the respective practices and 7% (n=3/42) private practice locum physiotherapists that responded to the survey. These respondents reported a total of 363 physiotherapists working for their practices, with an average of 9 physiotherapists per practice. The respondents reported there to be 43 private physiotherapy practice owners and practice partners, 139 permanent private practice physiotherapists and 181 private practice locum physiotherapists. The responding physiotherapists (100%, n=42/42) working and rendering services to the private ICUs had a median age of 30.5 years (range 23-65 years). The private physiotherapy practice owners and practice partners are older with a median age of 36 years (range 26-65 years) while the permanent private practice physiotherapists (29.5 years, range 23-37 years) and private practice locum physiotherapists (28

years, range 26-28 years) are younger. There were fewer men (21%, n=9/42) than women (79%, n=33/42).

2.3.3.2 Qualifications, Training and Work Experience

The majority of the PP ICU physiotherapists (79%, n=30/38) have Bachelor of Science (BSc) in Physiotherapy Degrees, 10% (n=4/38) have Master of Science (MSc) in Physiotherapy Degrees and none a Doctorate (PhD) in Physiotherapy Degree in the area of ICU Physiotherapy [Table 2.4]. The majority of the PP ICU physiotherapists trained in South Africa (92%, n=35/38) and had no experience working in international ICUs (97%, n=37/38) [Table 2.4]. Ninety-five percent (n=35/38) of the PP ICU physiotherapists reported having an ICU student clinical block rotation as a physiotherapy student. The majority of the private practice physiotherapists reported being interested in post-graduate training in ICU specifically (55%, n=21/38) and attending post-graduate ICU training courses (76%, n=29/38). The majority (42%, n=16/38) reported that they attended the adult ICU refresher course as part of their post-graduate courses in the area of ICU [Table 2.4]. Approximately a third of the private practice physiotherapists had general and ICU physiotherapy experience of 1 to 5, more than 5 to 10 and more than ten years respectively [Table 2.4].

Table 2.4 Qualifications, Training and Work Experience of the Private Practice ICU Physiotherapists

Qualification	
Diploma	3% (n=1/38)
Bachelors (BSc Physiotherapy)	**79% (n=30/38)**
Bachelors (B Physiotherapy)	8% (n=3/38)
Masters (MSc Physiotherapy)	**10% (n=4/38)**
Doctorate (PhD Physiotherapy)	0% (n=0/38)
Other (please specify)	0% (n=0/38)
Trained in South Africa	
Yes	**92% (n=35/38)**
No	8% (n=3/38)

International ICU Physiotherapy Work Experience	
Yes	3% (n=1/38)
No	**97% (n=37/38)**
ICU Student Clinical Block Rotation	
Yes	**95% (n=36/38)**
No	5% (n=2/38)
General Physiotherapy Work Experience	
Less than one year	0% (n=0/38)
1-5 years	29% (n=11/38)
5-10 years	34% (n=13/38)
More than 10 years	37% (n=14/38)
ICU Physiotherapy Work Experience	
Less than one year	0% (n=0/38)
1-5 years	34% (n=13/38)
5-10 years	32% (n=12/38)
More than 10 years	34% (n=13/38)
International ICU Physiotherapy Work Experience	
Yes	3% (n=1/38)
No	**97% (n=37/38)**
ICU-related postgraduate training	
Yes	**55% (n=21/38)**
No	45% (n=17/38)
Post-graduate ICU training attended	
Cardiopulmonary Rehabilitation Course I	13% (n=5/38)
ICU Refresher Course (Adult)	**42% (n=16/38)**
ICU Refresher Course (Paediatrics)	21% (n=8/38)
ICU or Cardiopulmonary Congresses/Conferences/Symposiums	18% (n=7/38)
ICU or Cardiopulmonary Journal Club	16% (n=6/38)
ICU or Cardiopulmonary Seminars/Workshops/CPD activities	29% (n=11/38)
ICU or Cardiopulmonary Research participation (authorship of publications/research projects/presentations)	8% (n=3/38)
Master's in the area of ICU or Cardiopulmonary Rehabilitation	3% (n=1/38)
Doctorate/PhD in the area of ICU or Cardiopulmonary Rehabilitation	0% (n=0/38)
Other (please specify)	8% (n=4/38)
Interest in a specific ICU post-graduate training programme for further specialization in Intensive Care?	
Yes	**76% (n=29/38)**
No	24% (n=9/38)

2.3.4 Current Practice of Private Practice ICU Physiotherapists

2.3.4.1 Referral Systems for ICU Physiotherapists

All (100%, n=37/37) of the private ICU physiotherapists stated that patients are referred to physiotherapy in the private sector ICUs. The private ICU Physiotherapists were asked to rank on

a scale from 1 (most used) to 4 (least used) method of referral in the week. The Medical Doctor/Intensivist/Physician was reported by the majority of PP ICU physiotherapists as the most used method of referral to the PP ICU physiotherapists in the week on site (84%, n=31/37) or on call (78%, n=28/36) compared to referral from the nurse (8%, n=3/37), ICU team (8%, n=3/37) or through routine assessment (0%, n=0/37) in the week on site or nurse (6%, n=2/36), ICU team (11%, n=4/36) or through routine assessment (6%, n=2/36) on call. Furthermore, the Medical Doctor/Intensivist/Physician was ranked by the majority of PP ICU physiotherapists as the most used method of referral to the PP ICU physiotherapists on the weekend on site (8%, n=29/36) or on call (78%, n=28/36) compared to referral from the nurse (14%, n=5/36), ICU team (6%, n=2/36) or through routine assessment (0%, n=0/36) on the weekend on site or nurse (8%, n=3/36), ICU team (3%, n=1/36) or through routine assessment (11%, n=4/36) on call. The majority (59.5%, n=22/37) of the PP ICU physiotherapists said that all referred patients receive physiotherapy in their specific ICUs on weekends. Only 43% (n=16/37) of the physiotherapists reported that the private physiotherapy practices have their own ICU physiotherapy referral guidelines. In response to an open-ended question asking the PP ICU physiotherapists to elaborate on the referral guidelines the physiotherapists responded that referral was from the intensivists/physicians/doctors and a referral form for ICU physiotherapy treatment was required to be completed by the doctors, that some practices had their own doctors that referred to them, some saw all stable patients in the unit and would recommend referral to the doctor if they noted patients who could benefit from physiotherapy and others said there is a referral book or referrals occur on ward rounds but written referral on a referral form seemed to be the major requirement for referral (see raw data, physiotherapy comments from survey in Addendum 5).

The PP ICU physiotherapists reported that the ***on-site*** referral guidelines were mainly developed and employed by the doctors (35%, n=13/37), the physiotherapists (30%, n=11/37) or unknown (27%, n=10/37) and 8% (n=3/37) by the ICU team and not by the nurses. They noted that the ***on-call*** referral guidelines were mainly developed and employed by the doctors (30%, n=11/37), the physiotherapists (32%, n=12/37) or unknown (24%, n=9/37) and 5% (n=2/37) by the ICU team and other respectively and not by the nurses.

2.3.4.2 Availability of ICU Physiotherapist Services and Workload Allocation

Seventy-five percent (n=12/16) of the private physiotherapy practice owners, 80% (n=16/20) of the permanent private practice physiotherapists, 33% of the physiotherapy practice partners (n=1/3) and physiotherapy practice locums (n=1/33) respectively who responded said that they mainly provided services to the respective private ICUs. The responding private practice physiotherapists also reported that more permanent practice physiotherapists (50%, n=21/42) mainly provides services to ICU in the week. They reported that both permanent and locum physiotherapist (31%, n=13/42) and the practice owner/partner, permanent and locum physiotherapists mainly provided services to the ICU on the weekend [Table 2.5]

Table 2.5 Physiotherapists Providing Services to the ICU in the Week and on the Weekend

Type of Private Practice Physiotherapist	Mainly provides services to ICU in the week % (n)	Mainly provides services to ICU on the weekend % (n)
Practice Owner/s & Partner	38% (n=16/42)	12% (n=5/42)
Permanent Practice Physiotherapist/s	**50% (n=21/42)**	21% (n=9/42)
Physiotherapy Practice Locums	5% (n=2/42)	14% (n=6/42)
Both permanent and locum physiotherapist	10% (n=4/42)	**31% (n=13/42)**
Practice owner/partner, permanent and locum physiotherapists	14% (n=6/42)	**31% (n=13/42)**

2.3.4.2.1 Allocation to the Private ICUs:

The majority (90.5%, n=38/42) of the PP ICU physiotherapists said that they are not exclusively

allocated [only ICU, no ward duties] to the ICU/s for the practice. The physiotherapy service provided in the unit on a daily basis [24hour period] in the ***week on site*** (52%, n=22/42) and ***weekend on site*** (45%, n=18/40) was reported to be mainly by a variety of physiotherapists allocated to the unit and wards respectively. In the week at night on site (60%, n=25/42) and weekend at night on site (56%, n=22/39) the majority reported no physiotherapist/s, in the unit respectively [Table 2.6].

2.3.4.2.2 Number of Physiotherapists Working in the ICU:

The PP ICU physiotherapists reported a median of 5 (range 0-8) physiotherapists working in the unit in the week on site, 1 (range 0-10) in the week on call, 2 (range 0-7) on a weekend on site and 1(range 0-7) on the weekend on call.

Table 2.6 Allocation of Private Practice Physiotherapists to the Private ICU

Allocation	Week on site	Week at night on site	Weekend on site	Weekend at night on site
Exclusively allocated physiotherapist (ONE PHYSIO, NO WARD DUTIES)	12% (n=5/42)	2% (n=1/42)	5% (n=2/40)	3% (n=1/39)
Exclusively allocated physiotherapist (ONE PHYSIO) with ward duties	19% (n=8/42)	17% (n=7/42)	42.5% (n=17/40)	18% (n=7/39)
A variety of physiotherapists allocated to the unit (NO WARD DUTIES)	17% (n=7/42)	2% (n=1/42)	5% (n=2/40)	8% (n=3/39)
A variety of physiotherapists allocated to the unit and wards	**52% (n=22/42)**	19% (n=8/42)	**45% (n=18/40)**	15% (n=6/39)
No physiotherapist/s at night on site	-	**60% (n=25/42)**	2.5% (n=1/40)	**56% (n=22/39)**

2.3.4.2.3 Time Spent Working in the Private ICUs:

The percentage of the time spent by the private practice ICU physiotherapist/s in a 24-hour period in the private ICUs and wards is presented in Table 2.7. The majority of PP ICU physiotherapists spend only 26-50% (quarter to half) of their time in a 24-hour period in the private ICUs (47%,

n=14/30) and wards (53%, n=16/30) respectively in the week on site. The majority said that there is no physiotherapist/s in the ICU (66%, n=25/38) and in the ward (66, n=25/37) in the week at night on site. On the weekend on site the majority spend 26-50% (quarter to half) of their time in the ICU (47%, n=16/35) and 50-75% (more than half) of their time in the wards. On the weekend at night on site the majority (63%, n=22/35) said that there is no physiotherapist/s in the ICU and ward respectively [Table 2.7].

Table 2.7 Percentage of Time Spent in a 24-hour Period in the Private ICU and Ward

Percentage of Time spent in week on site	**In ICU**	**In Ward**
0-25%	30% (n=9/30)	10% (n=3/10)
26-50%	**47% (n=14/30)**	**53% (n=16/30)**
51-75%	23% (n=7/30)	37% (n=11/30)
76-100%	0% (n=0/30)	0% (n=0/30)
Percentage of Time spent in week at night on site	**In ICU**	**In Ward**
No ICU Physiotherapy in week at night	**66% (n=25/38)**	**66% (n=25/37)**
0-25%	26% (n=10/38)	24% (n=9/37)
26-50%	5% (n=2/38)	3% (n=1/37)
51-75%	3% (n=1/38)	7% (n=2/37)
76-100%	0% (n=0/38)	0% (n=0/37)
Percentage of Time spent on weekend on site	**In ICU**	**In Ward**
No ICU physiotherapy on weekend	3% (n=1/35)	3% (n=1/34)
0-25%	30% (n=13/35)	18% (n=6/34)
26-50%	**47% (n=16/35)**	38% (n=13/34)
51-75%	23% (n=5/35)	**41% (n=14/34)**
76-100%	0% (n=0/30)	3% (n=1/34)
Percentage of Time spent on weekend at night on site	**In ICU**	**In Ward**
No ICU physiotherapy on weekend at night	**63% (n=22/35)**	**63% (n=22/35)**
0-25%	28.5% (n=10/35)	31% (n=11/35)
26-50%	5.5% (n=2/35)	6% (n=2/35)
51-75%	3% (n=1/35)	0% (n=0/35)
76-100%	0% (n=0/35)	0% (n=0/35)

2.3.4.2.4 Private Practice ICU Physiotherapy Rotation System:

The PP ICU physiotherapists said that they rotate between each other to provide services to the private ICUs. Sixty-nine percent (n=29/42) of physiotherapists reported staff rotating in the ICUs. The majority (69%, n=20/29) reported that these staff rotations were on a weekly basis. Only 7% (n=2/29) reported rotating biweekly (every two weeks) and monthly respectively and 14% (n=4/29) reported rotating quarterly (every three months). None reported rotating every 6 months or yearly.

2.3.4.2.5 Private ICU Physiotherapy "On Call"/Emergency Call-out Roster:

Sixty-seven percent of ICU physiotherapists (n=28/42) reported having an on-call roster. The majority reported that the permanent physiotherapists (74%, n=31/42), followed by the physiotherapy practice owners (45% n=19/42), physiotherapy locums (33%, n=14/42), physiotherapy practice partners (14%, n=6/42) and part-time physiotherapists (5%, n=2/42) are mainly involved in on call duty for the private ICUs.

2.3.4.2.6 Student Physiotherapists in the Private ICUs:

The majority (93%, n=39/42) reported that they do not have students working in the unit and do not supervise students in the unit (92%, n=35/38). The 7% (n=3/42) who did have students had between 2 and 6 students working in their practices and in the private ICUs.

2.3.4.2.7 Daily ICU Patient Load:

The majority of private ICU physiotherapists responded that ≤75% of ICU patients received treatment on a daily basis in the week (50%, n=19/38) and on a daily basis on the weekend (47%, n=18/38) [Table 2.8].

2.3.4.2.8 "On-call" Private ICU Patient Load:

The majority of private ICU physiotherapists responded that ≤25% of on call referrals are received in the week (63%, n=24/38) and weekend (66%, n=25/38) [Table 2.8].

Table 2.8 Percentage of ICU Patients Receiving Treatment and On-call Referrals Received

Percentage of ICU patients receiving physiotherapy treatment	**Week % (n)**	**Weekend % (n)**
0%	3% (n=1/38)	3% (n=1/38)
less than and equal to 25%	24% (n=9/38)	18% (n=7/38)
less than and equal to 50%	18% (n=7/38)	26% (n=10/38)
less than and equal to 75%	**50% (n=19/38)**	**47% (n=18/38)**
100%	5% (n=2/38)	5% (n=2/38)
Percentage of on call referrals	**Week % (n)**	**Weekend % (n)**
0%	3% (n=1/38)	3% (n=1/38)
less than and equal to 25%	**63% (n=24/38)**	**66% (n=25/38)**
less than and equal to 50%	24% (n=9/38)	26% (n=10/38)
less than and equal to 75%	10%, (n=4/38)	5% (n=2/38)
100%	0% (n=0/38)	0% (n=0/38)

2.3.4.2.9 Frequency of ICU Patient Treatments

Fifty-one percent (n=21/40) of the PP ICU physiotherapists said that patients received two physiotherapy treatments per day in the week and weekend on site respectively. More reported that in the week on call (45%, n=19/42) and weekend on call (43%, n=18/42) patients received one treatment only respectively [Table 2.9]. A small percentage recorded that patients received three treatments a day in the week 3% (n=1/41) or weekend 10% (n=4/42) on site or in the week 3% (n=1/41) or weekend 10% (n=4/42) on call.

Table 2.9 Frequency of ICU Patient Treatments

Number of treatments	**Week on site %(n)**	**Week on call %(n)**	**Weekend on site %(n)**	**Weekend on call %(n)**
No treatment	0% (n=0/41)	14% (n=6/42)	0% (n=0/41)	14% (n=6/42)
One treatment	46% (n=19/41)	**45% (n=19/42)**	46% (n=19/41)	**43% (n=18/42)**
Two Treatments	**51% (n=21/41)**	21% (n=9/42)	**51% (n=21/41)**	24% (n=10/42)
Three Treatments	3% (n=1/41)	10% (n=4/42)	3% (n=1/41)	10% (n=4/42)
>3 Treatments	0% (n=0/41)	0% (n=0/42)	0% (n=0/41)	0% (n=0/42)
Not Applicable	0% (n=0/41)	10% (n=4/42)	0% (n=0/41)	10% (n=4/42)

2.3.4.3 Prescription of ICU Physiotherapy Treatment Activities

More than 70% of the PP ICU physiotherapists reported that decisions related to patient management including the prescriptions regarding the frequency of treatment, positioning, chest physiotherapy, mobilisation, rehabilitation were made by the ICU physiotherapists following a structured physical examination [Table 2.10]. Also 74% (n=23/31) reported that the prescription and decisions regarding mobilisation activities was also by ICU Doctor/Intensivist/Physician orders and 68% (n21/31) and 65% (n=16/31) reported that the prescription and decisions regarding frequency of treatment and rehabilitation activities are also and by discussing this with or together with the ICU Doctor/Intensivist/Physician [Table 2.10].

Table 2.10 Prescription of ICU Physiotherapy Treatment Activities (%, N=42)

PRESCRIBED OR DECIDED / ACTIVITY	Personally following Structured Physical Examination	By Physician/Intensivist/Doctors Orders	By discussing with or together with Physician/Intensivist/Doctors	By Nurses Orders	By discussing with or together with Nurse/s	By discussing with or together with the ICU Team	Other
Frequency of Treatment	**87% (27/31)**	58% (18/31)	**68% (21/31)**	0% (0/31)	23% (7/31)	29% (9/31)	0% (0/31)
Position Changes	**74% (23/31)**	58% (18/31)	32% (10/31)	13% (4/31)	39% (12/31)	23% (7/31)	3% (1/31)
Chest Physiotherapy	**71% (22/31)**	68% (21/31)	35% (11/31)	**0%** (0/31)	23% (7/31)	21% (3/31)	3% (1/31)
Mobilisation	**84% (26/31)**	**74% (23/31)**	52% (16/31)	0% (0/31)	19% (6/31)	19% (9/31)	0% (0/31)
Rehabilitation	**74% (23/31)**	33% (20/31)	**65% (16/31)**	3% (1/31)	26% (8/31)	23% (7/31)	0% (0/31)

Table adapted from Karachi et al., 2018

2.3.4.4 Involvement in ICU Treatment Activities

The majority of private practice ICU physiotherapists ranked the Nurse and Physiotherapist (43%, n=13/31) as most involved in **positioning** ICU patients followed by the Nurse only (32%, n=10/31), the Physiotherapist only as most involved in **mobilisation** (80%, n=25/31) and **rehabilitation** (84%, n=26/31) activities [Table 2.11].

Table 2.11 Involvement in ICU Treatment Activities

ACTIVITY / ICU HEALTHCARE PROFESSIONALS	Involvement in Positioning	Involvement in Mobilisation	Involvement in Rehabilitation
ICU Doctor/Intensive/Physician	13% (n=4/31)	10% (n=3/31)	10% (n=3/31)
ICU Nurse/Nurse	**32% (n=10/31)**	0% (n=0/31)	0% (n=0/31)
Physiotherapist	10% (n=3/31)	**80% (n=25/31)**	**84% (n=26/31)**
Nurse and Physiotherapist	**42% (n=13/31)**	10% (n=3/31)	0% (n=0/31)
ICU Team	3% (n=1/31)	0% (n=0/31)	6% (n=2/31)

2.3.4.5 Treatment Activities

The treatment activities were ranked by the PP ICU physiotherapists from most used to least used treatment activities. These results were presented using boxplots. The boxes depict the 25th percentile, median and 75th percentile and the whiskers depict the minimum and maximum values. The outliers are presented by circles and asterisks.

The **Chest Physiotherapy** activities were ranked by the PP ICU physiotherapists in order of the frequency they are prescribed or used by them in the ICU/s from 1 being most used and 11 being the least used activity or 12 being not used. For **Chest Physiotherapy Activities**, manual techniques (percussion, vibration and shaking) and breathing techniques were reported to be the most used and ranked as 1 and 2 respectively. Breathing exercises with Equipment such as PEP/blow bottle, incentive spirometry and intermittent positive pressure breathing (IPPP) was also reported as most used ranked at a 3, with manual hyperinflation being the least used chest physiotherapy activity ranked as 10 [Figure 2.1].

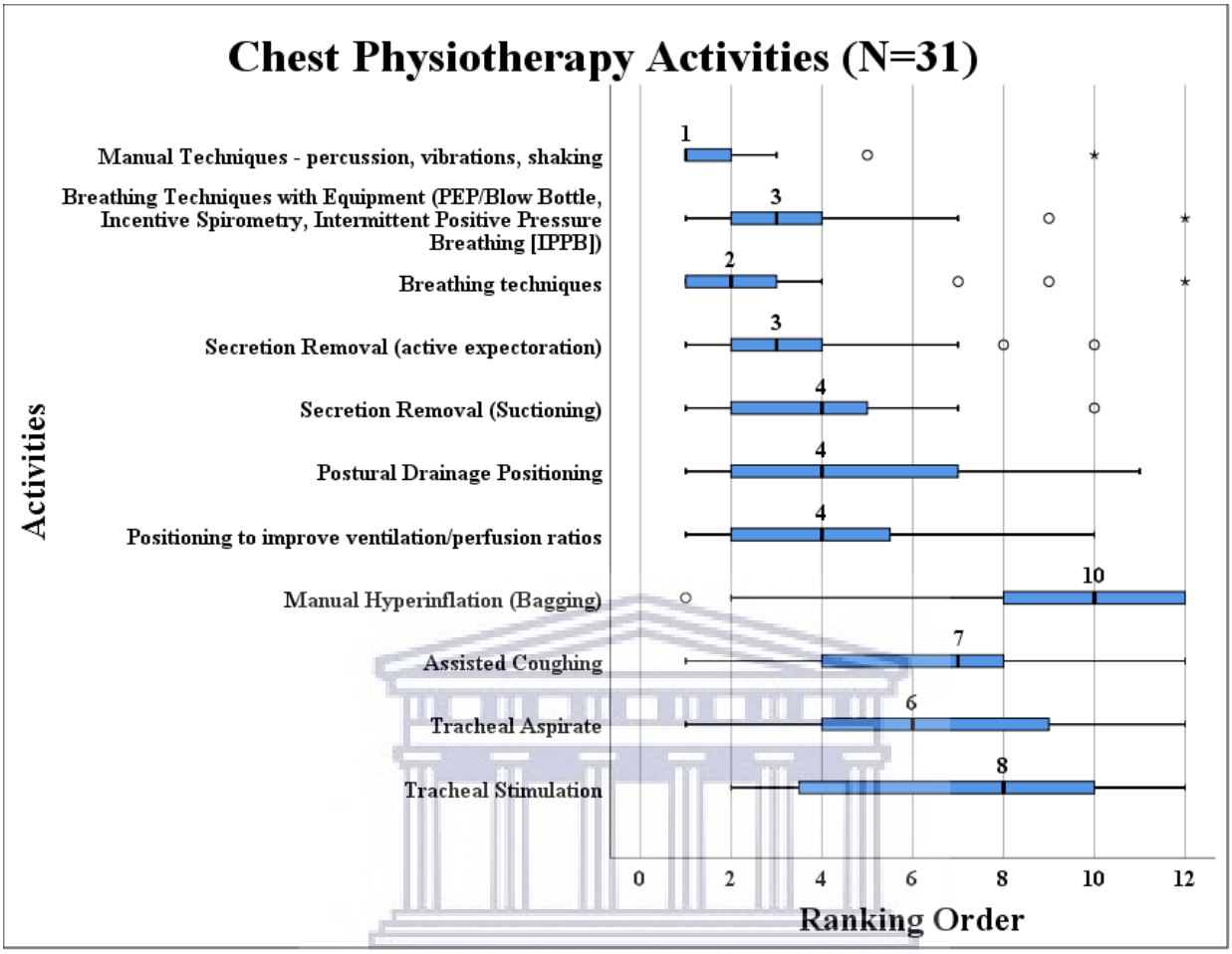

Figure 2.1 Chest Physiotherapy Activities Used in Private ICU Patient Management

The **Ventilatory Activities** were ranked by the PP ICU physiotherapists in order of the frequency they are prescribed or used by them in the ICU/s from 1 being most used and 4 being the least used activity or 5 being not used. For **Ventilatory Activities**, the supervision and implementation of non-invasive ventilator support (CPAP/mask intermittent positive pressure ventilation) was ranked as 2 (most used) and Extubation and weaning as least used by the private ICU physiotherapists and ranked a 4 each respectively [Figure 2.2].

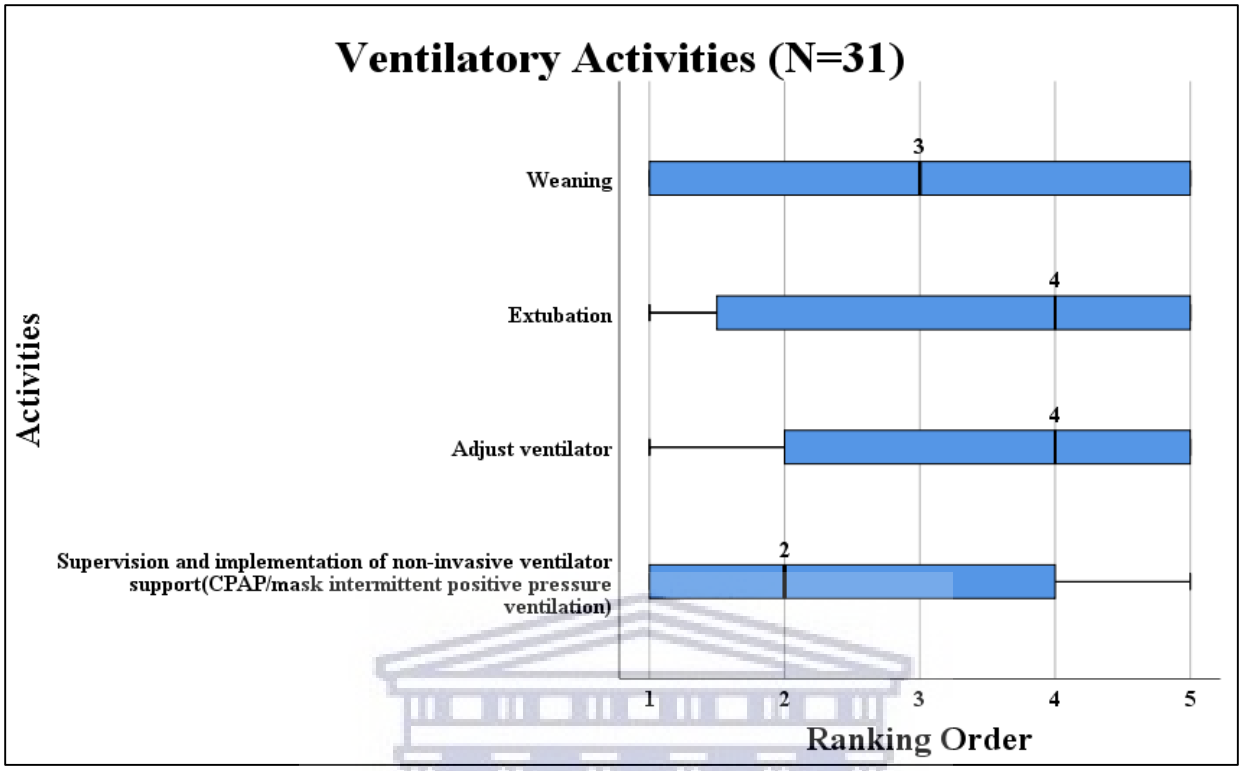

Figure 2.2 Ventilatory Activities Used in Private ICU Patient Management

The **Mobilisation Activities** were ranked by the PP ICU physiotherapists in order of the frequency they are prescribed or used by them in the ICU/s from 1 being most used and 9 being the least used activity or 10 being not used. For **Mobilisation Activities**, sitting out in a chair was reported to be the most used mobilisation activity ranked 1, followed by active/passive transfer to chair, sitting over edge of bed and active exercises in bed ranked as 2 and continuous passive movement being the least used mobilisation activity ranked as 10 [Figure 2.3].

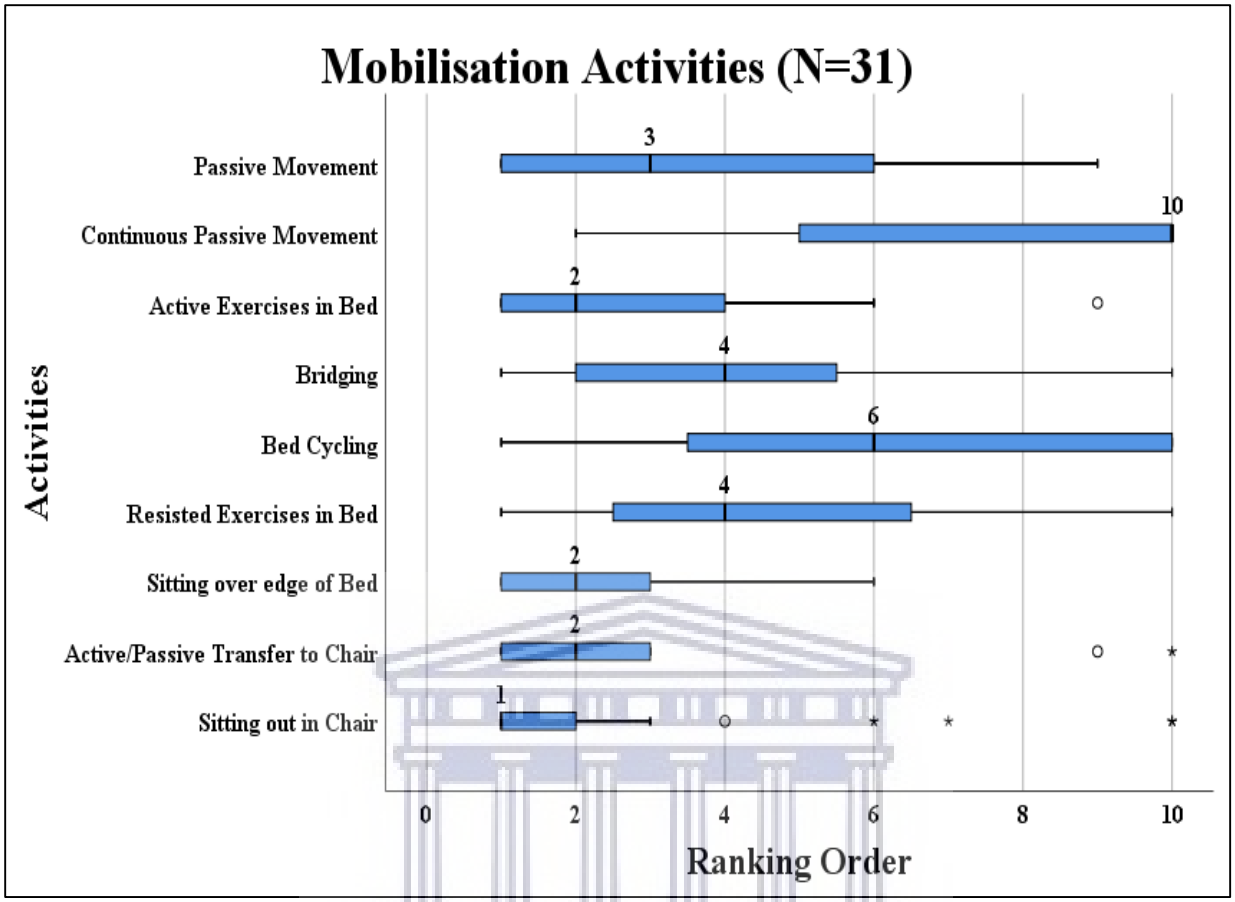

Figure 2.3 Mobilisation Activities used in Private ICU Patient Management

The **Rehabilitation Activities** were ranked by the PP ICU physiotherapists in order of the frequency they are prescribed or used by them in the ICU/s from 1 being most used and 9 being the least used activity or 10 being not used. For **Rehabilitation Activities**, active exercises in the chair, marching on the spot and ambulation without the ventilator was ranked 1 and was reported as the most used rehabilitation activities with the tilt table ranked 10 as the least used rehabilitation activity [Figure 2.4].

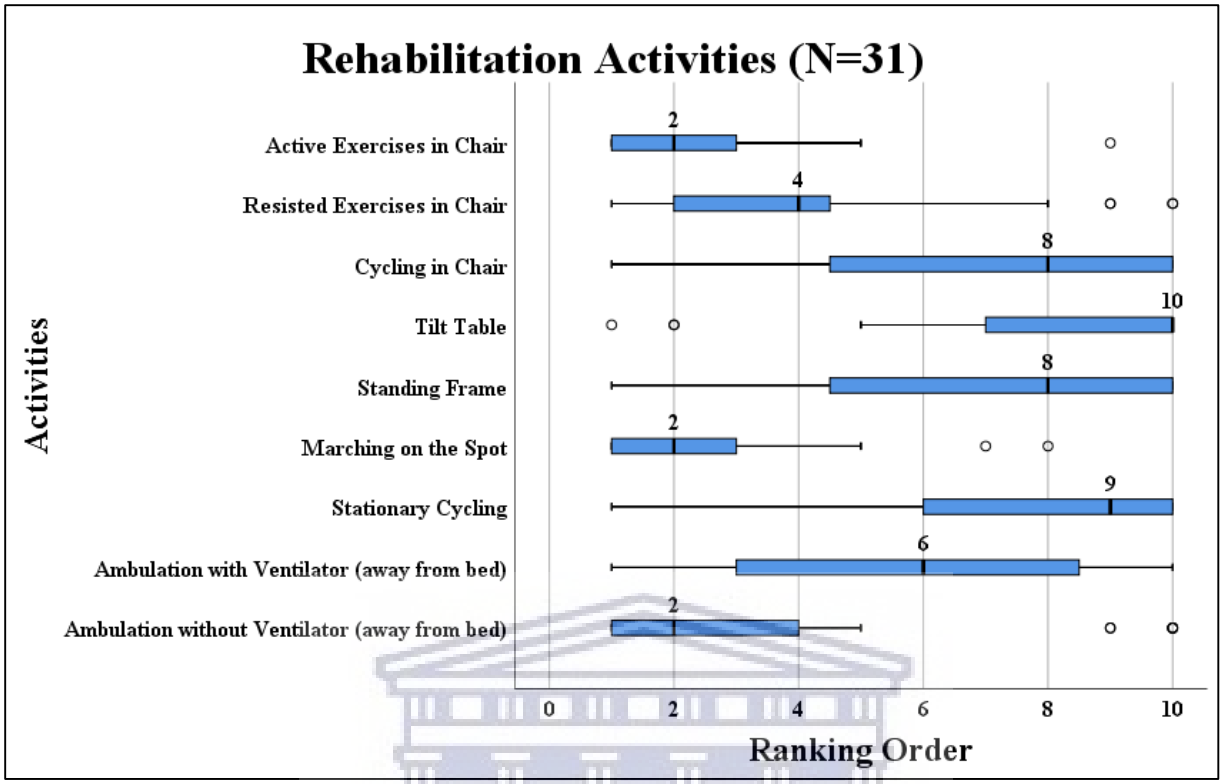

Figure 2.4 Rehabilitation Activities used in Private ICU Patient Management

2.3.4.5.1 Proportion of Time Spent on Treatment Activities:

The majority 61% (n=19/31) of the physiotherapists working in the ICUs spent between 0 and 25% of the time on ventilatory activities and spent 26-50% of the time doing chest physiotherapy activities (39%, n=12/31) in the ICUs. The PP ICU physiotherapists (36%, n=15/42) spent >50% of their time performing rehabilitation activities (45%, n=14/31) and more than 75% of their time doing mobilisation activities (35%, n=11/31) in the ICU [Table 2.12].

Table 2.12 Proportion of Time Spent on Treatment Activities

Time Spent in %	Chest Physiotherapy %, (n)	Ventilatory Activity %, (n)	Mobilisation %, (n)	Rehabilitation %, (n)
0-25%	16%(n=5/31)	**61% (n=19/31)**	10% (n=3/31)	19% (n=6/31)
26-50%	**39%(n=12/31)**	26% (n=8/31)	26% (n=8/31)	19% (n=6/31)
51-75%	26% (n=8/31)	13% (n=4/31)	29% (n=9/31)	**45% (n=14/31)**
76-100%	19% (n=6/31)	0% (n=0/31)	**35% (n=11/31)**	16% (n=5/31)

2.3.4.6 Outcome Measures used by the ICU Physiotherapists

The PP ICU Physiotherapists were asked to report on using Physiological, Physical Functioning and Health related Quality of Life Outcome Measures. All (100%, n=31/31) reported to use physiological outcomes namely lung function and saturation of oxygen in the blood [Table2.13].

Table 2.13 Outcome Measures used by the ICU Physiotherapists

Physiological Outcomes	**YES % (n)**	**NO % (n)**
Lung Auscultation	**100 (31/31)**	0 (0/31)
Pulmonary Function Tests	26 (8/31)	74 (23/31)
Saturation of O2	**100 (31/31)**	0 (0/31)
Other	26 (8/31)	74 (23/31)
Physical Functioning Outcomes	**YES % (n)**	**NO % (n)**
Walk Test Exercise Tolerance – 6 Minute Walk Test	**58 (18/31)**	42 (13 /31)
Time up and Go Test (TUG)	19 (6/31)	81 (25/31)
Barthel Index	13 (4/31)	87 (27/31)
New York Heart Association (NYHA) Functional Classification	16 (5/31)	84 (26/31)
Functional Independence Measure (FIM)	29 (9/31)	71 (22/31)
Physical Function ICU Test (PFIT)	19 (6//31)	81 (25/31)
Chelsea Critical Care Physical Assessment Tool (CPAx)	26 (8/31)	74 (23/31)
Other	23 (7/31)	77 (24/31)
Health Related Quality of Life	**YES % (n)**	**NO % (n)**
Sickness Impact Profile (SIP)	6 (2/31)	94 (29/31)
Perceived Quality of Life Scale (PQOL)	26 (8/31)	74 (23/31)
Nottingham Health Profile (NHP)	6 (2/31)	94 (9/31)
EuroQol 5Dimension Questionnaire (EQ5D)	3 (1/31)	97 (30/31)
Short Form 36 Surveys (SF36)	3 (1/31)	97 (30/31)
Rosser's disability and distress categories	6 (2/31)	94 (29/31)
Spitzer's quality of life index and uniscale	0 (0/31)	100 (31/31)
Psychological Well Being Index (PGWB)	3 (1/31)	97 (30/31)
Fernandez's questionnaire	3 (1/31)	97 (30/31)
Whinston Hospital questionnaire	3 (1/31)	97 (30/31)
ICF International Classification of Functioning Scale	**42 (13/31)**	58 (18/31)
Other	6 (2/31)	94 (29/31)

Table adapted from Karachi et al., 2018

The majority (58%, n=18/31) of the PP ICU physiotherapists used the six-minute walk test outcome measure for exercise tolerance however the majority of PP ICU physiotherapists reported using none of the other physical functioning outcome measures [Table 2.13]. The majority of PP ICU physiotherapists did not use health related quality of life outcome measures in the private ICUs except for 42% who used the international classification of function (ICF) scale [Table 2.13].

2.3.4.7 Evidence-based ICU Protocols used/implemented in the ICUs

The majority (≥80%) reported that they used evidence-based clinical practice guidelines (CPGs) and protocols in the ICUs. Table 2.14 represents the utilisation of evidence-based CPGs and protocols in the ICU. All protocols were used in the private ICUs.

Table 2.14 Utilisation of Evidence-Based Protocols and Clinical Practice Guidelines

Protocol/Clinical Guideline	**Yes %(n)**	**No %(n)**	**Evidence Based** ***(systematically developed, reviewed and appraised clinical research)***	**Non Evidence Based** ***(clinical research or literature that has not gone through a rigorous, unbiased and transparent process of systematic review and appraisal, non-peer reviewed and unpublished research)***
Weaning for Extubation	**72 (28/39)**	28 (11/39)	**85 (28/33)**	15 (5/33)
Suctioning	**77 (30/39)**	23 (9/39)	**81 (29/36)**	19 (7/36)
Positioning	**74 (29/39)**	26 (10/39)	**89 (31/35)**	11 (4/35)
Mobilisation	69 (27/39)	31 (12/39)	74 (26/35)	26 (9/35)
Rehabilitation	62 (24/39)	38 (15/39)	74 (26/35)	26 (9/35)
Sedation	62 (24/39)	38 (15/39)	**84 (27/32)**	16 (5/32)
Analgesia	59 (23/39)	41 (16/39)	**84 (26/31)**	16 (5/31)
Decontamination	67 (26/39)	33 (13/39)	**84 (26/31)**	16 (6/31)
Other	18 (6/34)	82 (28/34)	29 (5/17)	71 (12/17)

The majority (≥80%) said that the protocols they used in the private ICU were evidence based (systematically developed, reviewed and appraised clinical research). The minority (14%, n=4/29) responded that they used other protocols in the ICU that were not evidence based (systematically developed, reviewed and appraised clinical research). The main protocols used by more than 70% of PP ICU physiotherapists in the ICU included weaning, suctioning and positioning protocols with decontamination and mobilisation next in line with 69% using these evidence-based protocols [Table 2.14].

2.3.4.8 Patient Goal Setting

Almost all the PP ICU physiotherapists (97%, n=30/31) were involved in goal setting. Sixty-eight percent (n=21/31) of the PP ICU physiotherapists were involved in goal setting by themselves, with the team and with the patient altogether, while 13% (n=4/31) were involved in goal setting by themselves only and 9% (n=3/31) with the team and with the patient respectively.

2.3.4.9 Discharge Planning

The majority of PP ICU physiotherapists said that the Doctor/Physician/Intensivist was mainly involved in discharge of the ICU patient when on-site (97%, n=29/30) and when on-call (93%, n=28/30) while only 61% (n=19/31) of PP ICU physiotherapists were involved in discharge of patients from the ICU/s to other wards/home as well. Only 26% (n=8/31) reported having specific discharge criteria. The discharge criteria were based on patients being medically (haemodynamic and clinical) stable, with clear lung fields, maintenance of oxygen saturation without the use of oxygen (breathing independently on room air), functionally independent in activities of daily living and specific mobilisation criteria for surgical ICU patients.

2.3.4.10 Follow-Up Physiotherapy and Rehabilitation

The majority of PP ICU physiotherapists responded that follow-up physiotherapy and rehabilitation in the ward (93%, n=28/30), in an out-patient setting (83%, n=25/30) and in the community (73%, n=22/30) of ICU patients, is a requirement. Seventy percent (n=21/30) of the PP ICU physiotherapists are aware of follow-up and rehabilitation facilities for the private sector ICU patients with eighty percent (n=24/80) reporting that their respective private practices do provide follow-up and rehabilitation for private ICU patients. Referral to follow-up physiotherapy and rehabilitation following ICU and hospital discharge was reported by 62% (n=26/42) and 36% (n=15/42) to be done by the unit physiotherapists when on site in the ICUs and when "on call" (offsite) respectively. Sixty-four percent (n=27/42) of these physiotherapists were aware of any follow-up physiotherapy and rehabilitation services for ICU patients in the surrounding community. They reported these services being provided at local, district or community clinics or health centres, step down facilities or rehabilitation centres, high risk clinics and through home visits. Sixty-two percent (n=26/42) of the physiotherapists reported that follow-up physiotherapy and rehabilitation services are provided in the hospital in which they work.

2.3.4.11 Other Comments Related to Current Practices and Private Practice ICU Physiotherapy

Further comments that were made by the PP ICU physiotherapists were around discharge, referral, workload and use of outcomes. The responding physiotherapists stated that they had to have a referral from the doctor in order to see ICU patients and that the number of patients and time spent in the ICU fluctuated as there are a number of referring doctors for one unit with some doctors having a preference towards a particular practice. The nurses would also provide the referrals from

the doctors. Doctors also did not allow physiotherapists to mobilise ventilated patients. Patients with a variety of conditions could be seen in one ICU and therefore affect the levels and type of intervention. While they rotate in the unit they make an effort to maintain the same physiotherapist when they start with rehabilitation. The use of locums is minimal and mainly the permanent physiotherapists work in the ICU and physiotherapists have fixed salaries and thus do not rely on commission that allows them enough time per patient treatment. The number of ventilated patients were not always high. They did not always work in the neonatal ICU and treatment there comprised mainly Some reported only seeing paediatric ICU patients with very few cases in the neonatal ICU and reported also patients requiring mainly chest physiotherapy and suctioning, with a few cases of trauma or thoracic neurological rehabilitation. They also stated that "Cardiac Rehabilitation education following Cardio surgery is a big part of discharge plan". They also reported to use risk criteria screening for complications related to smoking, obesity, old age, ICU related delirium and inform the nurses and doctors when they observe these risks. They reported offering rehabilitation and home visits post ICU but struggle with the referring network and to source for post discharge physiotherapists for patients who were admitted from other provinces.

2.4 Discussion

The study findings provide clarity regarding the profile and current practices of the private practice physiotherapists working in and rendering services to private ICUs in South Africa as respondents were those who were working in the respective ICUs in SA at the time of the survey. While the responses were mainly from PP ICU physiotherapists in the Western Cape, Gauteng and KwaZulu-Natal, these do represent the majority of private ICUs in the country. Mainly the permanent physiotherapists and private physiotherapy practice owners responded as they were also the ones

who mainly worked in the private ICUs. Lottering and van Aswegan (2016) included only physiotherapists with work experience of 3 years or more in adult ICUs in private sector hospitals or who were members of the Cardiopulmonary Physiotherapy Rehabilitation Group (CPRG) of the SA Society of Physiotherapy (SASP). For this reason, they did not include all physiotherapists in their sample and also it may be that the members from the CPRG or SASP may not have been working in the private ICUs at the time of the survey. They also included public sector physiotherapists and combined many of the results therefore not providing a clear picture of the private sector profile as in this study. It must also be noted that it is difficult to compare the findings of this study with international PP ICU physiotherapists as there are minimal to no studies that could be found in this area of private practice physiotherapy as many surveys are about public ICU physiotherapy practice.

The physiotherapists working in the private sector ICUs are mostly young women who have mainly basic undergraduate degrees, with few physiotherapists having any postgraduate degrees specialising in intensive care physiotherapy. The latter is similar to the findings related to the public sector ICU physiotherapists in the country (Karachi et al., 2018). The private practice physiotherapy owners and permanent private practice physiotherapists were older and part-time and locum physiotherapists were younger and had fewer years of experience which is similar to the community service physiotherapists who are younger than those in the more senior positions in the public sector (Karachi et al., 2018). The private practice ICU physiotherapists had varying years of work experience in both general and intensive care physiotherapy of between one and twenty years of experience. This variation in work experience may have an effect on patient treatments and outcomes. The PP ICU physiotherapists mainly attended the adult ICU refresher

course and almost all were interested in ICU specific postgraduate training courses. Therefore, similar to the public ICU physiotherapists these young private ICU physiotherapy professionals with basic undergraduate degrees and minimal specialist training in ICU and ICU work experience working in these specialised private ICUs in South Africa may find it difficult to support their role in the ICU and ICU multidisciplinary team and to provide effective and efficient quality of care with the best patient outcomes. Price and Reichert (2017) found that student and early career nurses felt that getting sufficient training and education for workplace transition was a must and that young nurses also expected continuous professional development and education opportunities for career pathing whereas the older mid- to late-career nurses had an understanding that lifelong learning was important for maintaining competency, providing quality patient care as well besides enhancing career opportunities for the future alone. The nurses in the study felt that training and education provided career satisfaction and that if work environments invested in continuing professional development opportunities to ensure continuous growth in nursing practice and thus provide optimal quality care for patients then these were perceived as heathy work environments (Price & Reichert, 2017). These findings by Price and Reichert (2017) can be translated to the private ICU physiotherapists and are important to consider and relate to this young, early-career group of private ICU physiotherapists in SA who will later become the mid- to late-career private ICU physiotherapists and may have similar perceptions as reported by Price and Reichert (2017) and Karachi et al. (2018).

Almost all PP ICU physiotherapists had induction training on the organisation and structure of the private ICUs, physiotherapy assessment, treatment and documentation and emergency and/or on call duties and responsibilities. While these findings were similar to those reported by Karachi et

al. (2018) regarding the profile of public sector physiotherapists working in and providing services to public sector ICUs there were some differences in that a greater percentage of private ICU physiotherapists reported receiving emergency and on call duty induction training and had Masters Degrees in the area of ICU physiotherapy compared to the public ICU physiotherapists. The findings of this study regarding the higher percentage of PP ICU physiotherapists having postgraduate degrees and ICU training are in line with the findings in 2016 by Lottering and van Aswegan. According to Denehy and Berney (2006), the training and expertise of physiotherapists in relation to other health professionals such as nurses and respiratory therapists differs significantly within the ICU setting and is still so, none the less, physiotherapy is reported to be an integral part of patient management in the intensive care unit (ICU) of hospitals. Therefore, the variations in the training and expertise of the private ICU physiotherapists should not affect their role as a team member in the ICU and ICU patient management.

The PP ICU physiotherapists were all trained in SA with no one having had experience working in international ICUs. Private ICU physiotherapists are very minimally involved in student supervision, with many not at all involved in having students and supervising them in private ICU. This may be due to the fact that the private sector ICU patients pay for treatments either via medical aid or in their own private capacity and expect care from qualified health care professionals including physiotherapists. There may be too much administrative and legal related policies and implications around having students training and treating private ICU patients that my affect student training and supervision in the private ICU. The latter may change depending on the need for clinical placements for student training in a growing and overburdened healthcare student population who require skills training and competency in the country.

The structure and organisation of private ICUs and ICU physiotherapy practices could be described as a hierarchical job ranking system where practice owners were at the top with or without practice partners, followed by permanent private physiotherapists, part-time private physiotherapists and locum physiotherapists that work for the practice and in the ICU/s. In the private sector a physiotherapist owns the practice in the private hospital and there can be more than one physiotherapy practice in one hospital each with its own owner. Each practice may have more than one physiotherapist working for the practice and are either permanent, part-time of locum in the week or on the weekend. The latter is known to the researcher who has worked in the private physiotherapy practice and private ICU setting. This is different to the public sector hospitals where each hospital has one physiotherapy department and have a set number of physiotherapy posts that are either all or partially occupied with a structured and organised organogram (Karachi et al., 2018). The PP ICU physiotherapists reported working within the ICU Multidisciplinary Team (MDT) but reported working more with occupational and speech therapists than the public sector physiotherapists in Karachi et al., (2018). The majority of PP ICU physiotherapists work mainly in medico-surgical, medical and surgical and respiratory units as these are some of the more common units in the private sector in the country. Other ICUs include specialised units such as neonatal/paediatric units, cardiac/cardiothoracic/coronary ICUs and neurological or trauma ICUs. While these types are similar to those found in the public sector there are not as many types of ICUs in these hospitals as is found in the public sector hospitals (Karachi et al., 2018).

With regards to the PP ICU physiotherapy services and care available, these are dependent on the number of and how the PP physiotherapists are allocated to wards and ICUs, the rotation system,

time available to spend in the ICU and the frequency of treatments provided. The private practice ICU physiotherapists are not exclusively allocated to the private ICUs and practices have on average five physiotherapists working in the ICU in the week with one on the weekend on site or on call in the week and weekend. Practices have a variety of physiotherapists working in the ICU during the week and weekends that cover both the ICU and wards. Whereas Karachi et al. (2018) reported that more public sector ICU physiotherapists were exclusively allocated to ICUs but also had ward duties and thus showed some form of continuity of care. Furthermore, physiotherapists in the private sector rotate more regularly, on a weekly basis, compared to public sector physiotherapists who rotate mostly quarterly (Karachi et al., 2018; Lottering & van Aswegan, 2016) thus adding to the lack of continuity of patient care and multidisciplinary teamwork in the ICU.

The variability of private ICU physiotherapy staff working the private ICUs may have a negative effect on the standardisation of care practices and services as these variations do not allow for continuity of care by the same physiotherapist. The latter may affect the role of the ICU physiotherapist in the multidisciplinary team as well and unless there is good handover and communication between the changing physiotherapists this may affect both the communication with the ICU MDT and the management and outcome of the private ICU patient/s. Continuity of care is not only important in order to build rapport with the patient but also to maintain standardization of care processes and progression in order to improve patient outcomes. According to Leigh and Stelfox (2017), quality improvement in modern health care is affected by patient care transitions as the movement of people and information is associated with medical errors, adverse events and worse patient outcomes including ICU patients who are critically ill, have complex care

needs and who have a higher risk of experiencing poor outcomes (Leigh & Stelfox, 2017). The ICU patient consumes more resources and thus reduced quality of care through a lack of continuity of care processes may prove to be a waste of these limited resources and expense following poor outcomes (Leigh & Stelfox, 2017). Having the same physiotherapist in the ICU may allow for improved rapport and communication with the patient and the multidisciplinary team and may assist PP ICU physiotherapists in improving the outcomes of their treatments and also maintain referrals from the ICU doctors due to stronger relations built through a consistent relationship with one exclusively allocated physiotherapist.

Many PP ICU physiotherapists spent only 25-50% of their 24-hour period in ICUs both in the week and on the weekend on site and the majority reported having an "on call/emergency call" roster and service similar to the public sector ICU physiotherapists (Karachi et al., 2018). Private practice ICU physiotherapists in the country like other international and South African studies reported no physiotherapists rendering services to the ICUs at night. However, a study by Hanekom, Coetzee and Louw (2013), showed that a dedicated physiotherapist in an ICU for 24 hours was beneficial for improved quality of care and reduced length of stay, ICU readmission and intubation, and therefore reduced ICU costs. While healthcare budget constraints may be a factor that limits public sector ICU physiotherapists from working in the units at night, it is not clear what factors have influenced private sector ICU physiotherapists to not provide physiotherapy services to the ICUs at night as it could be assumed that as private practice physiotherapists work for their own salary they may be able to capitalise on this by providing a 24-hour on-site service and benefit ICU patients requiring physiotherapy especially if admitted to the private hospital after hours.

With regards to referral systems and referral criteria in the private ICU, there was consensus amongst the PP ICU physiotherapists that patients were always referred by the doctors and that all patients referred were seen in the ICUs in the week and on weekends. There did not seem to be a standard set of criteria for referral of private ICU patients to the PP ICU physiotherapists. However, the physiotherapists reported that the referral criteria or guidelines were developed mainly by the ICU doctors and some by the physiotherapists. The dependency of PP ICU physiotherapists on referrals limits their autonomy of practice and does not allow physiotherapists, who are first line practitioners according to the Health Professionals Council of South Africa (HPCSA) Physiotherapy Board (Unger, 2010), to assess and treat private ICU patients on their own through their own clinical judgement and reasoning. Therefore, since doctors are the main source of referral there does not seem to be a standardise referral system guided by PP ICU physiotherapists in place. Physiotherapists in general need to create an awareness of their profession, scope of practice, role in the multidisciplinary team and specialised areas including intensive care and their ability to independently assess the stability of patients for physiotherapy management and strengthen their status as autonomous first line practitioners.

The PP ICU physiotherapists reported that while they are directly involved in the prescription of treatment frequency and type of treatment namely chest physiotherapy, positioning, mobilisation and rehabilitation through a structured physical assessment, the prescription of treatment frequency and type of treatment was also reported to be mainly by the doctors. The way in which frequency of treatments and type of treatments described by the doctors need further exploration as again this affects the first line practitioner status in terms of the physiotherapists role in the ICU,

autonomy and increased or improved clinical reasoning of private ICU physiotherapists in the private ICU setting. In the public sector ICU physiotherapists were able to do "blanket assessments" of patients in ICUs and did not rely solely of referrals and they mainly also prescribed the treatments ICU patients required (Karachi et al., 2018). Sharing of roles between the nurses and physiotherapists was noted in the private ICU setting as the PP ICU physiotherapists reported that both they and the nurses are involved in positioning of the ICU patient but that the physiotherapists alone are directly involved in the mobilisation and rehabilitation of patients in the private ICU. This shared role between the nurse and the physiotherapists requires exploration to understand how this role in positioning is shared during private ICU patient management as little is known about teamwork in the ICU (Ervin, Kahn, Cohen, & Weingart, 2018), except that improvement in patient-level outcomes when care is provided by an interprofessional team is evident in the robust data available on teamwork in the critical or intensive care setting (Donovan et al., 2018).

The treatment activities used most and least by PP ICU physiotherapists in the management of ICU patients were somewhat different to that reported by the public ICU physiotherapists in Karachi et al. (2018). The use of manual techniques and breathing exercises was reported as the most used chest physiotherapy technique. but in addition, they also reported the use of breathing techniques using equipment such as the PEP/blow bottle, incentive spirometry (IS) and intermittent positive pressure breathing (IPPB) as most used when treating the chest. The public ICU physiotherapists in South Africa also reported manual techniques (percussion, vibration and shaking) and breathing techniques the most used and ranked as 1 and 2 respectively but they also reported positioning to improve ventilation/perfusion ratios as most used at a ranking of 1

compared to 4 by PP ICU physiotherapists and they ranked breathing exercises with equipment such as PEP/blow bottle, IS and IPPP only a 3 and not 1 like the PP ICU physiotherapists ranking (Karachi et al., 2018). Manual hyperinflation was rated as the least used in this study at 10 versus a rating of 7 in the public sector study by Karachi et al. (2018). It is interesting to note that South African physiotherapists are not involved in using manual hyperinflation as those reported by other international studies in both developed and developing countries for example Sigero et al. (2016) reports that manual hyperinflation techniques is widely used by public ICU physiotherapists in Sri Lanka. The reasons for the lack of use of this treatment activity could be due to a lack of experience, lack of appropriate equipment to perform the technique, and/or ICU protocols with regards to the use of manual hyperinflation. In terms of ventilatory activities, unlike the public ICU physiotherapists (Karachi et al., 2018), the private ICU physiotherapists reported to mostly supervise and implement non-invasive ventilator related techniques such as Continuous Positive Airway Pressure ventilation in private ICU patients. This finding shows that the PP ICU physiotherapists play a role in patient ventilation and use of ventilatory related activities unlike the majority of public sector physiotherapists in SA who reported that these activities were least used or not used at all (Karachi et al., 2018). Therefore, the findings of this study with regards to the involvement in ventilatory activities are not only similar to the involvement of ICU physiotherapists in ventilatory activities as reported by internationals studies but are also more on par with the therapist-driven weaning protocols as recommended by the ESICM (Gosselink et al., 2008) than those in the public sector.

Mobilisation and rehabilitation are seen as an integral part of physiotherapy patient management (Hanekom, 2016). Early mobilisation and rehabilitation of ICU patients have been proven to be

safe and improve both clinical (length of stay, mechanical ventilation) and functional (physical functioning) outcomes of ICU patients (Hashem, Parker, & Needham, 2016). PP ICU physiotherapists reported to mostly use mobilisation activities such as sitting out in a chair, active exercises in bed and rehabilitation activities such as marching on the spot and ambulation without a ventilator. The latter treatment activities are on par with many international surveys (Malone et al., 2015; Yeole et al., 2015; Appleton et al., 2011; Wiles & Stiller, 2010; Hodgin et al., 2009; Kumar et al., 2007; Norrenberg & Vincent, 2000) on the public ICU physiotherapist role in the ICU but is different to the SA public sector ICU physiotherapists who reported using mostly passive movements followed by active movement, sitting over the edge of the bed and mobilise to the chair. In addition, mobilisation by public ICU physiotherapists was more of a shared role between them and the nurses (Karachi et al., 2018), than in the private sector. However, while PP ICU physiotherapists are on par with international early mobilisation and rehabilitation practices there are some mobilisation activities such as the cycle-ergometer activity that is not well utilised and may be due to a lack of this type of equipment in the ICU or physiotherapy practice. PP ICU physiotherapists and public ICU physiotherapists (Karachi et al., 2018) both ranked continuous passive movement as the least used mobilisation activity and cycling in the chair, tilt table use, cycling in the chair, stationary cycling and standing frame as the least or not used rehabilitation activities.

Karachi et al. (2018) is one of the few and first survey studies known to have examined the time spent in the ICU and time spent doing specific treatment techniques or activities in the ICU. Information regarding the time spent in the ICU and on treatment activities in the ICU was included in this study as well. The findings show that PP ICU physiotherapists spent more than 50% of their

time on mobilisation and rehabilitation of ICU patients similar to the public ICU physiotherapists (Karachi et al., 2018). However, the PP ICU physiotherapists spent more time on ventilatory activities than the public ICU physiotherapists and less time on chest physiotherapy activities than the public ICU physiotherapists. These findings show some variability in the practices between the two sectors in SA time spent doing certain treatment activities during ICU patient management. Other surveys internationally and locally did not investigate time spent in the ICU on certain treatment activities and thus no comparison could be made. However, rationale for the time spent in the ICU and doing certain treatment techniques also require further exploration.

All PP ICU physiotherapists reported using physiological outcome measures like lung auscultation and saturation monitoring and the majority used the 6minute walk test functional independence and Chelsea Critical Care Physical Assessment outcome measure to assess physical functioning. Many reported using the Perceived Quality of Life Scale and the majority used the ICF. However, it is clear that there is minimal use of physical functioning and health-related quality of life outcome measures by these physiotherapists similar to the public ICU physiotherapists (Karachi et al., 2018). The increased number of physiotherapists reporting the use of the ICF could be attributed to the inclusion of this tool in the undergraduate curriculum although it is clear that not all PP ICU physiotherapists use the tool even though having been taught the ICF.

Goal setting was an area that almost all PP ICU physiotherapists reported being involved in, however goal setting with the patient included needs more attention. This finding is corroborated by Karachi et al. (2018) where less than 50% of the public ICU physiotherapists included the patient in goal setting. Goal setting has not been evaluated in other survey studies locally and

internationally and thus these findings provide new evidence in the role and current practice of ICU physiotherapists. In terms of discharge criteria few PP ICU physiotherapists reported having specific physiotherapy related discharge criteria. The discharge criteria were based on patients being medically (haemodynamic and clinical) stable, with clear lung fields, maintenance of oxygen saturation without the use of oxygen (breathing independently on room air), functionally independent in activities of daily living and specific mobilisation criteria for surgical ICU patients. However, discharge was reported to be mainly managed by the doctor/physician/intensivist and shows that the PP ICU physiotherapist input or role in discharge and decision making within the multidisciplinary team is lacking. This may affect the functional outcome of the patient in ICU as patients may not be functionally prepared to be discharged to the ward or home post ICU management. Physiotherapists have knowledge and skills regarding respiratory and musculoskeletal functioning and through involvement in MDT discussions regarding appropriate timing of discharge can assist in preventing complications and readmissions to ICU due to immature discharge without sufficient respiratory functioning (Karachi et al., 2018). While follow up is considered a priority, few continue with this in their own practices but are aware of follow up centres for this. Pulmonary rehabilitation is important post ventilator treatment and for respiratory related conditions and complications (Dimitrova, Izov, Maznev, Vasileva, & Nikolova, 2017) however, due to the lack of follow up this area of physiotherapy scope of practice is neglected and is an area that can be reinvented and developed to strengthen the post-ICU role and minimise the effects or complications of post-ventilator and post-ICU management. The findings regarding discharge criteria and planning and follow-up services are similar to the findings in the public sector by Karachi et al. (2018). This is an area that needs exploration and improvement in

order to define the role of ICU physiotherapists in these aspects of care. Other surveys have not assessed the latter and thus comparisons cannot be made.

In summary, the main roles of physiotherapists in private ICU is to manage the ICU patient with chest physiotherapy, mobilisation and rehabilitation treatment activities, but have minimal autonomy in decision making in the multidisciplinary team, clinical reasoning and in assessing and treating their own patients, as referral for physiotherapy is guided by the doctors/physicians/intensivists. They share their role in positioning of patients with ICU nurses and have a lack of autonomy regarding treatment prescription in the ICU due to the ICU doctors/physicians/intensivists mainly involved in the prescription of treatment activities and treatment frequency of ICU patients. PP ICU physiotherapists have a lack of involvement and standardisation in discharge and follow-up criteria and spend minimal time in ICU treating patients in a 24-hour period in the week and weekends. They also showed minimal use of outcome measures to assess patient outcome and while the majority reported using evidence-based protocols there was a difference in the percentage of PP ICU physiotherapists using mobilisation and rehabilitation protocols meaning that treatments are not standardised as variability in ICU patient management exists possibly affecting ICU patient outcomes.

2.4.1 Strengths and Limitations

There was a very small response rate from physiotherapy practices rendering ICU services however that was less than the calculated desired sample size, this response rate was spread across the provinces with the most private sector ICUs and therefore while results are not generalisable, the results do present the PP ICU physiotherapists from the provinces with the majority of private sector ICUs. The recruitment process to determine the population and sample was tedious and

laborious as there are no databases available from which to source the specific population and therefore the researcher had to contact each hospital, and physiotherapy practice in order to develop a list of physiotherapy practices and private sector ICUs around the country. This process however is beneficial and the information can now be used by other researchers who may want to conduct future studies evaluating private physiotherapy practices in the country. While the study has these limitations, the study in itself is valuable as it provides clarity on specifically the private practice physiotherapists providing care and services to the private ICUs in South Africa that have not been described in other available South African literature.

2.5 Conclusion

The study provides current evidence and clarity on the profile and current practices of PP ICU physiotherapists who are rendering services in the private sector intensive care units in South Africa. It is clear that the private practice ICU physiotherapists also experience variability in their current practices like physiotherapists working in the public sector ICUs in South Africa and that they also show some variability compared to the public sector ICU physiotherapists. The private practice ICU physiotherapists are on par with international standards with regards to mobilisation and rehabilitation practices but can continue to improve on these practices and become more autonomous in their role in ICU patient assessment, treatment, discharge planning and referral. There are areas of the current practice of PP ICU Physiotherapists that can be addressed and improved in order to strengthen their role in the ICU and the ICU MDT team and well as improve patient outcomes through improved service and care practices. The constant rotation of PP ICU physiotherapists in the ICU, lack of evidence-based practice implementation and use of outcome measures affect the role the physiotherapist plays in the multidisciplinary team, the effectiveness

of their treatments and benefits to the patients and lack of evidence for effectiveness of treatments due to minimal use of outcome measures post patient treatment. Physiotherapists in private practice and private ICU may want to consider improving the referral system and gain autonomy of practice. They may also want to re-evaluate and realise their vital or critical role in the private ICU multi/interdisciplinary team and increase their presence in private ICU multi/interdisciplinary team ward rounds in order to support their role and sustain the profession. They should also re-evaluate and improve their role in discharge planning and advocate ICU follow-up to reduce complications and re-admissions to ICU which is costly for patients and increases the use of limited ICU resources as they have evidence for the beneficial effects of physiotherapy in reducing ICU readmissions and reintubations. These young physiotherapists need to also develop and improve on their skills by increasing involvement in CPD and research in ICU in order to maintain evidence-based practices and upskill themselves in order to stay on par with the current changes and improvements in ICU care and services. Lastly, physiotherapy practices and the South African Society of Physiotherapy together with the HPCSA need to consider keeping a regular updated database of physiotherapists working in these units in order to assist audits and surveys to be conducted to assess or evaluate physiotherapy services to improve, maintain and sustain quality physiotherapy services and care in the private sector as well and standardise practice and care pathways in ICU physiotherapy. While this survey provided much needed data on the private sector physiotherapists rendering services to private sector ICUs, the minimal response rate and the lack of depth of the responses due to survey responses being fixed responses motivate the need for a more in-depth exploratory study in order to obtain a deeper understanding of the current practices of PP ICU physiotherapists in the private sector in South Africa. Therefore, the way

forward includes a qualitative study exploring the current practices and the facilitators and barriers/challenges to current practice of PP ICU physiotherapists.

Chapter Three: Exploring the Current Practices of Private Practice ICU Physiotherapists

3.1 Introduction

Globally, and in South Africa intensive care practice is an area of medicine that requires the use of a substantial amount of human and tangible resources (equipment and consumables) for the care of critically ill patients. The Intensive Care Unit (ICU) is a specially staffed and equipped hospital ward dedicated to the management of critically ill patients (Yeole et al, 2015). While doctors and nurses form part of the medical ICU healthcare team, other allied healthcare professionals such as dieticians, social workers, occupational therapists and physiotherapists are also found in the intensive care setting providing patient care. The roles of ICU nurses and doctors have been defined through consensus meetings and conferences and ICU nurses and doctors also receive specific training in intensive care patient management through an intensive care course or programme. Physiotherapists also do not receive specific ICU-related training like ICU nurse and doctors as no ICU training course like that attended by nurses and doctors exists for physiotherapists (Karachi et al., 2018; Kumar et al., 2007). Regardless of the latter, evidence states that physiotherapists are seen as integral members of the multidisciplinary team. Among the allied healthcare professionals, physiotherapists have not yet clearly defined their specific role in the ICU. However, physiotherapists globally and in South Africa are currently practicing and providing services in these units. It has also been proven that physiotherapy plays a vital role in the management of ICU patients and provides improved benefits to patients and assists in reducing ICU-related complications with reduced readmissions to ICU and thus reduced costs of care incurred to healthcare funders (Hanekom et al., 2013; Berney & Denehy, 2006).

Furthermore, intensive care practices are being evaluated and research in this area is on the increase due to the need to substantiate and motivate for the need for specific health professional input in the care of the critically ill patient. It is necessary to weigh the benefits of certain treatments and patient outcomes and cost of care in this expensive healthcare setting. While studies have attempted to provide evidence for the specific role of physiotherapists in the ICU worldwide and even in South Africa, their role has still not been clearly defined. These studies (Karachi et al., 2018; Lottering & van Aswegan, 2016; Baidya et al., 2016; Sigera et al., 2016; Taito et al., 2016; Malone et al., 2015; Yeole et al., 2015; Oke, Birabi, & Oghumu, 2015; Tadyanemhandu & Manie, 2015; Chokshi, Alaparthi, Krishnan, Vaishali, & Zulfeequer, 2013; Appleton, MacKinnon, Booth, Wells, & Quasim, 2011; Wiles & Stiller, 2010; Hodgin et al., 2009; Kumar, Maiya, & Pereira, 2007; van Aswegan & Potterton, 2005; Norrenberg & Vincent, 2000) have all been quantitative in nature using mainly surveys and providing survey data. The studies available also mainly describe physiotherapy practices in public hospital ICUs. The South African studies available provide data on public sector ICUs and minimal information on private sector ICU physiotherapy practices. It is clear however from the available evidence that the roles and current practices are variable and are not well defined. Survey data on private practice physiotherapists obtained by Peerbhay, Karachi and Hanekom (2020) in Chapter 2 of this thesis shows that Physiotherapists in South Africa who opt to work in the private sector either own the practice or work as permanent or locum staff within these practices. There is a high turnover of locums who work in the various private intensive care units. The survey study showed that private practice ICU physiotherapists roles and current practices are variable with variability in their demographic characteristics and workload, availability of services, referral patterns, treatments, discharge planning and follow up and use of outcome measures and evidence-based practices. However, the variability of these current

practices in private practice ICU physiotherapy in SA need further exploration. Minimal to no studies have yet been published that provides rich and in depth qualitative data on how PP ICU physiotherapy practices are organised and structured and how and why PP ICU physiotherapists render services in the private ICUs the way they do (Perreault, Dionne, Rossignol, Poitras, & Morin, 2014) including South Africa. The latter is important to help understand contexts of practice and how they may influence the quality of PP ICU physiotherapy services and private ICU patient outcomes (Perreault et al., 2014). Therefore, in an attempt to gain rich and in-depth information and an improved and comprehensive understanding of the profile, roles and current practices and services of private practice physiotherapists rendering services to private ICUs in South Africa and the possible factors affecting private practice ICU physiotherapists role and management of private ICU patients, a qualitative study was conducted. The specific objectives were to explore the organisation and structure of private ICUs and PP ICU physiotherapy practices, referral systems and guidelines, availability of ICU physiotherapists, prescription of ICU treatment activities, involvement in ICU treatment activities, patient management including frequency of treatment, percentage of patients seen/treatment frequency and treatment techniques used, workload and time spent in the ICU, use of evidence-based protocols and outcome measures, patient goal setting, discharge planning and follow up and the related and barriers/challenges facing the private practice physiotherapists rendering services to private sector ICUs in SA. This paper therefore aims to describe the organisation and structure of private ICUs and PP ICU physiotherapy practices, their profile, role and current practices and challenges and/or factors contributing to the latter of PP ICU physiotherapists in South Africa from the physiotherapists directly working in these units.

3.2 Methodology

3.2.1 Study Design

A descriptive exploratory qualitative design was used in order to gain insight into the profile and current practices and the challenges (facilitators and barriers) that contribute to the current practices of private practice physiotherapists rendering services to private sector ICU's in South Africa. This study design allowed for the collection of in-depth information to provide a deeper understanding of the concept being explored. A qualitative research design is valuable in healthcare research and allows for the recording of attitudes, thoughts and feelings and creates openness amongst those being interviewed thereby encouraging these participants to expand and elaborate on their responses that may address issues not initially considered nor explored through quantitative surveys where responses are fixed (Chafe, 2017; Al-Busaidi, 2008; Bailey, 2008, Pope, Ziebland, & Mays, 2000). The qualitative approach can assist in addressing many questions that arise for healthcare researchers that can help to make an even greater contribution within the clinical, health policy and or health decision-making settings (Chafe, 2017). Since an in-depth understanding of the profile, roles and current practices and challenges relating to these practices of private practice physiotherapists rendering services to private sector ICUs in South Africa has not been well explored, a qualitative approach was considered most appropriate to understand the current situation in private ICU physiotherapy practice and provide a baseline for future research and improvements in private ICU physiotherapy practice.

3.2.2 Research Context and Setting

The research setting included the private physiotherapy practices who service private ICUs in private sector hospitals in South Africa. The researcher identified 197 private sector hospitals

registered on the HASA 2018 list of hospitals, a total of 221 ICUs and 257 private physiotherapy practices that render ICU services and care in these hospitals in South Africa in a previous quantitative study conducted (Peerbhay, Karachi, & Hanekom, 2020, Chapter 2). In the latter study (Chapter 2) twenty-seven physiotherapy practices including 42 private practice ICU physiotherapists participated in a quantitative survey on the profile and current practices of the private practice ICU physiotherapists. These physiotherapists were mainly from the Western Cape, Gauteng with a minority of participants from Eastern Cape, KwaZulu-Natal, Limpopo and Mpumalanga.

3.2.3 Population and Sample

3.2.3.1 Population

The population included all private practice physiotherapists who had responded to a quantitative descriptive survey study conducted by the researcher prior to this qualitative study. This population therefore included a total of forty-two private practice physiotherapists from practices mainly situated in the Gauteng and Western Cape provinces with a minority from practices situated in the Eastern Cape, KwaZulu-Natal, Limpopo and Mpumalanga provinces of South Africa

3.2.3.2 Sampling Method

A total inclusive population sampling method which is a type of purposive sampling method was used in this study. This method of sampling is used when one intends to examine the entire population with a particular set of characteristics (Laerd Dissertation, 2019, para. 1). All private practice ICU physiotherapists (N=42) who participated in the quantitative survey study were therefore included.

3.2.3.3 Sample Size

It is suggested that a sample size that provides sufficient information is dependent upon the study aim, specificity of the sample, quality of information provided, and the use of hypothesis and analysis strategies (Malterud, Siersma, & Guassora, 2016). According to Dworkin, (2012) a sample size of 5 to 50 participants is adequate for an individual qualitative interview and it is recommended that a focus group with a sample size between 6 and 12 participants is sufficient. The latter ensures that the group is small enough to provide an opportunity for all participants to give input and still large enough to create a group that is varied (Fusch & Ness, 2015). However, the final sample size may also be dependent on when data saturation has been reached namely the point at which all questions have been thoroughly explored and no new ideas or themes are identified in follow up interviews (Malterud et al., 2016; Trotter, 2012). In this qualitative study there were a total of 21 participants that included ten individual face to face interviews and two focus group discussions with five and six individuals respectively.

3.2.4 Instrumentation

A semi-structured interview guide [Addendum 6] developed by the researcher and based on categories from an adapted survey used in a quantitative study by Peerbhay, Karachi and Hanekom (2020) was used to collect qualitative data for this study. The guide was divided into two Parts. Part I included demographic information such as age, gender, province and hospital and practice details, ICU type worked in, qualification, years of ICU work experience and attendance and interest in further ICU training courses for specialisation in ICU physiotherapy. Part II consisted of two broad questions with probes. The first question placed focus on the current practices and the second on the challenges (facilitators and barriers) that may contribute to the current practices

of private sector physiotherapists rendering services to private sector ICUs. Each question comprised probes which centred on the objectives of the study. Probes related to question one, included gaining information pertaining to the physiotherapists their training and expertise, workload related to staffing, number, frequency and length of patient treatment sessions, ICU team involvement in treatment techniques, implementation of evidence-based mobilisation, and rehabilitation protocols in ICU, and evidence-based outcome measures to document patient improvement, the referral system in private sector ICUs, and the discharge planning and follow up of patients by physiotherapists/their practices in private sector ICUs. Probes relating to question two included gaining greater insight into the knowledge and training, culture and attitude, professional behaviour, organisational or institutional factors and resources such as manpower/equipment of private sector ICU physiotherapists, professional behaviour issues, and organisational or institutional factors.

3.2.4.1 Pilot

The semi-structured interview guide was piloted by the researcher before proceeding with the actual data collection. Two physiotherapists who worked in the private sector ICUs and participated in the quantitative survey study (Chapter 2) participated in the pilot interview. The purpose of the pilot was to evaluate the appropriateness of the interview guide to provide information based on the aim and objectives of the study, determine the time required to complete an interview and provide the researcher with an opportunity to enhance their interviewing skills prior to commencement of the qualitative interviews and allowed for gathering preliminary information and enable the researcher to appraise their method of data analysis. The pilot interview was also performed to review and revise the interview questions, highlighting any gaps or limitations in the interview/process and ensuring validity of the interview. The responses from

these individuals were included in the study as there were no problems identified with the interview guide and the information gained was relevant in answering the study and in depth and rich in nature.

3.2.5 Procedure

3.2.5.1 Ethics

Ethics Clearance was obtained from the Senate Research Committee of the University of the Western Cape and the study was conducted according to the ethics practices pertaining to the study of human subjects, as specified by the Faculty of Community and Health Sciences Research Ethics Committee of UWC [Addendum 1]. The selected participants were requested via email and telephone to participate in either an individual face-to-face/telephonic interview or in the focus group discussion and were provided with an information sheet [Addendum 7] outlining the nature and purpose of the study and a consent form [Addendum 8] to be completed before participation in the study. Participants who consented to participate in the focus group discussions also signed a focus group confidentiality binding form [Addendum 9]. Participants were informed that participation was voluntary, were ensured of their anonymity and confidentiality and informed that they could withdraw from the study at any point without consequence.

3.2.5.2 Data Collection

Participants who participated in the quantitative survey study (Chapter 2) were emailed an information letter and consent form detailing the qualitative study and its purpose after which they were contacted telephonically and were requested to participate in either an individual face-to-face or telephonic interview or focus group discussion. Telephonic individual interviews were included as a method of data collection to accommodate participants who stayed outside of the province in

which the researcher was based. The researcher was based in Gauteng and travelled to the Western Cape for some of the interviews as it was during the time of his research supervision session. Following written informed consent in person or via email, a suitable place and time was scheduled for the interviews and focus groups discussions with those participants who were willing to partake. The researcher conducted 10 individual semi-structured interviews (four face-to-face and six telephonically as they were not based in the same province as the researcher) and two focus group discussions (FGDs) of five and six participants respectively conducted at participants private practice offices. All the individual interviews and focus group discussions were tape recorded and interviews were between 30 and 50 minutes long with the focus group discussions being of the longer duration. The process of the interviews followed the following steps: i) participants received an information sheet [Addendum 7], had to sign a consent form [Addendum 8] and a focus group confidentiality binding form [Addendum 9] if part of a focus group. They then completed PART 1 of the interview consisting of sociodemographic questions was completed by each participant after which interviews and focus group discussions were conducted in English by the researcher only. The researcher kept basic field notes during the interviews to note any additional information during the interviews. All participants received a code (e.g. P1, 2, 3, … P21) to ensure confidentiality and maintain anonymity of the participants' information and participants in the FGDs would state their code before speaking. The latter assisted the researcher in the transcription process as to identify the responses of the different participants in the event there was a need to go back to the specific participant for any further clarification of discussion points raised by the participant/s.

3.2.5.3 Data Capturing

The sociodemographic data was captured in Microsoft Excel 2016. Interviews were audiotaped, as well as recorded telephonically for telephonic interviews. The recorded data was transcribed verbatim by an independent transcriber using MS Word. All the electronically transcribed data and audio recordings were kept in a password protected folder to be destroyed after five years. The researcher also kept written field notes made during the interviews used for reflection of the interviews completed and form of debriefing to remove personal bias as the researcher had personal experience of working in the private ICU sector as well.

3.2.5.4 Data Analysis

The sociodemographic data was analysed descriptively in Microsoft Excel 2016 and tabulated in the results. The data was analysed through both deductive and inductive thematic content analysis using the six steps of Braun and Clarke (2006). The researcher first read the transcribed interviews and listened to the audiotapes to check that the transcripts were a true reflection of what was said on the audiotapes and confirm reliability of the transcriptions. The researcher read the transcriptions again a few times in order to immerse himself fully into the data and to familiarise himself with the data presented to understand what was being said. The latter formed part of step one and two of the analysis process. Step three followed once the researcher was familiar with the data and could identify initial codes that are features of the data that may have appeared as interesting and meaningful (Braun & Clarke, 2006). Codes are more numerous and more specific than themes, providing an indication of the context of conversations. The researcher manually coded these codes using different colours corresponding to different codes. These codes were then categorised into groups of the different colours where each colour represented a specific category. Lastly, the dominant themes were identified and categorised together under broad headings in

relation to the objectives of the study as part of the third and fourth steps in the analysis process. The fifth step in the analysis process is to name and explain what each theme is about and how and why it is significant (Braun & Clarke, 2006). This was done by the researcher through descriptions and notes made alongside the data which described its content and relevance to the intended research question and the respective research objectives (Braun & Clarke, 2006). Finally, the researcher reported on the analysis in the results that includes the story that has originated from the original verbal data, the themes generated, and the use of verbatim quotes to support the themes and related categories (Braun & Clarke, 2006). The process of data analysis involved constant reviewing of the original verbal and transcribed data, codes found, and themes generated (Braun & Clarke, 2006).

3.2.5.5 Trustworthiness: Confirmability, Credibility, Dependability, Transferability

The researcher made use of four aspects reported by Lincoln and Guba (1985) namely confirmability, credibility, dependability and transferability to ensure trustworthiness of the data and results and overall rigour of the study process followed. Credibility refers to internal validity and ensures that the study measures or tests what is actually intended (Shenton, 2004; p.64) and was ensured through independent verbatim transcription of the data and member checking where participants were asked to confirm that the transcribed data accurately reflected and captured the meaning expressed by the interviews or FGDs and that the analysis and report accurately reflects what they had said (Birt, Scott, & Cavers, 2016). Dependability or reliability infers that if the same study were to be repeated in the same context, with the same methods and same participants, similar results would be obtained (Shenton, 2004) and was ensured through accurate record keeping of the study method and data collection and analysis processes in order to be able to retrace all the research steps. Transferability referred to as external validity is explained as the extent to

which the findings of one study can be applied to other situations (Shenton, 2004) and was addressed in this study through a detailed description of the analysed data and final results through summarising the story related during the interviews and verbatim quotes and still maintaining the meaning of the participant responses. Lastly, confirmability also referred to the objectivity of the study and where the outcomes are supported by the collected data and not the preferences of the researcher (Shenton, 2004) was ensured using an audit process as described by Lincoln and Guba (1985) of when, where and how (audiotaped interviews and independently transcribed verbatim) data was collected, the use of a field journal by the researcher and the research supervisor as well as another reviewer who revised the transcripts and generated themes independently.

3.3 Results

The findings of the study are presented under the characteristics of the participants and the emerging themes.

3.3.1 Characteristics of the Participants in the Qualitative Study

A total sample of 21 South African private practice intensive care physiotherapists participated in the study. Table 3.1 presents the characteristics of these participants. The physiotherapists were young (30.90 +/- 6.17 SD years, range 23-47 years), were mainly women (66.7%, n=14), the majority (76.6%, n=16) had mainly undergraduate Bachelor in Science (BSc) degrees and had an average of 8 +/- 6.23 SD years of ICU work (public and/or private) experience. Female participants were older (31.4 +/- 6.17 SD, range 23-47 years) than male participants and also had more years of ICU work experience (8.80 +/- 6.23SD, range 2-25 years) than them. The majority (47.6%, n=10) of the physiotherapists were from private practices rendering ICU services in the Gauteng and Western Cape. The majority (85.5%, n=18) reported working in general

Table 3.1: Characteristics of Private Sector ICU Physiotherapists in the Qualitative Study

Variables	
Age (mean years, SD. range)	
Total sample	30.9 +/- 6.17, (23-47years)
Females	31.4 +/- 6.17, (23-47years)
Males	29.9 +/- 6.11, (26-36years)
Gender % (n)	
Females	66.7% (n=14)
Males	33.3% (n=7)
Type of ICU physiotherapists have worked in % (n)	
General (multidisciplinary)	85.5% (n=18)
Medical & Surgical (mixed)	42.9% (n=9)
Neurological	9.5% (n=2)
Paediatric	33.3% (n=7)
Vascular	4.8% (n=1)
Province % (n)	
Gauteng	47.6%(n=10)
Western Cape	42.9% (n=9)
Eastern Cape	4.8% (n=1)
KwaZulu-Natal	4.8% (n=1)
Qualifications %, (n)	
BSc Physiotherapy	76.6% (n=16)
BHons Physiotherapy	14.3% (n=3)
MSc Physiotherapy	9.5% (n=2)
Years of ICU work (public &/or private) experience (mean years, SD, range)	
Total sample	8.03 +/- 6.23 (2-25years)
Females	8.80 +/- 6.23 (2-25years)
Males	6.57 +/- 6.4 (4-13years)
Attendance of Postgraduate ICU Training courses in the last 3 years % (n)	
Yes	42.9% (n=9/21)
No	57.1% (n=12/21)
Reported interest in postgraduate training for further specialization in ICU %, (n)	
Yes	85.7% (n=18)
No	14.3% (n=3)

not participating in any postgraduate ICU training courses in the last three years. However, the majority of the physiotherapists (85.7%, n=12/21) expressed an interest in participating in further specialised intensive care physiotherapy training [Table 3.1].

The physiotherapists who reported a keen interest in postgraduate training intensive care physiotherapy stated that they were interested in the following type/s of postgraduate training regarding intensive care physiotherapy presented in Table 3.2. A third (33.3%, n=7/21) of the physiotherapists reported being interested in receiving training on ventilators, ventilator settings or physiotherapy related management of ventilated patients [Table 3.2]. Fourteen percent (n=3) working in private practice and providing private ICU physiotherapy expressed no interest in postgraduate ICU training programs [Table 3.2].

Table 3.2. Types of Postgraduate ICU Training Participants Are Interested In (%)

Types of postgraduate ICU training participants are interested in	**(%, n)**
Physiotherapy modalities used in ICU	14.8% (n=1)
Evidence-based physiotherapy in ICU/ Current research in ICU and modalities used in ICU	9.5% (n=2)
Training on ventilators and ventilator settings/ management of ventilator patients	33.3% (n=7)
"Brenda Morrow's" ICU course	4.8% (n=1)
ICU training in sub-specializations such as cardio-thoracic, trauma, chronic respiratory patients	4.8% (n=1)
Courses that will enable me to constantly maintain my level of expertise	4.8% (n=1)
Cardiopulmonary Rehabilitation Course (CPT1)	9.6% (n=2)
Any course relevant to ICU and latest technology in ICU rehabilitation	14.3% (n=3)
Physiotherapists who expressed no interest in postgraduate ICU training programs	14.3% (n=3)

3.3.2 Emerging Themes

Three major themes with related categories and subcategories emerged from the deductive and inductive analysis and are presented in Figure 3.1. These themes and related categories were i)

Competency (Qualifications and Training, Years of ICU Work Experience, Knowledge and Skills Acquisition), ii) Practice Patterns and Services (Structure and Organisation and Patient Management) and Professional Ethos (Communication and Professional Conflict, Awareness of, Attitude and Behaviour towards PP ICU Physiotherapists, Autonomy and Scope of Practice, Ethics).

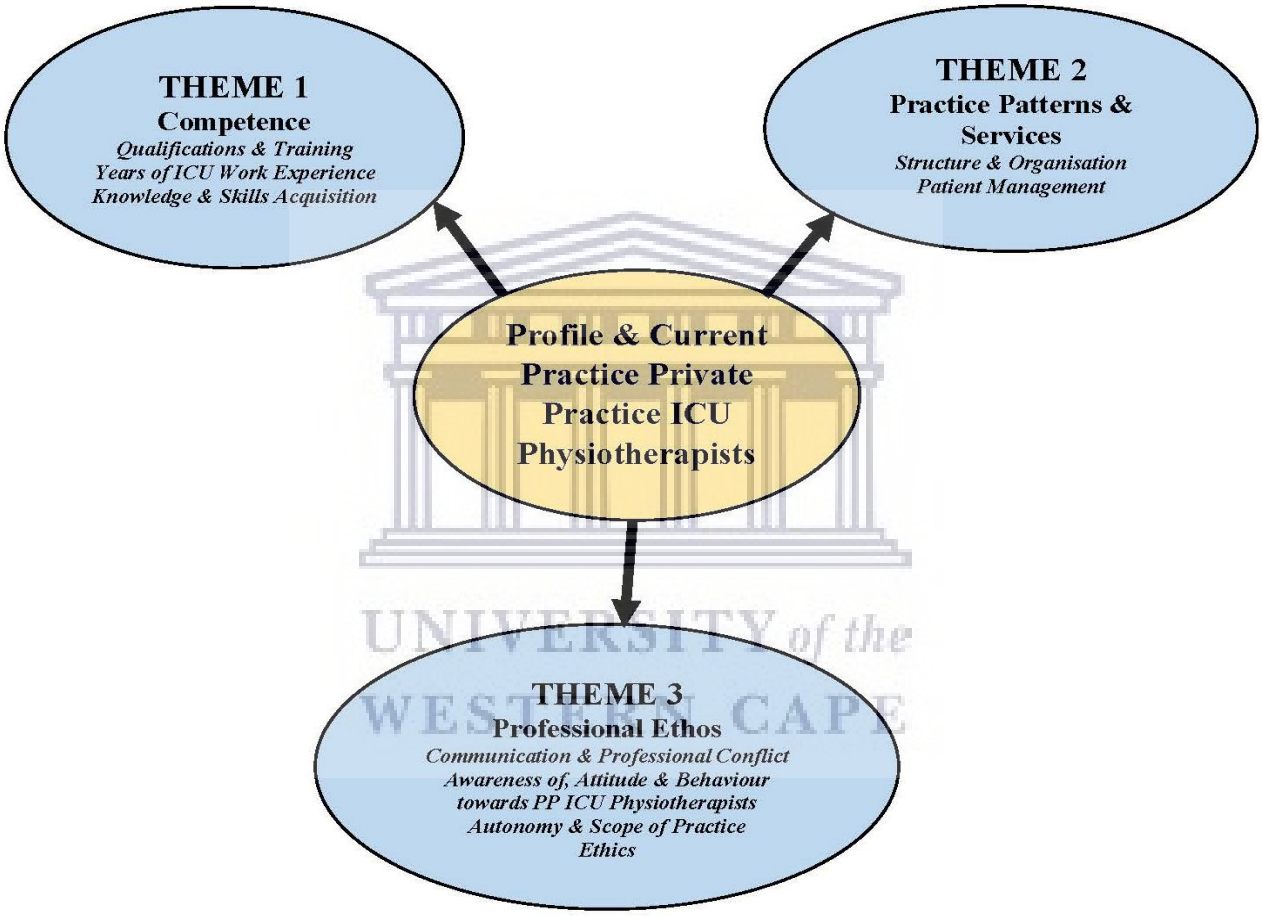

Figure 3.1 Three Major Themes and Related Categories

The subcategories for each category of each theme are tabulated in Table 3.3. A descriptive narrative of the themes, categories, subcategories and substantiating quotes follow the table.

Table 3.3 Themes, Categories and Related Subcategories

THEME 1 COMPETENCY	THEME 2 PRACTICE PATTERNS & SERVICES	THEME 3 PROFESSIONAL ETHOS
1. Qualifications and Training	**1. Structure and Organisation** i) Private ICU and Physiotherapy Practice Environment ii) Resources iii) Referral Patterns iv) Workload and Time Spent in ICU v) Multidisciplinary Team Work vi) Discharge Planning and Follow-Up vii) Documentation and Administration	**1. Communication and Professional Conflict**
2. Years of ICU Work Experience	**2. Patient Management** i) Patient workload ii) Treatment Activities, Treatment Frequency and Time ii) Prescription of Treatment Activities and Frequency iii) Evidence-based Practice: Use of protocols and outcome measures	**2. Awareness of, Attitude and Behaviour towards PP ICU Physiotherapists**
3. Knowledge and Skills Acquisition i) Peer and Individual Learning ii) ICU Training Courses ii) ICU Induction and Orientation		**3. Autonomy and Scope of Practice**
		4. Ethics

3.3.2.1 Theme 1: Competence

The competence of the private practice ICU physiotherapists is described under the following categories namely the qualifications and training, years of ICU work experience and knowledge and skills acquisition gained through peer and individual learning and teaching, ICU training courses attended and ICU induction and orientation conducted in the private ICUs and physiotherapy practices.

3.3.2.1.1 Qualifications and Training

The private practice ICU physiotherapists graduated from different universities in South Africa at different times and therefore reported having different years of general physiotherapy and ICU-related work experience in particular.

*P1: "I studied at the University of **Pretoria**. "*

*P3: "I studied at **WITS** at graduated in 2009."*

*P10: "I studied at **UWC** as well. Also did a refresher course."*

*P12: "I graduated from **UCT** in 2012 with a BSc degree in physiotherapy…"*

*P14: "I did my undergrad at **Stellenbosch** University and I graduated in 2014."*

*P15: "I studied in **Bloemfontein.**"*

3.3.2.1.2 Years of ICU Work Experience

Private practice ICU physiotherapists had varying years of experience in private ICU practice ranging between 1 and 24 years.

P4: "This is my first year in private practice. I'm fresh from community service."

P5: "I qualified 24 years ago. I have ICU experience for 23 of those 24 years…"

P7: "So it's my 13th year experience working in the ICU."

P9: "… I'm a 6 years, yah or 5 years of those are worked mostly in ICU…"

P10: "11 years…think the last six or seven years has been mostly ICU and medical. Before that it was all over mixed with ICU."

P16: "I've worked this particular ICU for 19 years now."

P15: "I came into private after community service, but I've been working for two years now..."

P17: "I've been in ICU four and a half years, as long as I'm working here yah."

The majority of the physiotherapists working in the private ICUs had prior ICU experience in the government sector whether it was just for a year during their community service, or for a period after this and all had experience as permanent or locum PP ICU physiotherapists. A few PP ICU physiotherapists also reported having ICU work experience in private ICU physiotherapy practice before going to work in the public sector but were continuing with private ICU practice through weekend locums.

P4: "This is my first year in private practice. I'm fresh from community service."

P15: "I came into private after community service…"

P12: "I worked in private practice before I worked in government hospital and I have worked with the university regarding research and locum for a private practice over weekends as well."

While some worked in specific types of ICUs, others also explained that they sometimes worked in various types of ICUs in one or more private hospitals and therefore had experience working in a variety of types of ICUs.

P10: "11 years…think the last six or seven years has been mostly ICU and medical. Before that it was all over mixed with ICU."

P13: "I am based at a neurological practice so most of my patients have neurological conditions……"

P15: "But in our practice we only work in a general ICU……"

P16: "I've worked cardio-thoracic at Panorama, uhm at N1 City, I've worked ICU at Constantiaberg, Mediclinic, also at Two Military Hospital, and Tygerberg. We have surgery, we have medical, um we have urology, argh we have orthopaedics, neuro. We basically take everything in that ICU except cardio-thoracic."

While some PP ICU physiotherapists felt that undergraduate training and qualification should be sufficient experience to work in the ICU and manage private ICU patients and were encouraging of physiotherapists going to work in private ICU settings immediately after community service, they further elaborated and explained that courses and further training would however allow these new graduates to have better knowledge and skills or experience to work and effectively manage private ICU patients. The latter would be especially beneficial when having to manage more complicated and complex private critical care or ICU patients.

P12: "In my opinion any undergraduate should be qualified to work in the ICU. They will come in an ICU and be able to identify what their pre-cautions and contraindications are provided they are trained well and then the rehabilitation becomes straight forward. I think that the more years of experience you have and the more courses you have under your belt would make you more confident in the ICU setting, because situations never present to you like a textbook and perfectly. I feel though it does come with experience. I would encourage a community service therapist who comes straight out of university to work in the ICU, however for more complex patients and complicated cases I do feel as though it would be more beneficial to have years of experience under your belt and courses."

P13: "If you do not have an understanding of your pre-cautions and contraindications then you are actually putting your patient at risk. Yet, I have found that there are therapists in practice who do not do that and understand basic pre-cautions and contraindications and it's not to stay that you need specialised training I think you just need to know what you were taught in undergraduate training."

P14: "We were only trained in the one field, so either you were placed in a burns unit, or a surgical unit, or a neuro unit, so you spend your block there and then suddenly when you have to go out into the world it's quite different and also uhm moving from the government sector to the private sector, like some of the machines and what not you don't even know how it works because you've never t seen that."

Some however felt that undergraduate ICU training was limited as they were only placed in one type of ICU during their student training and felt that there were not enough clinical skills that were developed during undergraduate ICU training and that the information learnt has become outdated.

P13: "…the only teaching was a 6-8week ICU block in university, as part of my training."

P21: "I think there's not enough uhm clinical skills developed in the ICU in the undergrad."

P14: "We were only trained in the one field, so either you were placed in a burns unit, or a surgical unit, or a neuro unit, so you spend your block there and then suddenly when you have to go out into the world it's quite different…"

P17: "But a lot of what we learnt is out dated and we have to keep we have to keep doing our own research…"

3.3.2.1.3 Knowledge and Skills Acquisition

There seemed to be an emphasis placed on the acquisition of knowledge and skills through a variety of different methods such as peer and individual learning, ICU training and ICU induction or orientation. While some explained how their peers (practice owners or more experienced staff) assisted them in gaining knowledge and skills in working in the ICU,

P16: "My colleague and I, then and if we really got some things that we think that's new, that's something that will be interesting …we'll send out an email to our locums and say ok just look, we came across this course …".

P19: "…my employer at the time basically took me under her wing. She had a lot of experience with CPRG and she was a member of the CPRG group as well and basically she relayed that practical experience and implementation over into me…"

others described that individual reading and research, participating in journal clubs or tutorials and that published research by research physiotherapists, was used as a means of improving knowledge and skills and served as a guide in treating patients.

P7: "We also, in that ICU forums we try to do it every year. I did it last year and I did it this year. We present from ICU's the latest evidence. After our refresher course we come back and present to the hospital to all the doctors…"

P7: "So you know doing our own research and reading up quite a bit, and then also trying our best. We didn't in the past, we lacked a bit, we trying now so every Wednesday we started doing our tut sessions where we help each other."

P17: "…we have to keep doing our own research…"

P9: "Uhm so twice a month we've got an ICU forum. So that's where doctors usually discuss the patients in ICU or they do a tut session or like P7said they discuss the latest evidence."

It was clear that private practice physiotherapy employers believed strongly in continuous learning and training in order to improve their knowledge and skills and encouraged and motivated their employees to attend courses that were directed towards self-development. There was a general sense that continuous training, learning and self-development was important for working in the ICU and being able to effectively and efficiently manage ICU patients in the private sector. The physiotherapists believed that by attending courses they would learn about the latest evidence and implement this evidence during ICU patient management.

P20: "We do encourage them to go on courses but we also don't want to feel limited to ICU only, obviously they all have an ICU mind set and that's why they working for this practice but I think we have encouraged them to go on courses in whatever area they feel they want to learn. That was the expectation, they wanted it to be evidence based and at the moment in the practice there are four of us, one is the boss, and there four of us that work there, well one is the community service physiotherapist and the other three, one is doing their masters, I am doing my PhD and the other is busy with CPT 1 (cardiopulmonary training 1) course. So, I think that's what they expecting from us, to be learning."

P14: "… I'm finishing my masters at the end of this year, but it's in neonates, neonatal so it's not adult ICU."

i) Peer and Individual Learning

Some private practice ICU physiotherapists described that they gained experience and confidence to work in and manage private ICU patients from their colleagues or the practice owner/boss. In most cases the practice owner was deemed to have more experience than staff members and would serve as mentors by guiding and supervising new employees who are perceived as not being as confident with the treatment of patients in the ICU setting. In addition, the practice owners or more experienced private practice ICU physiotherapists relayed knowledge and provided the new private practice ICU physiotherapists with feedback regarding ICU patient treatments and progress so as to improve their skills and also in turn assist in ensuring patients received the best possible care in the ICU. The physiotherapists explained that their ICU work experience, knowledge and skills and confidence improved in this way.

P15: "My colleague she is a ICU physio; she has a lot of training in that. So I'm getting all the knowledge from her."

P19: "…my employer at the time basically took me under her wing. She had a lot of experience with CPRG and she was a member of the CPRG group as well and basically she relayed that practical experience and implementation over into me..."

P17: "They wouldn't put us in ICU, like uhm when I started, I wasn't as confident in ICU, so my boss who was supervising me, seeing patients with me in ICU. Also it can be intimidating if you are not experienced with it, so she got me used to it, used to ventilators and all of this and uhm that's about gaining confidence and yah…So she guided me through it."

There was also a general importance related by the private practice ICU physiotherapists to improve knowledge and skills in ICU patient management through individual learning and learning and learning in groups such as reading and researching on their own, creating and participating in journal clubs and tut sessions or forums to gain additional knowledge about new evidence in ICU physiotherapy patient management and improve on ICU patient management skills. The use of published research by research physiotherapists, was also used as a means of

improving knowledge and skills and served as a guide in treating ICU patients for the private practice ICU physiotherapists.

> *P21: "So the thing that we use the most is that early mobilisation table from Prof Hanekom that she brought out in I think 2008, but yah it was like her basic uhm initial groundwork that she did for early mobilisation, so we use that a lot."*

> *P9: "Uhm so twice a month we've got an ICU forum. So that's where doctors usually discuss the patients in ICU or they do a tut session or like P7 said they discuss the latest evidence. The whole team is there from the pharmacist to the nurses to the physios, and all that. so the hospital is very good at that…."*

> *P7: "So obviously in the beginning there wasn't a lot of training modules or courses or anything like that so old school you had to it by yourself. I am constantly researching, finding new ways for the practice to go forward, things like that. And also have been attending the ICU courses that SASP society have been giving uhm so you know doing our own research and reading up quite a bit, and then also trying our best. We didn't in the pass, we lacked a bit, we trying now so every Wednesday we started doing our Tut sessions where we help each other."*

> *P17: "...we have to keep we have to keep doing our own research and I don't think a lot of us do our own research…I'm reading an article on uhm the efficacy of IPPB."*

ii) ICU Training Courses

While there was general variability in the ICU-related training courses participants participated in, the ICU refresher course run by the Critical Care Society of South Africa (CCSSA) seemed to be quite popular followed by the post-graduate Cardiopulmonary Rehabilitation 1 (CPR1) Course run by the CPR Specialist Interest Group under the South African Society of Physiotherapy. The private practice ICU physiotherapists were also actively involved in degree programmes that included conducting research in the areas of ICU and cardiopulmonary physiotherapy.

> *P1: "About four years ago I did a post grad course in chest physiotherapy (CPT 1)."*

> *P14: "I did a refresher ICU course, just a local refresher course and I'm finishing my masters at the end of this year, but it's in neonates, neonatal so it's not adult ICU."*

> *P15: "I just went with one of my colleagues to a refresher course …. that was two years after I've done university so it was still very fresh."*

> *P16: "And at the end of this month I'll attend the CCSSA ICU refresher in Muldersdrift. And then this is just what I try to do on a yearly basis, I try and attend the thoracic society conference or I do the CCSSA conference or just any ICU courses that come up or respiratory courses that come up so I do try and attend as many of these things as I can afford or can get to."*

P20: "... at the moment in the practice there are four of us, one is the boss, and there four of us that work there, well one is the community service physiotherapist and the other three, one is doing their masters, I am doing my PhD and the other is busy with CPT 1 (cardiopulmonary training 1) course. So I think that's what they expecting from us, to be learning. "

P21: "So I've just, I've just done like cardiorespiratory refreshers, I've done two different refreshers with Wilma Erasmus uhm, and then like I've done a WCPT last year, I did all the cardiopulmonary stuff."

However, a few of the private practice ICU Physiotherapists stated that they or maybe the locums have not completed many, if any ICU related training courses.

P2: "I graduated from WITS and have been working for about 11 years so in terms of ICU I haven't actually done many courses."

P4: "I'm fresh from community service. I haven't done any ICU courses."

P8: "Uhm I'm busy with my masters but more in sports so not very much focused on ICU at all."

P17: "No ICU specific yah, but I have done uh basic CPR yah."

P13: "I have not done any specialized course with regards to ICU, the only teaching was a 6-8week ICU block in university, as part of my training. I have intermittently worked in the ICU setting since graduation."

P15: "And then you need to get a locum in and sometimes the locum that is available to help you is not ICU trained or not used to working in the private ICU."

Others explained that there were however not very many available ICU related training courses for physiotherapists and that they had to provide training through inviting speakers to do ICU training workshops or courses. Participants also felt that the refresher ICU courses were not always sufficient or relevant and wanted ICU physiotherapy-related courses that involved more hands-on training in the management of ICU patients. In addition to this, some felt that ICU courses were more textbook based information and less practically inclined and that information presented at the refresher courses was not beneficial since the majority of times physiotherapists would already be aware of the information that was being presented.

P13: "I try where I can to do ICU stuff. There aren't that many from a physiotherapy specific point of view."

P16: "My colleague and I, then and if we really got some things that we think that's new, that's something that will be interesting and we really just need to…concentrate on this or that a lil bit more then we'll send out an email to our locums and say ok just look, we came across this course and this and that came up and we'd like to spend more time on that…"

P10: "I think there should just be a lot more courses for ICU in Cape Town."

P7: "So obviously in the beginning there wasn't a lot of training modules or courses or anything like that so old school you had to it by yourself. I am constantly researching, finding new ways for the practice to go forward, things like that. And also have been attending the ICU courses that SASP society have been giving uhm so… But to be honest when you go there you know that stuff already because of your experience so I don't know how it's a surprise to some people. I had to arrange our own course one day, we got a clinical trainer of ICU to come and give us a talk and he spoke about medications, inotropes and all those things you know, so it was very insightful you see, but now it's to have that refresher course every time because you don't always get to."

P14: "So even though it helps to do those courses I haven't yah heard of someone who found it really helpful in terms of practical tips or hands on course it's mostly like informative stuff it's not really hands on where they teach you like new techniques and things like that so I do think there is like a gap for a bit more hands on practical training on yah."

iii) ICU Induction and Orientation

The private practice ICU physiotherapists explained that they received induction training or orientation from their superiors when they were initially employed. This orientation would range from a morning session to a full week focusing on the doctor's method of referral, the process of documentation in terms of patient notes and medical aid tariff codes, implementation of protocols, and basic information regarding how the practice itself and how the hospital and ICU was run since there were cases when physiotherapists reported that ICU settings differed considerably in terms of protocols and equipment (for example ventilators). The organisation, unit protocols, documentation and administration processes and where to find equipment or consumables in the units were explained and shown to them by the practice physiotherapists. Sometimes they also were guided by the doctors and nurses in what specific protocols had to be adhered to when working in the ICU. The induction and orientation from other physiotherapists in the practice or doctors and nurses was regarded as an important part of learning and understanding the structure,

organisation and functioning of both the physiotherapy practice and the ICU setting and allowed them to gain confidence in working in the setting.

> *P18: "I got trained for a week and received orientation for a week and got to learn how they do things and how the different doctors and protocols work…"*
>
> *P16: "I'll spend the morning orientating them there (ICU) in terms of exactly how the documentation works and where everything is stashed and where and how…and how the doctors will refer, and where to look for the x-rays and we spend time familiarizing them with the environment and then I put…I basically check up on them…their treatments afterwards, their notes, their codes, and I get feedback from the staff."*
>
> *P15: "Everything is different, everything. The protocols are different and the rules in the ICU, and all of those physios helped me and gave me some advice and they taught me where is this, where is the medical room, where is the clean linen. So they gave me some guidance as well."*
>
> *P17: "They wouldn't put us in ICU, like uhm when I started, I wasn't as confident in ICU, so my boss who was supervising me, seeing patients with me in ICU. Also it can be intimidating if you are not experienced with it, so she got me used to it, used to ventilators and all of this and uhm that's about gaining confidence and yah…so she guided me through it. So until you feel confident and we see that you confident we won't put you in the ICU. We won't just throw you in there."*

3.3.2.2 Theme 2: Practice Patterns and Services

3.3.2.2.1 Structure and Organisation

The PP ICU physiotherapists explained how the structure and organization of the private ICU and private physiotherapy practices were different between hospitals. They explained how the structure and organisation affects their current practices within the private ICU setting. They highlighted specifically the ICU and physiotherapy practice environment including the availability of resources such as equipment, staffing and medical aid funds, referral patterns, workload and time spent in the ICU, multidisciplinary team work, discharge planning and follow-up, documentation and administration within the private ICUs and private physiotherapy practices.

i) Private ICU and Physiotherapy Practice Environment

The PP ICU physiotherapists explained that the **setup of ICUs** differed within the private hospitals, between ICUs and between hospitals. In some private ICU settings, each patient had their own

nurse dedicated to the provision of care for that patient, whereas in other ICUs the issue of understaffing especially the availability of nurses was identified as a challenge for adequate ICU patient care. Bed numbers per ICU varied and some ICUs or hospitals had step down facilities while others did not. In addition, there were ICUs which did not have a dedicated intensivist and were open units, while others had a dedicated intensivist and were closed units. The PP ICU physiotherapists reported that the intensivists in the ICU or ICU directors could be either pulmonologists, surgeons, physicians, or anaesthetists. There were different types of ICUs in different hospitals including medical, surgical, neurological, neonatal/paediatric and cardio-thoracic ICUs, with the majority reporting working in general mixed ICUs.

P20: "…it's a 15-bed ICU, with a 15-bed high care."

P14: "Each patient has their own sister (nurse)."

P17: "The nurses will be there on a 12-hour shift and they will re-position, they will do their 2 hourly turns or whatever."

P19: "Where I worked in (name of hospital) we were very understaffed (nurses)…"

P14: "…our ICU only consist of 11 beds so it's not that big of an ICU…"

P20: "The intensivists who we work with are the pulmonologists…," "*…our ICU is closed and that's why our set up is the way it is, it's run by our ICU director who is the intensivist and pulmonologist and so all those patients in that unit is his…"*

P16: "What's nice about where I am, is that we have a step-down facility that quite a few of our long-term patients can go to. Yes, it's either they go home and then get followed up as an outpatient if we deem necessary, or they go to the step-down facility in which case the physios there will continue."

P21: "We got multiple ICU's and they are serviced by multiple doctors…"

P13: "I am based at a neurological practice so most of my patients have neurological conditions…"

P20: "We do have some paediatric beds in the ICU…"

P15: "But in our practice we only work in a general ICU…"

P16: "We have surgery, we have medical, um we have urology, argh we have orthopaedics, neuro. We basically take everything in that ICU except cardio-thoracic."

The ICU was perceived as being a very busy and complex environment with complicated cases and severely ill patients such as mechanically ventilated patients and paediatric liver transplant patients. In the ICU a variety of healthcare professionals were reported to work together towards patient care. The ICU was seen to be intimidating by some and an area of care presenting a variety of challenges that was perceived to affect physiotherapy practices and workload as perceived by others. Some challenges were reported with regards to how the ICUs were managed and functioned such as infection control protocols, staff breaks, patient resting time, visiting time and the different healthcare professionals treating a patient that would affect physiotherapy treatment and timing of treatments around this multidisciplinary patient care. Other challenges also included the lack of staffing especially nurses and also the perceived protective nature or atmosphere of the ICU environment. The ICU was considered to be a setting that was very protected in the hospital in terms of how patients were managed, how procedures were performed and how the unit operated and was perceived to affect the practices of physiotherapists, the time spent in the ICU treating patients and/or limit the role of physiotherapists in these ICUs in patient care.

P17: "Also it (ICU) can be intimidating if you are not experienced with it (ICU), …"

P15: "Sometimes you have three or more vent (ventilated) patient's…."

P20: "… our paediatric patients are very sick, mostly liver transplant patients…"

P5: "Yes, ICU patients demand extra attention because of the additional contraptions that are attached to them, ventilator patient's take longer you have to look out for complications especially when mobilising…"

P14: "*… we do have resting times in the ICU." "In terms of challenges, one challenge that we find in the ICU is uhm not going on in terms of patients needing to go for x-rays, they need to have this, there's doctor's rounds, then dietitian rounds, so for you to find that half an hour or 45 minutes to see your patient effectively that is sometimes quite pushed so that's the only thing…yah, to find the time to treat your patient effectively that's sometimes a challenge yah."*

P21: "Uhm so there'll be loads of things going on like doctor's rounds, and washing, and turning, and things like that and uhm they almost unaccepting for us to try and work like at the same time as them. So, I would say that treatment timing is really, really tricky …"

P15: "So some of the patients have walked with the assistive device before and now they have to mobilise and they not allowed to (due to infection control protocols) so we have to only use that trolleys next to the bed. It's a challenge because we are all struggling with that and I think, but, it's the unit manager…it's their…yah…personal choice I think because of the rules in the unit. There is a hoist...but we are allowed to use the hoist in the infection room but then you are not allowed to take it to the other patients, but then if you are done with that, it's been cleaned, and then you can use it with another patient. So why are you not allowed to use assistive device, a new one with a patient."

P20: "… a challenge is our patient's in the ICU, we are not allowed to see them between 12 and 2 o clock because that is their resting time and between 2 o clock and 3 o clock is visiting time. So basically for our afternoon session we have only between 2 o clock and 3 o clock so if you have more than two patients that makes it quite difficult because then, yah, we either, hopefully one of my colleagues can come and help me or we have to go back at 4 o clock so that's quite a challenge at times."

P19: "Where I worked in (name of hospital), we were very understaffed

P4: "I also think there's a lot of external factors like first, I like to first do all ICU patients in the morning, so nurses are there, there's no tea breaks, or family visiting, and these are contributing factors, you have to the amount of time it takes, you have to either wait or come back and it adds to the time that you spend with the patient.

P21: "…from 11 the families come in and we're not allowed to see the patient again until 2 so families I think from 11 till 12 and 12 till 2 is resting time, no one allowed in there. Uh and then when we finished in the practice a half past four and need to go do bi-daily, it's visiting time again and can only get in there at after 5 and then it's supper time at the hospital at 5."

P14: "Uhm, yah so a big thing in my short career is what I picked up from a private setting because I have worked in other settings as well is that everything comes down to management. If management is run in accordance to health regulations and you have got your HR policies correct then everything falls into place. If unfortunately, you try and take a short cut and I mean we have a lot of "rotten apples" and unfortunately when that happens things don't necessarily go according to plan.

Some explained that the ICU was considered a unit where everything had to be safe and that nurses and physiotherapists were afraid that nothing should go wrong and took extra care and precautions within the setting when managing patients to maintain patient safety.

P7: "But yah so the challenge then there is sometimes either we are too afraid to take a risk, or in ICU they are so protective because it's an ICU set up they can't afford for anything to go wrong…"

P7: "You have to go through everything basically, so yah you need to make sure it's safe enough to do certain things so you have to go through everything there as well especially with ventilated patients."

P12: "So the ICU patients have a worse condition and you spend more time preparing, checking things like lines and making sure the environment is safe… ". "I try my best to assess new patients when the doctors are around to discuss … When it comes to treatment, I find it essential that the nurses are around because a lot of my patients are quite unstable medically, so are they on inotropes or other medication that cannot be stopped during therapy because we don't want to put them at risk at all." "Most often the nurse manages to assist, to ensure patient safety…"

P16: "There's a difference between an outpatient physio and an ICU or hospital physio. You have to approach your patients very differently because they much more frail and sick."

P15: "I have to sometimes try to get one of the physios to help me to mobilise uhm sometimes you leave it because you cannot… you cannot mobilise the patient if it's too dangerous."

Relating to the **setup of private physiotherapy practices**, most respondents said that they provided physiotherapy services in the ICU, wards as well as on an outpatient basis while some only did hospital-based work and treated only patients in hospital including ICU and not outpatient patients. The PP ICU physiotherapists reported different structural and organisational practices. Some had certain employees who worked only in the ICU, some only in the wards, and a select few only treated outpatients within the practice itself. Other physiotherapists reported that they played only a supervisory role within the ICU setting where the ICU physiotherapists were assisted and guided in their patient management in the ICU. Regarding manpower or staff resources, most practices indicated that they had a sufficient number of physiotherapists employed and the rationale for this was to ensure that no treatment sessions were rushed and that all patients received the best possible care. Private practice ICU physiotherapists were either owners of the practice of worked for the owners of the practice. While some PP ICU physiotherapists were paid a fixed salary, others obtained a salary dependent on commission related to patient numbers depending on the practice they worked for.

P15: "My colleague is ICU trained so she is very good in ICU, and then my boss, she only works in practice, so she works in ICU when it's her weekend on."

P16: "I have a hospital-based practice; I don't see outpatients at all. And then we have weekend locums who help us over weekends."

P13: "As a practice owner they are running a business, … I am just an employee working for someone…"

P20: "But the way that it is set up is that we have full time physiotherapists there (in ICU), I am there (in ICU) as well, but I am more there in a supervising role so I don't treat that many patients however I do attend ward rounds and supervise the physiotherapists and sort of guide them towards their treatment, but they are the ones who do the treatment. One is there from 7:30am – 4:30pm in the ICU and the other has a brief period in the orthopaedic ward then she is in the ICU."

P1: "I think we quite equipped for our patient number. So the amount of physiotherapists to patient ratio, I think we are fine and if we need help we call for help. We want to give the best physiotherapy treatment."

P10: "I think that we adequately staffed, we don't, we try not to overload anybody with patients so you can give your best to each patient."

P5: "I think the idea of having as many physiotherapists in our practice is that every patient gets a good quality of treatment so that we don't have to rush. We do have the odd day where we are a bit crazy but on average our physiotherapists see ten patients per day. At least five physiotherapists are involved throughout the hospital and all are involved in ICU."

P7: "From a business only point of view and what you trying to do in hospital, so observing and seeing the people in the past that work on commission base, that incentivises them to see more people ... But the three people that's dedicated to work in hospital here, are on fixed salaries …"

In most cases, the PP ICU physiotherapists worked and were on call over weekends as well and had locums available who provided physiotherapy services over weekends in ICU.

P5: "I have this locum that comes in every weekend so I don't have a problem…it's brilliant."

P15: "And then you need to get a locum in…"

P16: "And then we have weekend locums who help us over weekends."

P17: "We are four physios and we have two to three locums who will help us on weekends."

In private practices where new locums were employed, one participant indicated that there were instances when these physiotherapists were not necessarily ICU trained and would require orientation and even if they were ICU trained, there was no guarantee that a newly employed locum would effectively treat these critically ill patients.

P15: "And then you need to get a locum in and sometimes the locum that is available to help you is not ICU trained or not used to working in the private ICU."

ii) Resources

Resources discussed included staffing, equipment and availability of medical aid funds. The PP ICU physiotherapists mainly reported having enough **physiotherapy staff** to effectively treat all patients but stated that sometimes the availability of nurses were limited and this affected the assistance physiotherapists could obtain when treating the ICU patients while **other members of staff** like doctors do not assist physiotherapists in the ICU with patient handling. The lack of assistance especially from nurses in some instances made it difficult for the PP ICU physiotherapists to implement evidence-based practices such as early mobilisation where transferring ventilated patients proves to be a challenge and requires more than one healthcare professional (additional nurse or physiotherapist) to manage the patient. However, there seemed to be a situation where the physiotherapists would help the nurses or each other with patient management.

P1: "I think we quite equipped for our patient number. So the amount of physiotherapists to patient ratio, I think we are fine and if we need help we call for help. We want to give the best physiotherapy treatment."

P10: "I think that we adequately staffed, we don't, we try not to overload anybody with patients so you can give your best to each patient."

P19: "The unfortunate part of the hospital that I am working in is that there is a problem with staff (nurses) so a lot most times we would be understaffed (nurses) and the staff that you have don't necessarily know their scope of practice…". "Okay, so I would change the staffing setting. In my idea the perfect setting is 1 sister to 1 patient."

P19: "When we are staffed the way we are supposed to be staffed everyone knows their job and even then the physio comes and puts the patient back into bed unless on their instruction wants to do more things with the patient maybe as a bi daily treatment and put the patient back into bed. That's purely on staffing and the number of patients."

P16: "The normal you know nursing and staff issues…where there is just not enough hands for the work that needs doing or to mobilise someone difficult where you can't do it yourself…"

P15: "I have to sometimes try to get one of the physios to help me to mobilise uhm sometimes you leave it because you cannot… you cannot mobilise the patient if it's too dangerous."

P14: "In terms of the doctors, they don't help us hands on…"

P21: "Because I think the progression in physios requires more than one person in terms of mobilisation and things like that and there's really not enough support for what we wanna do that is evidence-based, so that's just yah". "With the ventilator, who's gonna take the ventilator and who's gonna take the other side of the patient you know what I mean so it's a huge…"

P13: "The nurses, I find that to be a major component if they can be involved, I find that it's empowering for the nurses and makes the whole treatment session a lot easier with two sets of hands to mobilise

P7: "We always assist…I think the nurses know us already so when they see us they use us as the opportunity to turn the patient, or to wash the patient so then that's when they doing the turning of the patient."

With regards to resources such as **equipment** most of the participants reported that assistive devices such as crutches, orthotics and walking frames would be ordered and purchased from an orthotist when required. Resources such as the amount of **medical aid benefits** were reported to be a challenge. Some patients' medical aid did not cover assistive devices or other exercise equipment; thus, the physiotherapists made a financial loss on issuing equipment to patients who could not pay for them. They therefore no longer bought and kept equipment for distribution but referred the patients directly to the suppliers and only kept equipment for the purpose of training the patients during treatment. In addition to this the hospitals pharmacy refused to purchase BIRD IPPB devices since research was not available that supported the use thereof. Materials required to make PEP bottles for breathing exercises and suction catheters for suctioning would be provided by and obtained from the ICU.

P6: "In terms of resources we have what we need and it's readily available and there's very seldom a shortage in the practice."

P17: "…we have our own assistive devices so we normally keep a few in the ward, but that's just to, for them to work on so long. Or to assess how they will be, do they require one, so there's a walking frame, there's a rollator, there's crutches, there's everything in the hospital, but it's ours."

P9: "With like crutches and walking frames and things we get the orthotist, that's the word, so we get them coming to assist so we evaluate and we do the treatment of the patient with the assistive device but they (orthotist) issue it. We outsource it."

P7: "Yah we buy our own and we issue. There was an issue obviously on how to, at the moment what we do we actually losing out on it because it's difficult still with the nappi codes and the medical aids because with some people it comes from their assistive devices benefits but not all people have that option attached to their plan so at the moment they technically getting it free and it's a loss to the practice. Even the BIRD (IPPB) Circuits, the pharmacy doesn't supply. Because the pharmacist said there's no research to prove, and he's very research… that's why he's not gonna do it and (medical aid company name) also refused to pay because it doesn't fall part of their protocols."

P20: "Obviously we don't issue those as freely as we do those other things, purely because of the cost of the power breathes. I can't think of anything else really."

P20: "There are a lot of chairs so the patients' are positioned out of bed in lazy boys or arm chairs."

P1: "But sometimes in the hospital for example slings, they not the right size, or this, and then the nebs masks. I think the practice, yes we quite covered, but when it comes to the hospital side sometimes they just don't have crutches, or incentive spirometers and those are important things that you have to use and that's a bit of our challenge there. Also I'm an early bird, so then there's no suction catheters in the ward and you have to wait so those are the challenges you face and in an emergency you have to run to the next ward and the next ward, so in terms of hospital resources, yeah that's the issue. Especially in ICU, where you need suction catheters and because they trying to save money we need to go and collect so if they closed where do we get it from?"

P17: "There is a company, (company name) that uhm works at medical campus opposite, so whenever a patient there needs crutches or a walking frame we refer them to them and they bring it and they order it through the medical aid, uhm what else…yah the other stuff we normally order all of that. The only thing we really take from the hospital is suction catheters."

Despite the fact that the majority of private practices indicated that they had sufficient accessibility to equipment and resources at an organizational/practice level since they worked in the private sector, some however did report that they experienced some challenges at an institutional level. While the private physiotherapy practices had enough equipment, they reported that **hospital equipment stock** was sometimes limited. Some PP ICU physiotherapists expressed the need for a dedicated rehabilitation area where patients could be taken and treated accordingly and requested availability of equipment such as parallel bars, a treadmill, and an exercise bike. One reported that having an outside area to take patients, would also be good and therapeutic.

P1: "But sometimes in the hospital for example slings, they not the right size, or this, and then the nebs masks... when it comes to the hospital side sometimes they just don't have crutches, or incentive spirometers and those are important things that you have to use and that's a bit of our challenge there. Also I'm an early bird, so then there's no suction catheters in the ward and you have to wait so those are the challenges you face and in an emergency you have to run to the next ward and the next ward, so in terms of hospital resources, yeah that's the issue. Especially in ICU, where you need suction catheters and because they trying to save money we need to go and collect so if they closed where do we get it from?"

P19: "Resources maybe if some of the ICU settings can have a rehab room or even just a place with a parallel bar or some type of cardio uhm testing or work station or something like that. Not always in ICU when you have that one patient is able to be tested and push and you can go and take him anywhere you know what I mean."

P17: "One big thing is we need a physio area. When I say a physio area I'm being very broad, but I think we need a physio uhm area with an exercise bike, with parallel bars."

P7: "I think I find a challenge is we don't have a dedicated space in the hospital to do our rehab education you know. I'm trying since I've been in this hospital to get a space, and I always said it's not just for the physio's, I think it's for everybody. If they can put whatever, a treadmill, a bobath plinth so we can do certain things, all of those."

P16: "One thing that I find that I really, really miss is that before they started building at our hospital, we had little gardens with sitting areas where we could mobilise patients. Now we haven't got any of that and patients would even ask me is there not a place where we can go outside, and I really miss that. I think that any, that any unit should have, any hospital should have a little outside area where patients can go outside."

There were also reported shortages of basic resources and equipment at times within the ICU, such as incentive spirometers, suction catheters, lazy boy chairs, crutches and walking frames that affect the physiotherapeutic patient management to be rendered.

*P21: "Resources, I would definitely think that we would need more lazy boys, more walking frames, uhm it's just like argh, we don't need fancy equipment. So we don't have any assistive devices that are on hand for us, secondly uhm yah as I say think like uhm lazy boys..Doctors say mobilise mobilise. We've got a post laparotomy, they can't really sit in a hard chair uhm and there's only three chairs in the whole ICU of however many uhm..and we can't get them up so uhm basic equipment *laughter* but uhm not enough."*

P1: "I think the practice yes we quite covered, but when it comes to the hospital side sometimes they just don't have crutches, or incentive spirometers and those are important things that you have to use and that's a bit of our challenge there."

P20: "Our kids are post-surgical and we have realised its actually quite difficult to position the kids because most of the chairs that are available for them are those plastic ones so we have spoken to the orthotists that we deal with at the hospital so they are trying to design a toddler type of lazy boy chair, but we deal with what we can even if we have to put a few pillows on the lazy boy and try and position like that, but we are working on it."

Furthermore, the lack resources such as **medical aid funds** presented to financial challenges faced by ICU patients and the PP ICU physiotherapists as it affected the treatment in terms of the amount of treatment sessions and the frequency of these sessions that could be provided by the PP ICU physiotherapists to these private ICU patients to achieve appropriate patient outcomes. It was reported that the majority of medical aids had limits regarding the frequency that certain treatments could be conducted, and some covered only specific type of treatments. Even in the event when medical aids covered physiotherapy, pre-authorisation was required before treatment could commence to ensure that the specific treatment technique was covered by the medical aid. It was also reported that only a certain amount of medical aid funds is available for physiotherapy services. In some cases, funds would be exhausted or physiotherapy treatment was not covered by the medical aid thus compromising patients' treatments since some patients would not have funds available on hand to pay for the treatment and may therefore decline physiotherapy. Thus limited amounts of treatments due to the availability of medical aid funds and the types of treatments funded by medical aid funds available affected the accessibility to ICU physiotherapy care and the quality of this care beneficial to improve patient outcomes such as reduced chest complications and improved respiratory and physical function.

> *P5: "The other challenge, that I think as a private practice that we face now is that a lot of our treatment funders, medical aid tries to dictate what can and can't be done, how often it's done, and authorization, etc. and unfortunately the clinic that we are working at, the demographics and the funds are not easily available and has the ability to compromise your treatment and you need to tailor it according to that which we don't but it's something we need to consider."*

> *P17: "Yah because the medical aid doesn't pay then it falls on the patient uh the account has to go to them…do you have money for it, some of them do, some don't."*

> *P1: "So I spoke to the doctors and they said well medical aids are normally exhausted by the end of the CABG procedure and that's why there is no funding for them to do a follow up…"*

ii) Referral Patterns

There is no set referral guideline amongst private practice ICU physiotherapists and private practice ICU physiotherapists are reliant and dependent mainly upon referral from the ICU doctors, physicians, intensivists, surgeons, and even anaesthetists before they commence physiotherapy. Referrals are important for the ability of the private physiotherapy practice to maintain financial stability. Many have reported that they may not and will not treat ICU patients if they do not receive a written referral from the ICU doctor to them or their practice. While physiotherapists screened patients they would ask the doctor to refer the patient but could not rely on the referral coming to them as they stated that doctors referred to physiotherapy practices of their choice or to physiotherapists they already had an agreement with to refer patients. In most instances, doctors referred patients to their physiotherapy practice of choice and these referrals would always be written in a chart or the patients file and in some instances communicated verbally to these physiotherapists. The referral methods in ICU especially with regards to the latter where PP ICU physiotherapists reported to identify patients who would benefit from physiotherapy, but he/she could not treat the patient because it was another doctors' patient who did not initially refer to that specific practice or who had a relationship with another physiotherapy practice and would refer the patient to their practice of choice therefore presented a challenge to PP ICU physiotherapists and their referral system. The type of ICU patients referred was also dependant on which doctor's practices PP ICU physiotherapists had contracts with for example trauma, neurology or geriatric doctors or intensivists. Factors such as call days also affected the pattern of referral. In one neurological practice, the PP ICU physiotherapist reported that referrals at times were based on a first come first serve basis provided that the physiotherapist/practice confirmed with the doctor that the patient could be seen. In another practice, the PP ICU physiotherapists were given

permission by trauma surgeons to screen, assess and treat patients from the day of admission provided that these patients were stable and cleared for physiotherapy. Within the majority of the ICU settings no patient screening or individual assessment was permitted and in instances where physiotherapists were involved in screening of patients and identified any patients for physiotherapy, the doctor would need to be consulted and formally refer before the physiotherapists started treatment. Doctors referrals were also deemed necessary as the medical aids required that the patients are referred to physiotherapists by the doctors as pre-authorisation for physiotherapy treatment was required.

P17: "So it's normally…you have to entice the doctors for referrals."

P16: "So usually it's from the anaesthetist, sometimes the surgeon or the physician."

P18: "That's how it works, so it's up to the doctor, the doctor chooses the physiotherapist he wants."

P19: "Okay, so the referrals are from your physicians, from your specialists and it's always down to one of the doctors."

P16: "I'll never treat the patient unless the doctors either written it down or verbally referred it to me."

P10: "We are not allowed to screen patients in the hospital. You have your set doctors that will refer to you, but if any other doctor wants to refer to you out of your own, they can."

P17: "The geriatrician refers to us and he's one of our main referring…, The geriatrician, he will refer to us."

P5: "We do wait for the doctor's referral, unfortunately because it's a necessity from the medical aid and that's what determines the referral but we depend on either the intensivist, the physician or the trauma surgeon. Yes, we would, we do screen all patient's in the ICU's but we would only commence physiotherapy once the doctor has given the go ahead. However, there is a difference as far as trauma is concerned. We have consent from the trauma surgeons (about three of them) to assess and treat all patients from the day that they are admitted and obviously we treat them if they are stable enough or once they have been cleared for physiotherapy, but your general medical patients, we screen and often have to tell the doctor that this patient would benefit and then they would formally refer. But that is purely for medical aid purposes."

P17: "Uhm so there's some patients where I see a need already, but there's nothing I can do because it's not really my patient or my doctor ..."

P10: "We are not allowed to screen patients in the hospital. You have your set doctors that refer to you, but if any other doctor wants to refer to you out of their own, they can. Like sometimes we get difficult patients that won't let another group see…they send them to us."

iii) Workload and Time Spent in ICU

The workload of PP ICU physiotherapists varied amongst and within practices. While some physiotherapists work mainly in the ICU/s others worked in both the ICU/s, wards and/or outpatients. Workload is dependant or affected by referrals received, the number of beds to cover, the turnover of patients in the units, frequency of treatments per patient, type of patients seen (severely ill), assistance from nurses and physiotherapists available during mobilisation of ICU patients, the number of staff in the practice and ICU that can cover patients effectively and the documentation and administrative processes that are required in the private ICU and private physiotherapy practice.

P17: "So it's normally…you have to entice the doctors for referrals."

P5: "Yes, we would, we do screen all patient's in the ICU's but we would only commence physiotherapy once the doctor has given the go ahead."

P20: "In terms of the workload, it's a 15 bed ICU, with a 15-bed high care."

P19: ""Okay, so when it comes to ICU, the workload for me, and my experience over the few years, basically always the workload of ICU is much more to that in the wards. Where I worked in (name of hospital) we were very understaffed…"

P13: "All the info regarding their medical stability, chatting to the doctor or nurse if they are present."

P16: "Yah, that depends very much on work load which can vary a lot from day to day….mostly I spend a full morning mostly on the ICU, so let's say from half past seven until 12ish or half past 12 and then as my patients get better and progress onto the wards, I continue to see them on the wards, but they obviously don't take as much time by that time. In my unit, I mostly have quite a high turnover. "

P21: "We in there from about 07:30am to 09:30ish sometimes 10 with the different loads and if we got a bi-daily."

P15: "Sometimes you have three or vent patients and that even without the normal ICU patients that are not ventilated and then you didn't even see the patients in the ward yet. …coming in with the challenges of seeing all the patients, but now I need to go back and mobilise the patient back to bed even though they can almost mobilise by themselves."

P12: "I work in private ICU, and the load of ICU patients vary from between 5 – 10 patients treated bi-daily in the morning and afternoon."

P18: "We spend about 20-30 minutes with a patient if they are in ICU…Most of the time is spent in the wards."

P2: "If the nurse is more able and willing to assist you I find it more helpful and the time goes by a little faster and you able to be more efficient in the time."

P16: "The normal you know nursing and staff issues…where there is just not enough hands for the work that needs doing or to mobilise someone difficult where you can't do it yourself…"

P14: "If it's a difficult transfer case, they definitely assist us with us with that. We also have care workers in the hospital, ag, ICU who help us with those type of things (transfers and mobilisation)."

P14: "… admin wise we do notes in the ICU for the patients, as well as in our practice. Yah I would say my admin only takes me 30 minutes for the notes…"

P12: "In the ICU there is a lot of noting down and scanning that has to occur in file and there is a lot of detail to take into consideration in the ICU. The note taking takes 3-5 minutes as well.

Another challenge identified within the private ICU with regards to the workload and working hours of PP ICU physiotherapists was that the majority of the them stipulated the need for bi-daily treatments in the ICU setting with late call outs for these treatments. As a result of external factors such as visiting times and a high influx of outpatients to the practice, most often these bi-daily treatments were performed in the late afternoons and physiotherapists may not have planned for the additional hours of work.

P21: "In my practice one of the biggest challenges is when we are needing to do bi-daily's uhm we don't really have, we like full, full, full, in the practice and we've got pilates and that can…uhm it's often very late callouts like 6 or 7 because we haven't uhm almost budgeted for the second treatment and things like that."

P5: "It's a standard requirement in that physiotherapy practice, that every ICU patient will be seen twice…"

The **time spent** by PP ICU physiotherapists in the private ICU managing the ICU patients was reported to be affected by a number of factors and sometimes presented challenges to the PP ICU physiotherapists in terms of their workload. The majority of PP ICU physiotherapists described that they spent a greater amount of time treating patients in the ICU as opposed to those in the

wards where the time spent ranged from a minimum of 30 minutes, to up to 45 minutes or even an hour per patient. They described the factors contributing to the time spent in ICU to include the severity of the patient's condition and the type of treatment implemented. Some described that less complicated cases such as post-laparotomy patients would require less time to treat in contrast to those who presented with complications such as the immobile ventilated patient and the older, orthopaedic patient who require greater attention and thus results in more time spent in the ICU managing these patients. In addition, critically ill patients who are newly admitted to the ICU also require more time and attention since these individuals require a full and thorough assessment and constant re-evaluation since there are numerous factors one would have to consider to ensure patient safety and effective and quality treatment.

P10: "It's 60:40, 60% ICU and 40% wards."

P17: "I don't know…somewhere between 25 and 50% of the time is in ICU."

P12: "So the ICU patients have a worse condition and you spend more time preparing checking things like lines and making sure the environment is safe and when they walking, they tend to walk slower whereas the ward patients are a lot more functional and are able to mobilise a lot more easily for example, so the treatments are quicker and easier versus ICU where other factors come into play."

P13: "On average time spent is 30-45 minutes. I spend about 10 minutes assessing the patient. All the info regarding their medical stability, chatting to the doctor or nurse if they are present. I am based at a neurological practice so most of my patients have neurological conditions so you prioritise goals."

P7: "The ones who normally take longer are the ones who mobilise outside of the room as well and occasionally the ones who you do mobilise with the ventilator, that takes forever."

P5: "I also find that your older orthopaedic take a long time, an average of an hour when they are in ICU, that's if there's no complications. Also, mobilising intubated patients are very time consuming and sometimes I think 45 minutes is actually being quite lenient."

P13: "Time spent on average 30-45 minutes. It's a lot more time intensive when it comes to administration because you are looking their vital signs, through the ABG's, all the things that aren't necessarily paid attention to in the ward, whereas in the ward, you just determine if they stable in terms of blood pressure then you can mobilise."

P20: "But we always feel or want them (patients) to know that we have the time if need be, to give the patients what they need."

Multidisciplinary team involvement in ICU and the array of ICU healthcare professionals that are in the ICU treating patients as well as patient education and communication had a substantial impact on the time spent in the ICU. Patient-centred discussions with doctors and nurses regarding the patient as well as waiting for healthcare professionals who are busy with the same patient to complete their treatments also affect the time PP ICU physiotherapists spent in the ICU. The PP ICU physiotherapists reported that the participation of nurses during treatment and rehabilitation proved to be vital to reduce the amount of time spent in ICU and improve efficiency. In addition, PP ICU physiotherapists reported that there was a greater demand from family members and patients themselves relating to counselling and provision of information with regards to the patient's condition or rehabilitation and what rehabilitation would entail and communication with and education of family members and patients increase the time spent working in the ICU. In the ICU environment, the process of note and record keeping proved to be a more detailed process in comparison to that in the wards and also affected the time spent in the ICU. Lastly, bi-daily ICU patient treatments and ICU set-up such as visiting hours, patient resting and meal times, as well as tea and lunch breaks of staff members specifically the nurses who were sometimes required to be in the ICU when treatments took place all affected the time that the PP ICU physiotherapists spent in the ICU treating patients. Most often the visiting hours, patient resting and meal times clashed with the timing of a bi-daily treatment where physiotherapists only had approximately one hour to complete all afternoon treatment sessions.

P14: "In terms of challenges, one challenge that we find in the ICU is uhm not going on in terms of patients needing to go for x-rays, they need to have this, there's doctors' rounds, then dietitian rounds, so for you to find that half an hour or 45 minutes to see your patient effectively that is sometimes quite pushed so that's the only thing…yah, to find the time to treat your patient effectively that's sometimes a challenges yah."

P2: "If the nurse is more able and willing to assist you I find it more helpful and the time goes by a little faster and you able to be more efficient in the time."

P13: "I do spend a lot more time communicating with family members in ICU since they quite concerned and I need to get a better understanding of their previous level of function and what the family expects in terms of what the patient needs to do by the time they leave ICU. Then also discussing with a nurse, is this appropriate for my patient on the day and is there anything specific that we need to work towards, so a lot of planning takes time before treatment actually happens."

P15: "When you done with the patient you need to write in the file, you need to write the notes in the file as well. And then sometimes the file is not available immediately and you cannot wait you cannot…so you have to continue the next patient and later on you have to go back and sometimes you forget I mean if you didn't write you haven't done the treatment."

P12: "The ICU there is a lot of noting down and scanning that has to occur in file and there is a lot of detail to take into consideration in the ICU. The note taking takes 3-5 minutes as well. In terms of administration, when I do it in ICU, a small note is written in file that I was there and what treatment was done. Then ward detailed notes in a separate bed letter that the practice has for medical legal reasons and that stays in the file in the practice and becomes part of the patient's folder with full documentation of what has happened."

P14: "The only thing in the hospital that sometimes is a challenge is our patient's in the ICU we are not allowed to see them between 12 and 2 o clock because that is there resting time and between 2 o clock and 3 o clock is visiting time. So basically for our afternoon session we have only between 2 o clock and 3 o clock so if you have more than two patients that makes it quite difficult because then, yah, we either, hopefully one of my colleagues can come and help me or we have to go back at 4 o clock so that's quite a challenge at times."

P13: "I try to be as comprehensive with my notes as far as possible since ICU is so complex, you need to go back and see what has changed since it's small things."

P4: "I also think there's a lot of external factors like first, I like to first do all ICU patients in the morning, so nurses are there, there's no tea breaks, or family visiting, and these are contributing factors, you have to the amount of time it takes, you have to either wait or come back and it adds to the time that you spend with the patient."

P21: "And the second component of that limited time is that if you spend a long time in the ICU because you got some complicated patient, from 11 the families come in and we're not allowed to see the patient again until 2 so families I think from 11 till 12 and 12 till 2 is resting time, no one allowed in there. Uh and then when we finished in the practice a half past four and need to go do bi-daily, it's visiting time again and can only get in there at after 5 and then it's supper time at the hospital at 5."

iv) Multidisciplinary Team Work

Different healthcare professionals work in the private ICUs however, regardless of the multidisciplinary nature of the intensive care settings, in the private ICUs there seemed to be a

lack of multidisciplinary team work and multidisciplinary ward rounds. Multidisciplinary interaction seemed to be between one or two professionals at a time and not as a team of healthcare practitioners. In some cases, doctors, nurses and physiotherapists did not communicate effectively through multidisciplinary ward rounds and team work but more one-on-one and this communication only occurred if these healthcare professionals were available for the physiotherapists to discuss patients. Few described attending ward rounds with doctors in the ICU setting but also reported that they did not spend or dedicate a long time to these rounds. Others described there to be a lack of involvement in ward rounds with the ICU multidisciplinary team in the ICU and felt this needed to be addressed in order to improve the ICU setup and ensure efficient patient care. However, in some instances there seemed to be multidisciplinary team involvement with regards to discussing ICU patient cases and evidence for management through MDT forums and tutorials.

P13: "It's a lot MDT orientated in ICU..."

P14: "I would say 15-20 minutes mostly uhm yah we not that big on our ward rounds in ICU."

P5: "I think a ward round with some of the doctors would be so beneficial. I would love to have ward rounds. Trauma patients or even with Doctor (mentions surname), to be there and educate more on the x-rays etc."

P1: "That's what we miss from being in the public sector because you had x-ray rounds, more MNM's (mortality and morbidity ward rounds), antibiotic rounds, ICU rounds, orthopaedic rounds which we don't have that here, where everyone gets together and you actually go through every single patient and you go through everything and you learn so much and you give your input."

P9: "Uhm so twice a month we've got an ICU forum. So that's where doctors usually discuss the patients in ICU or they do a tut session or like P7 said they discuss the latest evidence. The whole team is there from the pharmacist to the nurses to the physios, and all that.

P1: We also work quite closely with occupational therapists so occasionally if the team works we try to mobilise the one session and they will mobilise the other session. We always assist…I think the nurses know us already so when they see us they use us as the opportunity to turn the patient, or to wash the patient so then that's when they doing the turning of the patient."

P7: "So our neuro patients, the multidisciplinary team we work quite well with them. So it's the social worker, the occupational therapist, speech therapist, the dietitian. Then we normally do family meetings as well and from there we work up the care path for the patient."

Although MDT teamwork through ward rounds seemed to be lacking, there was consensus regarding the importance of the MDT approach to patient treatment in ICU. Constant communication and interaction with all members of the MDT was regarded as essential due to the seriousness of critical care patients' conditions. Conversing with all healthcare professionals when necessary ensured that goals were in sync with one another and in turn provided optimal patient care. Nurses were one of the members of the MDT who worked closely with PP ICU physiotherapists. Participation of nurses and their willingness to assist physiotherapists in treatment sessions was vital. Physiotherapists educated them on the importance of their involvement. This was especially true in the case of positioning and difficult transfers and played an important role in decision making process and placed focus on what type of treatment was suitable for the patient and establishing whether there were specific outcomes that needed to be reached, by reflecting on the condition of each patient. PP ICU physiotherapists also reported working together with the speech therapists, orthotists and occupational therapists with regards to patient management goals but seemingly on a one-on-one basis and not within a team of ICU professionals.

P12: "I try my best to assess new patients when the doctors are around to discuss can be made while doing the assessment. When it comes to treatment, I find it essential that the nurses are around because a lot of my patients are quite unstable medically, so are they on inotropes or other medication that cannot be stopped during therapy because we don't want to put them at risk at all. Educating the nurses as we go along as to why we encourage participation so that everything is not passive if the patients is intact cognitively and can be cued verbally to participate in therapy. "

P13: "Then also discussing with a nurse, is this appropriate for my patient on the day and is there anything specific that we need to work towards, so a lot of planning takes time before treatment actually happens."

P13: "So there is a lot of interaction in ICU among the whole team because any subtle change needs to be communicated immediately and to make sure that our goals are in line with one another's."

P13: "The nurses' involvement as far as possible is essential unless the patient can ambulate independently then I don't require the nurse." "I work with the speech therapists at times for

example when they do the blue dye test to see if they swallowing and the level of social interaction with the patient, to try and find out what their level of understanding is so I can ensure that I relay my commands in an optimal fashion so that they can be more compliant to my therapy in a way that is understandable for them. "I also work closely with the orthotist for any assistive devices that the patient may need like AFO's, compression stockings, splinting, etc. if my patient has a wound with VAC dressing I do try and speak as often as I can to the wound sister and find out about shortening positioning time, e.g. what position would be the best and how mobilisation will affect the wound. I also communicate with the dialysis technician during therapy to find out where the patient is and what I may and may not do with the patient. So there is a lot of interaction in ICU among the whole team because any subtle change needs to be communicated immediately and to make sure that our goals are in line with one another's."

P18: "Yes, once they have given orders to mobilise then from there you can work according to your plan because if you assess and see the patient is not ready to mobilise, then you can mobilise a day or two later because they are struggling. We do it in the morning together with nurses, and the nurses continue doing it throughout the day if they are with the patient."

P20: "In terms of positioning, we try to help the nurses to help position the patient's as best we can. There are a lot of chairs so the patients are positioned out of bed in lazy boys or arm chairs."

v) Discharge Planning and Follow-Up

The process of discharge and follow up of critically ill patients varied from one physiotherapy practice to the next. While some of the PP ICU physiotherapists who treated ICU patients continued to do so in the wards as well, others reported that once the patients were discharged from the ICU to the wards the physiotherapists who worked in the ward further managed these patients and from here these patients may receive follow-up treatment at outpatient private practices. Some reported that their practices had a set protocol in place for the follow up of hip and knee replacement patients approximately one-week post-discharge and these patients were treated on an outpatient basis up until they were functionally independent or met the practice discharge criteria that was in place however, they did not have follow-up for pulmonary rehabilitation in the practice. But with regards to discharge protocols in the ICU these were perceived to be lacking as patients were discharged from ICU based on the doctors' decision. In some closed ICU settings, the pulmonologist would refer the patients for follow-up following discharge to the PP ICU Physiotherapists working in his unit.

P16: "What's nice about where I am, is that we have a step-down facility that quite a few of our long-term patients can go to. Yes, it's either they go home and then get followed up as an outpatient if we deem necessary, or they go to the step-down facility in which case the physios there will continue."

P14: "We don't follow any of our ICU patients up in term of pulmonary rehabilitation, we don't have those protocols in our practice. uhm people like our knee replacements or hip replacements, they do spend a night in the ICU. We have a set protocol to follow them up. So once they discharged after a week they have to come and see us again, but only for the replacement patients nothing like pulmonary, nothing like that no."

P12: "In that case there are clear discharge guidelines such as knee replacement patients which we often see, it would be locking quads 0 degrees and 90 degrees' knee bend and also being able to mobilised on crutches and stairs. These are the clear guidelines that we usually use and are the ones that frequently get followed up as outpatients until they reach independent ADLs and discharge criteria."

P20: "The intensivists who we work with are the pulmonologists so if f there are specific respiratory patients we see in the ICU then the pulmonologist would prefer that we see the patient after discharge, so we would give them our details and a lot of them once they home do call us and they come back."

P17: "Once they in the ward, we plan discharging… yah ... what the plan is, are you going to rehab or step down, are you going home, do you still require physio there, are you going to come to our practice, are, uh, it also depends on the medical aid."

Some PP ICU physiotherapists reported that follow up of ICU patients in the outpatient setting was determined by the physiotherapist's discretion and whether he/she deemed it appropriate and used the patients' condition upon discharge as a basis for making this decision. In some cases, financial factors such as the availability of medical aid benefits would dictate whether the patient would return to the practice for follow up care and management. Many reported that by the time the patient was discharged from ICU and hospital, the medical aid benefits for physiotherapy follow-up were most likely exhausted resulting in patients having to pay for follow up management and making them least likely to return. Another noted challenge was that once patients received education on how to perform the exercises at home and deemed themselves "functional", adherence to follow up on an outpatient basis was affected as patients would not attend follow-up appointments.

P17: "Yah because the medical doesn't pay then it falls on the patient uh the account has to go to them… do you have money for it… some of them do, some don't."

P7: "So I spoke to the doctors and they said well medical aids are normally exhausted by the end of the CABG procedure and that's why there is no funding for them to do a follow up, but it is something that we tried in the past and most of the time by the time the patient can do the stairs and walk here, they go home and can come there and most of them are actually fine."

P7: "Once we teach them how to do it at home and stuff uhm...adherence is an issue. They just don't come back, because they feel better."

Some reported on step-down facilities where patients would be followed up by the physiotherapists working at these facilities and would continue with the patient's rehabilitation. In these cases, the ICU physiotherapist completed a patient discharge report which was provided to the facilities physiotherapists.

P16: "What's nice about where I am, is that we have a step-down facility that quite a few of our long-term patients can go to. Yes, it's either they go home and then get followed up as an outpatient if we deem necessary, or they go to the step-down facility in which case the physios there will continue."

P13: "Some of the patients do get transferred to rehab from ICU if they are stable. If that is the case, we do send out a discharge report to that facility and since there are only a select few facilities in Johannesburg, what happens is we continue as outpatient therapists because it's close to where the patient stays and that is communicated in the discharge report."

In addition, patients with a progressive condition that was associated with a poor prognosis such as those who presented with dementia, chronic renal failure, and in some instances oncology patients, would not be followed up by certain PP ICU physiotherapists. In these cases, family education played a big role in terms of assisting individuals to manage and maintain function as best possible once they were home.

P13: "Discharge criteria would include chatting to the family and establish what the patient's previous level of functioning was. For chronic renal failure patients, they get discharged straight out of ICU and they go home. Since they most often have decreasing function, we do not carry on with our therapy."

Due to the setup of specific private physiotherapy practices and the fact that the PP ICU physiotherapists solely treated patients within the ICU, patients were not followed up into the

wards. Instead, once transferred to the wards, a ward physiotherapist was referred to and would get the patients discharge summary completed by the ICU physiotherapist and was then responsible for continuity of care.

> *P20: "So thing get a little tricky because our practice only works with patients in the ICU and there are a lot of politics outside the ICU within the hospital which I'm sure you probably got across the board with all of your interviews and because we only work in the ICU, we don't follow our patients up into the ward. Then they get carried over into the ward, we let the ward physiotherapists know that the patient is coming and that the discharge summary has been completed and then they carry on with the treatment. In terms of follow up later, that's why it becomes difficult for us to follow up with the patients later as outpatients unless there's a special circumstance and the patient refuses to have someone else see them then we will see them."*

There were occasions where follow up of patients were based according to where patients reside. Those patients who lived close to the practice returned to that specific practice for follow up, and patients who lived close to another physiotherapy practice were encouraged or given the option to follow up with a practice close to them.

> *P18: "It depends where they stay on discharge. If they stay close by, we will book them back with us and if not, we will refer them and try and find a physiotherapist close to home, but normally we book them back with us because the doctor normally calls them back two weeks after discharge and we follow up with them on the same day."*

> *P8: "We kind of at the same time try and say to them if you are struggling we are not chasing you away, you are more than welcome to come back, but if you are not living close to the practice, and there's a practice close to you please actually follow up with the physio who is closer to you."*

Some PP ICU physiotherapists reported that conversing with doctors as well as family members played a strong role in the decision-making process when it came to follow up of patients in ICU. For example, contributing factors included prioritising patient goals in terms of where the patient would need to be functionally, whether he/she required returning to work, or just home and what follow-up they would require.

> *P13: "Patients if transferred to the ward, are treated then by us in the ward as well and discharge planning will continue with the doctors, and the family for example is the patient appropriate for hospice, is the patient going to be going home, does the patient need to go back to*

work and in the community, and that is when referral to the occupational therapist will also happen to ensure community reintegration and locational rehabilitation takes place."

P7: "Then we normally do family meetings as well and from there we work up the care path for the patient. Is he going to subacute, which subacute, what's the best for them and then from there."

P6: "Most of the patients are stepped down from the ICU to the wards and for certain conditions like trauma or anything that would require ongoing physiotherapy post discharge, arrangements will be made for them to come and see us as outpatients. Your less critically ill patients are doing very well by the time they are getting to the ward and don't need physiotherapy as an outpatient and are advised to continue with what they have been taught in hospital."

P8: "No, so we follow up with our own patients from ICU through to the wards and once they are discharged from the wards that's where the follow up becomes…When necessary or when they are leaving and they are not completely recovered or they themselves are not feeling up to taking care of themselves at home… excuse my English. Uhm then we actually give them our business cards so they can make their own appointments to follow up. We kind of at the same time try and say to them if you are struggling we are not chasing you away, you are more than welcome to come back, but if you are not living close to the practice, and there's a practice close to you please actually follow up with the physio who is closer to you. If you want to follow up with us, we already know who you are we have your details. If they feel comfortable with that they might come through for post discharge treatment."

vi) Documentation and Administration

Patient documentation and administrative duties formed an integral part of the role of the PP ICU physiotherapists and took a substantial amount of time, especially in the ICU. Some reported that the approximate time spent on patient documentation and administration was 30 minutes while others reported that patient documentation in the ICU alone would take an additional 3-5 minutes per patient. Some reported that patient documentation and administration included the patient documentation in the patient's bedside file kept in the ICU that was mainly a description of the treatment intervention and patient documentation in a separate patient file that was part of the private physiotherapy practice documents and records. Other administrative tasks were doing research such as reading up on relevant journal articles.

P14: "… admin wise we do notes in the ICU for the patients, as well as in our practice. Yah I would say my admin only takes me 30 minutes for the notes…"

P12: "In the ICU there is a lot of noting down and scanning that has to occur in file and there is a lot of detail to take into consideration in the ICU. The note taking takes 3-5 minutes as well. In terms of administration, when I do it in ICU in ward, a small note is written in file that I was there and what treatment was done. Then ward detailed notes in a separate bed letter that the practice has for medical legal reasons and that stays in the file in the practice and becomes part of the patient's folder with full documentation of what has happened."

P20: "From an administration point of view we expect our physiotherapists to complete full assessment and do notes and the only other administration we have is if we ask them to read up on articles for journal clubs."

P15: "When you done with the patient you need to write in the file, you need to write the notes in the file as well. And then sometimes the file is not available immediately and you cannot wait you cannot…so you have to continue the next patient and later on you have to go back and sometimes you forget I mean if you didn't write you haven't done the treatment." " I have to make quick notes in between for the vent settings, and the gases, and the monitor, and the vital signs, everything. So you have to scribble it down and then sometimes there some of the information going, getting lost in between."

P12: "In terms of administration, when I do it in ICU ward a small note is written in file that I was there and what treatment was done. Then ICU ward detailed notes in a separate bed letter that the practice has for medical legal reasons and that stays in the file in the practice and becomes part of the patient's folder with full documentation of what has happened."

It was clear that the ICU physiotherapists were expected to complete patients' notes fully, accurately and ensure that they were kept up to date since the ICU environment was perceived to be complex and the ICU patients' conditions tended to be critical and could change at any given moment and should be recorded and was also needed for medico legal purposes. Some of the physiotherapists also reported the use of an assessment or score sheet which was used as a method of record keeping and was updated on a regular basis in order to monitor ICU patient's progression.

P13: "I try to be as comprehensive with my notes as far as possible since ICU is so complex, you need to go back and see what has changed since it's small things."

P20: "We have a section on our progress score where you can update daily or on alternate days how the patient is and when you feel how the patient is changing. All patients get all the outcome measures on admission, depending on how they do we may do a full re-assessment for example. if they were not intubated and then intubated or vice versa."

P1: "We have a trauma assessment form that is in ICU that we are supposed to be using, but most of our notes are documented. "

Some challenges were associated with efficient record keeping in the ICU. A participant commented that due to the complexity of this environment, the process of note taking was more detailed since there were a variety of factors to consider that would otherwise not be recorded when treating a ward patient. For instance, factors such as the patient's ventilator settings, blood gases and vital signs needed to be noted down accurately since these would determine patient treatment and ultimately safety of the patient in ICU. It was reported that since patient treatments within in ICU were more time consuming, by the time treatment sessions were completed, it was most likely that another ICU healthcare professional would be there and so the patients file was not necessarily available for note taking resulting in the physiotherapists proceeding to treat the next patient due to time. The concern raised was that in this case, the physiotherapists would forget to record the patient's notes which were identified as an incomplete patient treatment or that the patient was not treated. Lastly, another physiotherapist reported that documentation and administration processes were complicated when ICU patients were discharged by the PP ICU physiotherapist and then had to be readmitted for physiotherapy. The process of discharging and then readmitting the same patient complicated the administration procedure and affected process of medical aids claim submissions as reported.

P12: "In the ICU there is a lot of noting down and scanning that has to occur in file and there is a lot of detail to take into consideration in the ICU.

P15: "When you done with the patient you need to write in the file, you need to write the notes in the file as well. And then sometimes the file is not available immediately and you cannot wait you cannot…so you have to continue the next patient and later on you have to go back and sometimes you forget I mean if you didn't write you haven't done the treatment." " I have to make quick notes in between for the vent settings, and the gases, and the monitor, and the vital signs, everything. So you have to scribble it down and then sometimes there some of the information going, getting lost in between."

P12: "In the past I have experienced this issue with numbers, where I saw fit to discharge a patient from physiotherapy care while they were still admitted and if the condition changed I would restart physiotherapy however the numbers have to be kept up I presume it complicates the administration

process to discharge a patient and then admit them again and restart physiotherapy in terms of the billing and so to minimise administration you would continue seeing the patient."

3.3.2.2.2 Patient Management

The category of patient management included the patient workload, treatment activities, treatment time and frequency, prescription of treatment activities and frequency and evidence-based protocols and outcome measures used.

i) Patient Workload

The ICU patient workload for PP ICU physiotherapists was perceived by some to be higher in terms of patients numbers and time spent treating patients was also longer in comparison to patient workload in the general private wards but some still reported spending more time in the general wards than in the ICU. On average PP ICU physiotherapists treated between 5 and 16 patients per day. There was unanimity with regards to ICU patients receiving bi-daily treatments with a few even reporting tri-daily treatments requested by some ICU doctors that affected the patient workload and the time spent in ICU. Some PP ICU physiotherapists reported a high patient turnover in ICUs.

P12: "I work in private ICU, and the load of ICU patients vary from between 5-10 patients treated bi-daily in the morning and afternoon."

P16: "In my unit, I mostly have quite a high turnover."

P19: "Okay, so when it comes to ICU, the workload for me, and my experience over the few years, basically always the workload of ICU is much more to that in the wards."

P20: "What we expect of our permanent physiotherapists in general is only between 12 and 16 treatments per day and we do expect them to spend about 30-45 minutes per patient so that they can give their patients what they need."

P20: "We in there from about 07:30am to 09:30ish sometimes 10 with the different loads and if we got a bi-daily."

P14: ". Most of the times it is bi-dailies…"

P17: "I would say 90-100% of ICU patients are b-daily."

Some reported that challenges associated with high patient workload was the nurses or patients' unwillingness to assist physiotherapists with the mobilisation back to bed despite the nurses and patients' ability to so themselves. In this case, physiotherapists would have to come back to the patients and assist them back to bed compounded by the already high workload the physiotherapists had to complete. The nurses also sometimes had more than one patient to manage and could not provide assistance to the ICU physiotherapist with mobilisation if they were busy.

> *P12: "Most often the nurse manages to assist, to ensure patient safety and to get a better idea of how the patient has been doing. If the patient is stable, I would mobilise them to the chair for the afternoon or for the day. For the afternoon treatment, I would repeat the same cycle and mobilise them back to the bed."*
>
> *P15: "That's also one of the problems coming in with the challenges of seeing all the patients, but now I need to go back and mobilise the patient back to bed even though they can almost mobilise by themselves."*
>
> *P12: "Educating the nurses as we go along as to why we encourage participation so that everything is not passive if the patients is intact cognitively and can be cued verbally to participate in therapy."*
>
> *P13: "The nurses, I find that to be a major component if they can be involved, I find that it's empowering for the nurses and makes the whole treatment session a lot easier with two sets of hands to mobilise and the nurse and the physiotherapist are then aware of the patient's current condition and can makes informed decisions based on their collective knowledge."*
>
> *P19: Where I worked in (name of hospital) we were very understaffed however that being said with regards to positioning say for example if the patient needed to get some time in the chair, aerate the lungs and things like that, at least three to four hours uhm and the numbers were high, meaning that we still have other patients to get to, we get the patient out and inform the sister in charge that either the sister, or the carer or two carers or whoever is working on hand to assist the patient back into bed.*
>
> *P15: "So what happens is with the uhm vent, some of them are awake so you have to start mobilising later on and then it's lunch, and it's the vent, and then sometimes you don't have help like there's a sister at each patient, but then sometimes they have two patients and you don't have someone to help you."*

The patient workload was also reported to be affected by the emphasis on seeing as many patients as possible in order to benefit the practice financially. While physiotherapists however got through the large numbers of patients recruited, treating up to 16 ICU patients per day, the quality of patient treatments were perceived to be compromised as a result and treatments were perceived to be

haphazard and rushed. Therefore, the workload was also dependant on how the PP ICU physiotherapists were paid a salary as fixed salaried ICU physiotherapists did not necessarily have to recruit large numbers of patients as those who worked on patient commission and incentives.

> *P12: "Keeping the numbers up will always be on the mind of the practice owner…"*

> *P13: because the pressure is from management and we need to keep the numbers up." "Also when it comes to chasing the numbers, this blinds them a bit. For example, if they have twelve patients that they need to see in the morning, they just do haphazard therapy and the patient is not receiving the attention they need because they are so busy trying to fill up numbers. It's not that they are bad therapists it's more that they are acting like halfway therapists and that's my opinion."*

> *P7: "From a business only point of view and what you trying to do in hospital, so observing and seeing the people in the past that work on commission base, that incentivises them to see more people, then it's a rushed treatment, not everyone, I'm just generalizing, but that's just my observation you know, …". But the three people that's dedicated to work in hospital here, are on fixed salaries so that there is no competition of I need to see 10 people today and fight, you know. I always tell them if you see three people, see three people, you can see that three people for two hours you know.*

The setup of the ICU, for example the presence of external factors such as patient resting time, visiting hours, other ICU healthcare professionals busy with the ICU patients delayed the commencement of treatment sessions and also the time in which patient workload could be completed effectively.

> *P14: "The only thing in the hospital that sometimes is a challenge is our patient's in the ICU we are not allowed to see them between 12 and 2 o clock because that is there resting time and between 2 o clock and 3 o clock is visiting time. So basically for our afternoon session we have only between 2 o clock and 3 o clock so if you have more than two patients that makes it quite difficult because then, ya, we either, hopefully one of my colleagues can come and help me or we have to go back at 4 o clock so that's quite a challenge at times."*

> *P21: "Uhm so there'll be loads of things going on like doctors' rounds, and washing, and turning, and things like that and uhm they almost unaccepting for us to try and work like at the same time as them. So I would say that treatment timing is really really tricky and that is definitely set up by the hospital."*

> *P21: "…you spend a long time in the ICU because you got some complicated patient, from 11 the families come in and we're not allowed to see the patient again until 2 so families I think from 11 till 12 and 12 till 2 is resting time, no one allowed in there. Uh and then when we finished in the practice a half past four and need to go do bi-daily, it's visiting time again and can only get in there at after 5 and then it's supper time at the hospital at 5.""*

iii) Prescription of Treatment Activities and Frequency

While some PP ICU physiotherapists stated that the doctors would provide the physiotherapist with written referrals prescribing specific treatment and treatment frequency, the prescription of treatment activities and frequency was also dependent on the cost of treatment activities and charging for bi-daily treatments that would increase the earning capacity of the practice. Some physiotherapists also reported that the ICU nurses would prescribe to them what they thought the physiotherapists should do or not do with the patient in terms of treatment activities. Others also noted that while some ICU healthcare professionals allowed the PP ICU physiotherapists to make their own decisions, others insisted on prescribing what they want in terms of physiotherapy treatment and frequency. The majority reported using their own clinical reasoning, research and knowledge of the available evidence to decide on what treatment activities should be used for each patient individually and whether patients should be seen for physiotherapy once, bi or tri-daily or at all. Lastly, treatment activities used are also perceived to be dictated and prescribed by the medical aid funders as certain treatment activities were paid for and other treatment activities were not paid as some medical aids felt there was no evidence for those treatment activities.

P14: "Some of our patients we do see uhm three times a day if the doctor specifically asks for three times a day. "

P17: "If they are referred for physio, the doctors know already ICU patient, all bi-daily. Sometimes, sometimes tri-daily if it's now a severe case."

P18: "Yes, once they (doctors) have given orders to mobilise…"

P2: "Nursing staff use physiotherapists extensively for positioning and patient care and changing them."

P20: "…and one of the paediatricians are very pro TDS physiotherapy on the day that the patient gets extubated and for one or two days after that and whereas everyone has allowed us to make our own decisions, this doctor is hell bent on TDS, and it's not even TDS during the day, he makes us go at night."

P7: "And another challenge as well is like when you assess this patient and you see that this technique will work better, then the nurse will actually say but you didn't do physio because you didn't percuss the patient you know."

P15: "And they (nurses) will also sometimes tell you uhm no, I don't think you should mobilise the patient, but then the patient is stable."

P12: "Although, there were practices I worked at where the nurses would be noncompliant and would literally instruct you not to treat the patient, and then later on the doctor would ask you why you have not seen the patient."

P18: "I wouldn't say it's routine because each patient is different so you would have to assess and see from there and how you can treat them."

P16: "Okay, I don't believe at all that there's a standard. I believe that you have to assess your patient and decide. So for me, the idea of BD (bi-daily) chest physio because the patient is in ICU, is not on uhm in private I think one has to be even more aware of costs and there are limits on all benefits that patients have on medical aid so I would say as a rule I will see my patients once a day."

P1: "In terms of chest physiotherapy, based on current research you don't have to percuss every patient so the whole thing is about listening and auscultating, and if the patients cough is dry, his sats (saturation of oxygen in blood) are fine, then why chest physiotherapy. Instead rather mobilise the patient out of bed and we do a lot of exercise therapy and deep breathing to get the patient up and moving. Depending on what they need, we see them for that and not just exercise for every patient and it's dependent on each individual."

P5: "I think our culture is the assessment of patients first and basing our treatment on that assessment. That's the main culture. There's no routine. We assess the patients and see what's going to benefit the patient and then start physiotherapy."

ii) Treatment Activities, Treatment Frequency and Time

The physiotherapists reported using a variety of **treatment activities** to treat the ICU patients such as chest manipulations (percussions, vibrations and shaking), breathing exercises with and without equipment such as IPPB, IS and PEP, mobilisation in and out of bed including marching on the spot and walking distances. The latter were the most commonly reported activities used for the treatment of the ICU patients and were reported to be used based on the assessment of the ICU patients' problems and treatment requirements. There were many variations of what treatment techniques PP ICU physiotherapists used to treat ICU patients and some reported that chest physiotherapy was standard care or mandatory for pulmonary clearance and also for billing

purposes as the tariff for chest physiotherapy was high while others said it was only used when necessary based on the chest assessment findings. Even though the majority reported early mobilisation and specific techniques to improve both pulmonary and physical function, chest physiotherapy was still included in the management of private ICU patients most of the time. While some stated that treatments were sometimes routine or standard care, others said that the treatment of ICU patients should not be and were not routine or standard, and that treatment done was dependent on the patient condition and presentation.

P12: "Treatment techniques include chest rehabilitation, mobilisation to clear chest secretions and for respiratory reason and exercise to prevent ICU induced weakness. We use different modalities for that example PEEP bottle, a lot of CPAP, there's mobilisation such as endurance training, and ensuring that patients don't get pressure sores, and those patients who are non-ambulant, mobilising them into a chair."

P14: "Basically most of the time in general, we would do the chest physio twice a day and then mobilise once a day."

P20: "In terms of positioning, we try to help the nurses to help position the patients as best we can. There are a lot of chairs so the patients are positioned out of bed in lazy boys or arm chairs. We use upright positioning mostly for VQ matching, postural drainage when it is indicated. In terms of chest physiotherapy, if they need manual chest physiotherapy then we give it to them but because a lot of our patients are surgical patients, we do a lot of breathing exercises, respiratory muscle training, incentive spirometry, flutter devices, whatever they need to get them going, and if they do need chest physiotherapy, we do give it but it is not standard practice."

P19: "So in an ICU setting it's almost 80% to 90% of the time chest physiotherapy involved."

P18: "Hardly they need chest physiotherapy, unless it's day one post operation. But hardly they need chest physiotherapy, we just go onto rehabilitation so example breathing exercises, then we mobilise out of the bed and see how they do and get them out of the bed."

P16: "The percussions, the vibes, the shaking, the deep breathing. We use PEEP devices, PEEP bottles, uhm shakers and uhm if we feel the need for the more medical patients uhm and then we still use BIRD and PEEP which we quite fond of."

P21: "We use percussions and vibrations, we…but it's not our first choice if it's not indicated. So rather using our breathing techniques uhm thoracic expansion, mobilisations, uhm things like that to clear… if you talking about chest physio we will always do more of the automated stuff that the patient can assist with. Obviously on auscultation if there's an indication for percussions and vibes we will do that, but our practice protocol is definitely not immediately percussions and vibrations. We are very much into the lung compliance work. Loads of uhm facilitated breathing using your active cycle of breathing techniques, autonomic drainage. I would say that we use side lying as a technique, part of our techniques for positioning when we doing chest physio and I would say sitting

is probably one of our biggest positioning technique. But yah argh rehabilitation wise we just use a lot of uhm strengthening, bed mobilisation, positioning and uhm mobilising, walking as soon as possible."

P6: "Respiratory physiotherapy is a standard with ICU patients whether it is bed exercises, percussions, that is a general standard for all patients. Mobilisation, that is dependent on the patients' capability. "

P1: "In terms of chest physiotherapy, based on current research you don't have to percuss every patient so the whole thing is about listening and auscultating, and if the patients cough is dry, his sats (saturation of oxygen in the blood) are fine, then why chest physiotherapy. Instead rather mobilise the patient out of bed and we do a lot of exercise therapy and deep breathing to get the patient up and moving."

P5: "We use incentive spirometry in ICU to maintain the lung field, and air entry. That's a good start and then everything else gets easier.

P2: "We do lots of positioning."

P3: "Also dependent on whether they have a chest complication, you do postural drainage. it will be dependent on which lungs are affected, and then you would also use the nurses because you tell them keep them in this position because it's better for VQ matching, or it's better for postural drainage, or change them less often, or leave them on this during the day etc. I think it's more depends on the patient."

P3: "Also most of our treatments are based on getting the patient to full function. If you see the patient is already mobile, we not going to focus that much on mobility than if they have pain in or two areas or other problems. Depending on what they need, we see them for that and not just exercise for every patient and it's dependent on each individual."

P17: "Yah because the patients are just laying in bed whole day and that you know when they develop atelectasis and other infections so we are bog on early mobilisation as soon as possible, our doctors know that. So we don't necessarily mobilise day one, patients is, patients are normally very weak, they, they are not with it, they, they are just yah … blood pressure is all over the place."

P12: "Chest physiotherapy is mandatory and you can go ahead and do whatever treatment you feel you need to do but the billing will always follow in a certain direction. I would assess the chest, administer clearance techniques that would involve breathing exercises, vibrations, or percussions, huff and cough technique, and mobilise the patient around the ward if they can, and if not maybe do a bit of marching on the spot to engage in cardiovascular endurance. If the patient is stable, I would mobilise them to the chair for the afternoon or for the day. For the afternoon treatment, I would repeat the same cycle and mobilise them back to the bed."

P13: "Chest physiotherapy is a big goal, ensuring optimal pulmonary function. I spend about 10-15 minutes with functional rehabilitation such as bed mobility (head, trunk control), if the patient is stable enough I mobilise to chair or in the ward – I do a lot of gait re-education if the patient is cognitive enough. Once we get back to the ward, I mobilise back to the chair and ensure I communicate I communicate with the nurse as best I can, be it that we doing postural drainage and what best lung function, or it is something that is associated with their functional capacity."

P5: "I think our culture is the assessment of patients first and basing our treatment on that assessment. That's the main culture. There's no routine. We assess the patients and see what's going to benefit the patient and then start physiotherapy."

Patient education formed part of the treatment of ICU patients as reported by some PP ICU Physiotherapists and included education on treatment techniques, exercises to be done and why specific physiotherapy treatment activities are beneficial for their recovery.

P5: "Also, ICU patients demand counselling and we spend a lot of time actually talking to these patients. That also takes up a lot of time. Sometimes family education, or even with trauma patients they require counselling about their injuries, or just patient education on a whole."

P7: "We will encourage them (patients) to sit up for as long as possible explaining them (patients)the benefits.

P17: "So day one is normally our rest day. We just focus on chest… yah education of movement, education on what to expect and what's going to come, and then they hit them, then the next day…they too must mobilise each day and then progress yah."

P19: "You want to reassure the patient what is about to happen, what is expected and what they can expect in terms of pain level and things like that so in terms of that, … Deep breathing exercises a lot, there's always reinforcement where that is concerned and generally because we live in a society where people aren't always generally educated on their personal health and wellbeing and perhaps didn't even know they should breathe in through their nose and out of their mouth, but yah."

P21: "... when a patient says no (to treatment) it's not about convincing them, but explaining to them why, because everyone is sore and sick in an ICU."

Lastly, some PP ICU physiotherapists reported that they did not think treatment activities should be routine or standard practice but be based on patient assessment and specific treatment requirements.

P21: "I don't like the routine physio."

P19: "…there is no manner or recipe for ICU in terms of your treatment because that's purely down to clinical reasoning but you obviously grow with your practical experience. "

P18: "I wouldn't say it's routine because each patient is different so you would have to assess and see from there and how you can treat them."

P16 "Okay, I don't believe at all that there's a standard. I believe that you have to assess your patient and decide."

With regards to **treatment frequency**, the majority of PP ICU physiotherapists reported that bi-daily treatments were done for the majority of ICU patients and in some severe cases even tri-daily treatments were requested and done. Some physiotherapists however reported using their discretion in following the prescribed bi-daily treatments and if not needed only treated the ICU patient once as some perceived it as not required and as over treating and that the cost implications needed to be considered. The bi-daily treatment was reported to either consist of chest treatment twice a day or coming back to mobilise the patient back to bed. Some reported that when patients were on the ventilator or had chest complications or other complicated conditions they would receive bi-daily treatment either chest physiotherapy and mobilisation or both morning and afternoon and saw the benefits of bi-daily as helping the patient to return to normal functioning sooner and be discharged to the ward sooner.

P14: "... we see our patient's there bi-daily... Some of our patients we do see uhm three times a day if the doctor specifically asks for three times a day. Basically most of the time in general, we would do the chest physio twice a day and then mobilise once a day."

P19: "... the physio comes and puts the patient back into bed unless on their instruction wants to do more things with the patient maybe as a bi-daily treatment and put the patient back into bed."

P18: "... if they are in ICU and we see them twice a day and you can judge for yourself if you need to see them twice a day of if you are just going to see them once depending on how they are doing."

P16: "Okay, I don't believe at all that there's a standard. I believe that you have to assess your patient and decide. So for me, the idea of BD chest physio because the patient is in ICU, is not on uhm in private I think one has to be even more aware of costs and there are limits on all benefits that patients have on medical aid so I would say as a rule I will see my patients once a day."

P21: "I must say our practice particularly doesn't do a lot of bi-daily's in the ICU uhm so it's not something that we do a lot of whereas I think some of the other practices have almost like a routine bi-daily for ventilated patients, uhm but that's definitely not our protocol."

P15: "Yah, but the ventilated patients are seen twice and we try to see them four hours or more apart from the first treatment."

P2: "In terms of frequency, if the patient is very chesty I'd say bi daily, if it's an ortho condition then bi daily, trauma patients may need to mobilise twice a day. Obviously, I find that if you see patient's bi daily what tends to happen is that the length of ICU stay shortens because then they become more independent, they go to the bathroom and the catheter is out and are more likely to go to the ward sooner."

P5: "I encourage patients to be seen twice a day but a lot of the patients get tired if you see them in the morning for their chest for arguments sake, its worth doing a second treatment for exercise therapy and mobilisation so if you need to separate treatments then it's a good idea to do am and pm, so it's encouraged especially if they are chesty and they are patients that will benefit from aggressive treatment, then they discharge from ICU is faster."

P17: "I would say 90-100% of ICU patients are b-daily. If they are referred for physio, the doctors know already ICU patient, all bi-daily. Sometimes, sometimes tri-daily if it's now a severe case."

P10: "Generally, I think most of or ICU patients are bi-daily most of the time if they real chest patients."

P12: "…the load of ICU patients vary from between 5 – 10 patients treated bi-daily in the morning and afternoon. Generally, when a patient has chest complications we want to see them bi daily to make sure that they don't form mucus plugs, they quite clear but with older patients and those with comorbidities definitely cannot tolerate bi-daily's so it definitely depends where they are in terms of age, comorbidities, cognitive functioning, if I can push them hard enough to have two sessions. I would assess the chest, administer clearance techniques that would involve breathing exercises, vibrations, or percussions, huff and cough technique, and mobilise the patient around the ward if they can, and if not maybe do a bit of marching on the spot to engage in cardiovascular endurance. If the patient is stable, I would mobilise them to the chair for the afternoon or for the day. For the afternoon treatment, I would repeat the same cycle and mobilise them back to the bed."

The **treatment time** varied depending on the type of treatments that were performed, the number of treatment activities included in the treatment, help acquired from nurses or physiotherapists to assist with treatments such as mobilisation of the patient, the need to treat the patients more than once and the condition of the patient. The treatment time for some treatment activities and also the total treatment time per patient were described by the PP ICU physiotherapists. As part of the treatment time, time spent doing patient and/or family education was also discussed.

P19: "So the time, it's going to take between 40 minutes to an hour because it's such a tricky case you want to get everything right in terms of the clinical history of the patient, what has the trend been like before surgery, post-surgery, what is the baseline of the patient and make sure all your bases are covered."

P14: "… the time spent per patient also differs from the patient condition, but it will never be less than minutes 30 minutes and at most an hour if it is a really long mobilisation session like transfers and stuff at most it will be about 50-60 minutes. I've never been longer than that."

P20: we do expect them to spend about 30-45 minutes per patient so that they can give their patients what they need."

P19: maybe a follow up treatment on a patient who has had a myocardial infarction and who's baseline function is standing independently and that would probably take me about 20 minutes to

30 minutes as opposed to a new assessment or even a very acute treatment of a bypass patient still because it's so raw so it depends on the nature of the condition. There's no set, you can't put a time, 20 minutes on a patient, because if you true to your word and your career there is no time on your treatment."

P15: "Like the normal chest patients I always see them almost a half an hour."

P16: "Uhm I would say on a very simple day, on post laparotomy patients without complications, I'll spend half an hour. "On anything more complicated than that I can easily spend 40 to 50 minutes to an hour, even more. If it becomes a ventilated patient that is not mobilising, that can take easily an hour."

P5: "Yes, ICU patients demand extra attention because of the additional contraptions that are attached to them, ventilator patient's take longer you have to look out for complications, especially when mobilising, it is a much longer treatment session than any other ward and then also a little extra time post treatment to check that everything is okay which is something I encourage. I think obviously a new patient that you seeing for the first times takes a lot longer because you have to assess, make sure that everything is fine, make sure that there is no contraindications to your treatment, between 20 minutes to an hour if a patient needs to be mobilised. "

P18: "We spend about 20-30 minutes with a patient if they are in ICU and we see them twice a day."

P4: "I also think there's a lot of external factors like first, I like to first do all ICU patients in the morning, so nurses are there, there's no tea breaks, or family visiting, and these are contributing factors, you have to the amount of time it takes, you have to either wait or come back and it adds to the time that you spend with the patient.

P5: "I also find that your older orthopaedic take a long time, an average of an hour when they are in ICU, that's if there's no complications. Also, mobilising intubated patients are very time consuming and sometimes I think 45 minutes is actually being quite lenient."

P17: "Most of the time it's 40 minutes, sometimes even an hour."

P10: "It varies from patient to patient. You can have a chest patient say that you have been percussing for 10 minutes and you hit that patient once and they cough out everything into his ET tube and you need to suction him an it's clear then there's no point in percussing him further. So that treatment will just take you 10 minutes. So from patient to patient, but it can go up to an hour."

P7: "The ones who normally take longer are the ones who mobilise outside of the room as well and occasionally the ones who you do mobilise with the ventilator, that takes forever."

P12: Most of the time treatment sessions are between 30-45 minutes' maximum and at times have to work in conjunction with nurses. So the ICU patients have a worse condition and spend more time preparing checking thing like lines and making sure the environment is safe and when they walking, they tend to walk slower whereas the ward patients are a lot more functional and are able to mobilise a lot more easily for example, so the treatments are quicker and easier versus ICU where other factors come into play. "By the time I start interviewing the patient for the subjective assessment, it has already been five minutes, the proceeding into the treatment takes another 20-35 minutes depending if the patient has to be mobilised out of the ward, with or without oxygen. In the ICU there is a lot of noting down and scanning that has to occur in file and there is a lot of

detail to take into consideration in the ICU. The note taking takes 3-5 minutes as well. Perhaps slightly quicker because I obviously am a bit more familiar with the patient now, whereas in the morning I was treating the patient for the first time –I am a bit slower to make sure everything is fine and then as the day progresses it's a bit faster."

P13: "Time spent on average 30-45 minutes. It's a lot more time intensive when it comes to administration because you are looking their vital signs, through the ABG's, all the things that aren't necessarily paid attention to in the ward, …On average time spent is 30-45 minutes. I spend about 10 minutes assessing the patient. I spend about 10-15 minutes with functional rehabilitation such as bed mobility (head, trunk control), if the patient is stable enough I mobilise to chair or in the ward …Then also discussing with a nurse, is this appropriate for my patient on the day and is there anything specific that we need to work towards, so a lot of planning takes time before treatment actually happens. I do spend a lot more time communicating with family members in ICU since they quite concerned and I need to get a better understanding of their previous level of function and what the family expects in terms of what the patient needs to do by the time they leave ICU."

iv) Evidence-based Practice: Use of Protocols and Outcome Measures

Regarding the implementation of **evidence-based protocols**, the majority of PP ICU Physiotherapists reported using early mobilisation protocols for all stable patients and identified early mobilisation as evidence-based practice which was essential to ensure positive patient outcome and improvement in ICU. Other PP ICU physiotherapists reported the existence of and using protocols such as knee and hip replacement protocols, a protocol developed by the physiotherapy practice for post-operative laparotomy patients where early mobilisation day one post-operative was stressed, the use of published research by physiotherapists as protocol guides, for example the work by Professor Hanekom which focused on early mobilisation as well. The PP ICU physiotherapists also explained how they would use the evidence-based protocols to determine whether patients required mobilisation or chest physiotherapy or both to improve respiratory or pulmonary function. Evidence-based protocols such as patient positioning where one physiotherapist specified that part of the protocol was that patients were turned and positioned every two hours in ICU, protocols for patients who had undergone spinal surgery such as lumbar fusions and laminectomies were also explained. In one private ICU, PP ICU physiotherapists reported that doctors implemented the Surgical Intensive Care Unit Optimal Mobilisation Score

(SOMS) protocol for early mobilisation that determined the patient's functional level according to grades and to establish to which extent the patient should be mobilised.

P17: "We are very big on early mobilisation."

P16: So maybe day one mobilisation is kind of what we aim for in all our patients."

P7: ""Yes so uhm for example the very early mobilisation, it's evidence based it's something that's current. Once again there is articles that you back up and prove this is what you do and that and that."

P12: "Therefore for me the most evidence-based practice is to keep the patient mobile e.g. alternate side lying, sitting, or mobilising to the chair and mobilisation has shown to improve respiratory function e.g. mobilising out for the day as opposed to sitting in the bed. This part of our respiratory care protocol which is the most part of evidence based. Exercise to improve circulation would fall under mobilisation that is evidence based and then lastly chest physiotherapy – I'm not entirely sure but chest therapy would be regarded as evidence based – since it is unethical to deny a person chest physiotherapy."

P21: "So rather using our breathing techniques uhm thoracic expansion, mobilisations, uhm things like that to clear... if you talking about chest physio we will always do more of the automated stuff that the patient can assist with. Obviously on auscultation if there's an indication for percussions and vibes we will do that, but our practice protocol is definitely not immediately percussions and vibrations. We are very much into the lung compliance work. Loads of uhm facilitated breathing using your active cycle of breathing techniques, autonomic drainage. We have a protocol, on day one to mobilise."

P1: "So I think in our practice we really encourage early mobilisation. In terms of chest physiotherapy, based on current research you don't have to percuss every patient so the whole thing is about listening and auscultating, and if the patients cough is dry, his sats (saturation of oxygen in the blood) are fine, then why chest physiotherapy. Instead rather mobilise the patient out of bed and we do a lot of exercise therapy and deep breathing to get the patient up and moving."

P21: "The thing that we use the most is that early mobilisation table from Prof Hanekom that she brought out in I think 2008, but yah it was like her basic uhm initial groundwork that she did for early mobilisation, so we use that a lot."

P21: "Uhm our ICU usually has a 2-hour turning protocol and we I think would fit in with that. Yah so definitely early mobilisation protocols. We've got protocols for day one post laparotomy patients that we've kind of uh done by ourselves."

P16: "Then she'll pick up patients that have come out of theatre later in the day, that are required to get up straight away like from hip and knee replacements that doctors protocol. "

P15: "We give them also guidance, say for instance if it's a paralysed patient, or someone who had a back operation where operation comes with complications afterwards, we also give them a protocol, the doctors protocol post op, yah."

P20: "So the doctors in our unit, just before I started, started to try and implement the SOMS protocol for early mobilisation with level/grades so basically they use that as a guide for mobilisation so we work with the doctors to try and decide what grade/level the patient is at, to determine the level of mobilisation."

However, some reported that they tried to but not regularly used evidence-based protocols whereas and some reported that they did not use evidence-based protocols and did not have many protocols in ICU.

P20: "We really do try to work with evidence-based practice guidelines. We really are trying in our unit to do the best for our patients."

P19: "The treatment protocols has always been based on evidence-based articles but I'm lying if I said I kept on doing it on a very regular basis."

P17: "So I don't think we really have as many protocols unless it's with our uhm. When we work with the neurosurgeon, we have protocols. Those are for the lumbar fusions, the laminectomies, so your spinal surgeries."

P15: "She's ICU trained, and she's very specific on getting evidence-based treatment so she's so scared to be sued for something. So we also have a thing in our practice, we have to have a study done on whatever we doing with the patient, even if it's practice or hospital. So we do have articles."

P13: "We have not done journal clubs or discussed articles with regards to evidence-based practices."

In an attempt to implement evidence-based protocols, a significant number of physiotherapists partook in journal clubs as a method of keeping up to date on current research and evidence to ensure that patient's treatments were backed by scientific evidence and still in use. Topics included focused on conditions that were relevant to the ICU patient. Examples of these topics included early mobilisation, suctioning and high flow. In some cases, physiotherapists reported that even though the private practices had evidence-based protocols in place, they were not necessarily implemented nor updated on a regularly and one participant stated that no protocols were used at all in ICU. Also, one physiotherapist admitted that they never engaged in research before but has now attempted to make improvements in the use of evidence-based protocols and research by

doing tutorials. Two private sector intensive care physiotherapists researched the effectiveness of using IPPB as a treatment technique in ICU. It was discovered that there was poor evidence supporting the use of IPPB for critically ill patients. When doctors requested IPPB, these physiotherapists refused and supported this clinical decision by scientific evidence and research and this was just one of the benefits of engaging in and implementing evidence-based practice. However, despite this evidence a participant reported that there were still some physiotherapists who used IPPB since it was a code on the medical aid that was beneficial financially for the practice.

> *P19: "The treatment protocols has always been based on evidence-based articles but I'm lying if I said I kept on doing it on a very regular basis. There were protocols but whether those protocols were updated on a regular basis was another question, but there definitely protocols."*
>
> *P7: "So you know doing our own research and reading up quite a bit, and then also trying our best. We didn't in the pass, we lacked a bit, we trying now so every Wednesday we started doing our tut sessions where we help each other."*
>
> *P20: "Evidence-based practice is definitely happening, like I said, early mobilisation was our first journal club. We have done journal clubs on high flow, suctioning, respiratory muscle training so we have really had some nice topics that we have covered and it's making a big difference and making physiotherapists a little more aware that what they have learnt at university may have changed and just teaching them to read."*
>
> *P7: "I just did my research and stuff and I found there's very poor evidence for the IPPB so we don't use it and so far the doctors use to right but then you speak to them and inform and we show that group does IPPB, we don't and our patients till go to the ward a bit earlier than them so it's all about that mobilisation that's important and the other stuff that they can do."*
> *P17: "Uhm like I said, lots of things are out dated also. I'm reading an article on uhm the efficacy of IPPB. "We are not using it but I see so many physios using it... still because the medical aids will pay for it and it's a big code and it brings in money. That a reality of it... a lot of physios will… and it's quick, and it's easy and that's why physios use it."*

Also, the use of evidence-based protocols was regarded as vital among private sector intensive care physiotherapists to avoid any medical-legal complications as a result of inadequate patient treatment.

> *P15: "She's ICU trained, and she's very specific on getting evidence-based treatment so she's so scared to be sued for something. So we also have a thing in our practice, we have to have a study*

done on whatever we doing with the patient, even If it's practice or hospital. So we do have articles."

A differing opinion was that while mobilisation was part of the treatment to ensure optimum respiratory function, the participant questioned the ethics around not providing chest physiotherapy as we cannot deny it as a treatment to the patient.

P12: "Therefore for me the most evidence-based practice is to keep the patient mobile e.g. alternate side lying, sitting, or mobilising to the chair and mobilisation has shown to improve respiratory function e.g. mobilising out for the day as opposed to sitting in the bed. This part of our respiratory care protocol which is the most part of evidence based. Exercise to improve circulation would fall under mobilisation that is evidence based and then lastly chest physiotherapy – I'm not entirely sure but chest therapy would be regarded as evidence-based – since it is unethical to deny a person chest physiotherapy."

Some physiotherapists identified a limitation associated with evidence-based research and argued that because guidelines changed constantly clinical reasoning and practical experience was regarded as a more effective guide in the treatment of ICU patients. Some also said that treatment should rather be patient specific based on an assessment of the problem and clinical reasoning as evidence changes with time and so you need to research constantly.

P2: "So I think you have to also be careful with research because it's good and fresh and I like what comes out of it, but at the same time your clinical reasoning and your practice is what helps."

P1: "We have touched on it because I did my CPT 1 course four years ago and most of the evidence pointed to mobilisation, and that is mobilisation in bed, turning the patient, positioning out of bed and starting rehabilitation as soon as possible and getting active movement straight away. So passive movements yes, but if the patient is awake getting then through active assisted exercises so as to improve the lung function as well and improve mobility later on. So I really think we go onto early mobilisation out of bed, ventilators, patient out of the bed and onto the chairs etc."

P2: "I find evidence based to be so subjective, and I know they say evidence based and if you doing a study you can find what you need to find within the study. I've seen it in practice. So I think the best clinical based is sort of your own clinical reasoning. I think it's called anecdotal where you see what works best for you and your patient and when you have accumulated enough years of practice you can easily identify what's going to work and what's not going to work and as for the research, I've been on courses and everything changes. One month they tell you need to do this and don't do anything else and you respect it because it's evidence based. Then, the next month completely contradictory information. So I think you have to also be careful with research because it's good and fresh and fresh and I like what comes out of it, but at the same time your clinical reasoning and your practice is what helps."

P1: "It needs to patient specific. So if the patient is moist, then percussions. So I think it has to be assessment for particular patient and what works for that patent."

The use of **evidence-based outcome measures** in the private ICU was used by some and not by others. Those PP ICU physiotherapists reporting the use of outcome measures reported to use a variety of different measures with no standardise set of ICU-related outcomes. These were mainly physiological measures such as vital signs including blood pressure, arterial blood gasses (ABGs), tidal volume and perceived shortness of breath, functional outcome measures such as the functional status score, the 6-minute walk test or the 30-second chair test and lastly scales such as the visual analogue scale (VAS) indicative of pain, Glascow Coma Scale (GCS), Chelsea Critical Care Patient Assessment (CPAx) tool and Physical Function Intensive Care Test (PFIT). Additional outcome measures employed within the ICU included neurological outcome measures as part of treatment interventions in the neurological ICU, the Medical Research Council (MRC) Score for muscle strength, Range of Motion (ROM) and the five Surprise Questions (SQ) related to the cognitive function of ICU patients. If patients were responsive, it was reported that patient communication or conversing with patients were used and regarded as an outcome measure in the sense that physiotherapists would enquire from patients how they felt and what they would prefer regarding physiotherapy treatment, and this in turn was used as a basis of treatment and measuring progression as well.

P14: "We don't have a set protocol in our practice that every physio must use, yah we don't have that…In our session if it's like a ventilated patient we will check the tidal volume or something like that, or how far we have mobilised the patient or something like that."

P15: "But in our practice we only work in a general ICU so use the vital signs, the blood gases. And also the VAS scale for the pain… yes yah."

P13: "We do make use of comparable signs such as vital signs, the ABGs, blood pressure. In terms of outcome measures such as quality of life, etc, we do not use questionnaires within the ICU."

P20: "The functional status score is the outcome measure that we use in paediatrics and is a functional measure of how they are."

P17: "Sometimes we do that on video, the 10-meter walk. You have the time on the video and you can assess the gait."

P5: "We also use the work balance scale and the six-minute walking testers."

P13: "We do not use respiratory outcome measures but we do make use of neurological outcome measures since we are a neurologically based practice and we are doing neurological rehabilitation in ICU and within the parameters of ICU, so functional reach and balance if they are at that functional level, but that is the extent of our outcome measures."

P20: "Our assessment form looks at CPAx score, GCS, the MRC score for strength, VAS for pain, and the five SQ questions pertaining to how awake and cooperative the patients are."

P3: "If it is a fracture or it is weakness due to stroke we are going to use measures like muscle strength, we use ROM a lot especially if there are differences in ROM. Perceived shortness of breath, and distance are also used as outcome measures. for example: if day one the patient, if the patient can mobilise 3m and then day five they can mobilise three times, we measured it still."

On the other spectrum there were physiotherapists who indicated that they do not make use of any evidence-based outcome measures or were not good at using outcome measures but instead relied on their own clinical reasoning and patient progression as a basis for treatment interventions and reported that sometimes outcome measures could not be used effectively due to the ICU patients medical condition.

*P16: "Okay, if you asking me do I used standardised assessment tools? *laughter* no."*

P18: "We don't use any standardise ones, you just judge because you continue with the same patient throughout and judge what happens today and continue for tomorrow, there are no standardised measures."

P21: "Uhm we actually terrible with that. So I would say one, one basic thing we use in terms of outcome measures is distance walked. So if we are struggling with tidal volume then we will use tidal volume as an outcome measure or if we…yah, but I must say argh that we not very good with that. We don't have like a set yah a set thing."

P14: "Yah the six-minute walk test we used it, but it was rarely used because most of the time more often than not we couldn't use it because of the patients' clinical condition so by means of that we would like, even then it wouldn't be true to the test itself. I don't know if you have heard of the 30 second chair challenge to check the leg strength and endurance. However, it is not always uhm I can't say effective because it's definitely true to what you are testing but based on what the patient is allowed and capable of doing. But yah that was one of it though."

P1: "… but we don't really have a 6minute walk test. We do use physiological outcome measures."

3.3.2.3 Theme 3: Professional Ethos

3.3.2.3.1 Communication and Professional Conflict

While some physiotherapists **communicated** directly with doctors and nurses in the ICU, the relationship between these professions in the ICU seemed strained. Communication in general seemed to be a challenge and this included communication with all members of the ICU MDT team but specifically with nurses and doctors. The availability of the doctors or nurses for communication related to patient referral, management and goal setting was reported to be limited and was perceived as a challenge to the ICU physiotherapists in the private ICU setting. Some also reported communicating with other ICU healthcare professionals with regards to patient care. Lastly, communication amongst the physiotherapists from other practices who work with the patients once the patients are discharged from the ICU also occurs through handovers between these physiotherapists who communicate the patient's condition, prior treatment and current status and needs to the ward physiotherapist. However, this handover is not always afforded to all physiotherapists as some said while they did handovers it was not reciprocated.

P17: "We had a talk with the geriatrician…"

P10: "Probably just communication which you going to get everywhere and anywhere. The doctor will write something down but the nurse will read it. So he referred this patient, two days ago and then comes back two days later and is upset and thinks it's our fault that the patient is not seen or this didn't happen or that didn't happen but someone just didn't get the message. "

P18: "..., it just varies from nurse to nurse which nurse communicates better than the other."

P13: "Then also discussing with a nurse, is this appropriate for my patient on the day and is there anything specific that we need to work towards, … I work with the speech therapists at times for example when they do the blue dye test to see if they swallowing and the level of social interaction with the patient, to try and find out what their level of understanding is so I can ensure that I relay my commands in an optimal fashion so that they can be more compliant to my therapy in a way that is understandable for them. "I also work closely with the orthotist for any assistive devices that the patient may need like AFO's, compression stockings, splinting, etc. if my patient has a wound with VAC dressing I do try and speak as often as I can to the wound sister and find out about shortening positioning time, e.g. what position would be the best and how mobilisation will affect the wound. I also communicate with the dialysis technician during therapy to find out where the patient is and what I may and may not do with the patient. So there is a lot of interaction in ICU

among the whole team because any subtle change needs to be communicated immediately and to make sure that our goals are in line with one another's."

P7: "... we work together with the OT..."

P12: "Handover happens smoothly and there is an understanding between practices. When the patient moves back down to the ward, the handover happens as well back to our practice."

P20: "... we are very good with filling out assessment forms and paper work for the physiotherapists who work in the ward because of the very unique set up that we have in the hospital but often when the patients come to us after being in the ward for a long time, and then come to ICU we have no hand over or anything, so we start from scratch which is good because we doing full assessments with proper paperwork and everything anyway , but I sometimes feel like the courtesy isn't extended both ways."

Communication between private practice ICU physiotherapists and ICU nurses and doctors seemed dependent on the age and years of experience of the private practice ICU physiotherapists. One of the physiotherapists experienced that the communication and professionalism of younger, less experienced private practice ICU physiotherapists was lacking and needed to improve.

*P16: "And then also I think the other thing is etiquette in terms of relating to the doctors uhm, I think maybe the younger ones who are more use to outpatient physio don't have as much exposure to the specialists and so they will sometimes come in and talk to a doctor and I'm just cringing because of the way they talking *laughter* to the doctor...you know...you suppose to…they are still the specialist with a vast amount of knowledge and is see why…you have to approach them with a measure of respect uhm and not your buddy."*

The PP ICU physiotherapists also reported that their communication included communication with the patients through patient education on their condition, treatment and rehabilitation required and also communication with the family who needed to understand the rehabilitation process for the patients following ICU.

P13: "I do spend a lot more time communicating with family members in ICU since they quite concerned and I need to get a better understanding of their previous level of function and what the family expects in terms of what the patient needs to do by the time they leave ICU."

P21: "I just feel like uhm the one thing I've struggled within my own staff is just like to… when a patient says no it's not about convincing them, but explaining to them why, because everyone is sore and sick in an ICU. Everyone, everyone doesn't wanna get up but it's it's like ah, I don't know, like a skill you learn. To read a person, to understand their way of communicating and communicate on their level so they know just how important it is. "

P5: "Also, ICU patients demand counselling and we spend a lot of time actually talking to these patients. Sometimes family education, or even with trauma patients they require counselling about their injuries, or just patient education on a whole."

P17: "... education on what to expect and what's going to come, …"

P7: "We will encourage them (patients) to sit up for as long as possible explaining them (patients)the benefits. Then we normally do family meetings as well…"

The PP ICU physiotherapists also reported that there is **professional conflict** between ICU physiotherapists from the different private physiotherapy practices within the hospital. They explained that the conflict was due to the referral system based on the ICU doctors' methods of referring ICU patients and competition for patients as each practice aimed for high patient numbers to increase the financial status of the practice and income of employed physiotherapists in the practice. This conflict between PP ICU physiotherapists in the ICU setting resulted in a feeling of tension within the ICU setting. At one hospital a committee was formed in an attempt to discuss any disputes and reach agreement on certain issues such as competing for referrals/patients. The PP ICU physiotherapists also felt that the professional conflict or rivalry in the ICU created a negative working environment, took the pleasure out of being a physiotherapist, and gave the profession a bad reputation where physiotherapists were ultimately the downfall of one another. Some PP ICU physiotherapists

P13: "A second challenge that I do find is the politics amongst private physiotherapists. It's become a monopoly and money-making situation where therapists are fighting over their patients…"

P21: "But there's like a lil bit of a hunger games for patients sometimes."

P17: "Well because… uh yah to be very honest uhm uh everyone knows at the hospital, competition is tough. You have some physios who don't even talk to other physios. Some of them just give dirty looks, there have been arguments, uh yah uh it gets ugly because of competition."

P10: "Another practice is willing to kill you for another patient because they maybe saw the patient 10 years ago and say that's our patient."

P5: "Unfortunately, the centrum is that there is a lot of tension and it takes the joy and professionalism out of being a physiotherapist. in terms of ethics as well I think people need to have

a clear understanding of boundaries and not participate in unethical basis of practice so that you don't encounter problems in terms of referrals, and treatments are concerned because unfortunately we are faced with the fact that we have patients poached from under our eyes and it makes things difficult and affects your treatment and patients suffer at the end of the day because a patient is at the mercy of the physiotherapists who are treating them."

P9: "…the clashing and things like it can be like come across… yah I just think it's very unprofessional. But sometimes like in ICU, or in the ward in front of the patient, you know another practice physio will come to you and say like no I am seeing this patient …"

P10: "I think it's between different practices, the culture and attitude… we don't have that as much here, but another practice is willing to kill you for another patient because they maybe saw the patient 10 years ago and say that's our patient. Yah or their doctor maybe referred it (patient) to us, causes problems and a lot of friction in the hospital. It will be much better if all of us could work together and communicate and stuff, but yah it's politics."

P7: "I think in private practice that is a issue, so we trying to be proactive about it you know, we trying to get together the auxiliary services committee so we invite everyone to come and sit around and clash out ideas and discussions like that. And then first meeting was there, but then afterwards the other two practices were just not willing to work together with the cause. And as he said for some reason when there is very huge patients, because we work together as a team, three people will go and help mobilise and stuff and you know so the doctors sometimes feel that a more aggressive team is better for this patient, but then they will go and complain but the name is written down. So we don't see a patient if our name is not written down. So we adhere, and it became so bad that the hospital had to intervene so the hospital put rules and just reminding everybody you know you are not a first line practitioner within the hospital, you need to wait for the doctor to refer. … And so when it comes to the culture and things like that, I think at the end of the day physios is the cause of the downfall of physios not because of physio but because of fighting."

P9:"Yah it just makes a very bad impression of about yah physiotherapists in general and the hospital gives a bad name … yah just wish we could rather work together,

P7: "A bad impression of our profession."

However, some physiotherapists reported that they do also work together and help each other and that some practices and their physiotherapists work well together with no conflict amongst them.

P7: "And we've got good relationships with the doctors and we can discuss and we have an open door to the doctors so we can say this is our finding you know or what do you think, and stuff like that."

P9: "…but we actually do have a couple of other people in practices that really are they are very nice." "We work together sometimes just to help one another, …

P7: "There are other practices that we work quite well with. You will even say I saw the last one, you see the next."

P16: "So we really, really try to never have a nasty uhm attitude between our practices yah so I uhm ... it's very nice."

3.3.2.3.2 Awareness of and Attitude and Behaviour Towards the PP ICU Physiotherapist

Some ICU physiotherapists perceived that there is a lack of awareness of their role in the private ICU and a negative attitude and behaviour towards the PP ICU physiotherapist as a healthcare professional working in the private ICU setting. Some PP ICU physiotherapists regarded the nurses to be one of the main challenges within the ICU setting with regards to awareness of, attitude and behaviour towards the PP ICU physiotherapists. Some PP ICU physiotherapists said that nurses had their own idea of how they thought physiotherapists should treat their patients although the PP ICU physiotherapists perceived that their awareness and knowledge of their professions was lacking. Some PP ICU physiotherapists observed that nurses took advantage of the physiotherapists and used the PP ICU physiotherapists extensively in terms of positioning of patients and mobilisation back to the bed. At times nurses would not assist therapists to mobilise patients back to bed even though PP ICU physiotherapists considered the latter to be part of the nurses' role as well to mobilise patients especially if the patients were hemodynamically stable to be assisted by the nurse only. PP ICU physiotherapists reported that there were many times when nurses were not aware of the role of physiotherapists within the ICU and would warrant a patient unfit for physiotherapy even though he/she was fine. The PP ICU physiotherapists perceived some nurses to portray a negative attitude and behaviour toward them as the nurses would not want the physiotherapists to treat patients at certain times or the nurses would take a tea/lunch break when the physiotherapists showed up to treat patients and when the PP ICU physiotherapists may need the nurses' assistance. The latter was perceived by the PP ICU physiotherapists as an unhelpful attitude towards them that affected their treatment interventions since most often they required assistance from nurses with more difficult ventilated patients that needed to be mobilised to a chair. The private practice ICU physiotherapists expressed difficulties with working with doctors and

nurses in the ICU. They felt nurses expected them to use specific treatments for all ICU patients and would also instruct the physiotherapists on how they should treat the patient/s. Some physiotherapists felt that the relationship with the nurses were strained and that they had to "butter" up the nurses to improve the attitude of nurses towards them. Some doctors also expected the PP ICU physiotherapists to treat patients according to their specific prescription which undermined the ability of the physiotherapists to make their own decisions. There seemed to therefore be a negative attitude, behaviour and culture toward the physiotherapists rendering care to the ICU patients in some ICUs. There was a perception by some PP ICU physiotherapists that they were blamed for affecting the haemodynamic stability of patients and for resulting in attachments such as arterial or peripheral lines, drips or catheters being pulled out during treatment and thus nurses stipulated that physiotherapists should treat patients when there is a nurse available in the ICUs in which they work.

> *P13: "I don't know if it is a case of preconceived notion about what a physiotherapist does, but the attitude towards physiotherapists in private practice can be quite negative, you really have to butter the nurses up in order to have their cooperation and as I have said it's essential for your nurse to be working with you because of the patient's instability, so it makes it very difficult if the nurse does not want to work with you."*

> *P17: "Then they (nurses) don't understand what chest physio is... they just think percussions, then they don't know what we doing. Just basically not educated well enough in terms of our job description. And I think that might also fall on the physios because we don't educate them on what patients to refer."*

> *P7: "So I think the problem comes with the doctors not knowing what we can do or the nursing staff not knowing what we can do. And another challenge as well is like when you assess this patient and you see that this technique will work better, then the nurse will actually say but you didn't do physio because you didn't percuss the patient you know. And then I'm like was I effective, did I get the stuff out without percussions? ...it's because of lack of education on them, because they believe if you didn't hear that (*makes percussion noise*), physio didn't happen and they will actually tell the doctor, you know this person was behind there, no physio was done you know, but it was not that. The patient was sitting over the edge of the bed doing diaphragmatic breathing, chest expansions, all these other things you know so that is my…"*

> *P1**:** "Also, I think some of the nurses feel that they know more, for example "no this patient is not for physiotherapy" and this is one of the situation where a few nurses think that they know more than what we do in our profession so we come and try and stand up and say no we will assess the patient and decide whether the patient is stable enough for physiotherapy or not."*

P3: "The nurses…that's one of our biggest difficulties in ICU."

P21: "Uhm so there'll be loads of things going on like doctor's rounds, and washing, and turning, and things like that and uhm they almost unaccepting for us to try and work like at the same time as them. So I would say that treatment timing is really really tricky and that is definitely set up by the hospital."

P2: "Nursing staff use physiotherapists extensively for positioning and patient care and changing them. I have also found that again, with the nurses that there is sometimes that sort of like, they feel that a patient should only be mobilised if the physiotherapist is there."

P15: "Then in between they (nurse) haven't done anything to see what the other members of the team can do in the ICU for them as well."

P14: ""You do get the odd sister that doesn't like the physio to come now and mess with the lines or get the patient out of the bed so that does happen."

P12: "Although, there were practices I worked at where the nurses would be noncompliant and would literally instruct you not to treat the patient, and then later on the doctor would ask you why you have not seen the patient."

P20: "I think over the last year that has been the biggest culture change for the nurses and the physiotherapists – trying to get on the same page that not all patients need bi daily treatments because it's not standard practice for us to give the patients bi daily treatments, and secondly, if the patient can stand then it's actually if the patients can stand it's not in the physiotherapists scope of practice to put those patients back to bed, it's a nursing task."

P1: "So now the charge of ICU has put in place especially the surgical ICU, with regard to the nurses, there should be a nursing staff member with us in any physiotherapy treatment and if the person is go on tea, (name of nurse) should help us because she doesn't want any physiotherapy treatment to be done without nursing in case the patient does become unstable because goes back to "oh the physiotherapist was there, or oh the physiotherapist pulled out the line", so to protect us as well. I think it's quite good that we should be working with the nurses and that's one of the protocol that the charge sister has put in place just to protect us. So it's for the protection of the nurses, the patient, and us as well."

P7: "… there has been talks of ICU to become a closed unit…So they already started with some doctors. There's certain doctors who can't be the primary doctor …yes you the surgeon, but the physician is the primary doctor. Once it's (patient) in the ward, it's (patient) yours. Or you are the primary physician for the first 24 hours. If your patient is here longer than 24 hours or longer than 48 hours then you need to be the physician. So the unit manager said that the next step is to have a closed ICU for physio practices because they are not happy how certain physios treat patients within the ICU."

Very few PP ICU physiotherapists seemed to have the view that they were valued in the ICU or that the ICU doctors and nurses were aware and knowledgeable about their role in the ICU nor experienced a positive attitude towards them.

> *P21: "So we have some staff that will literally all value you …"*
>
> *P7: "We always assist…I think the nurses know us already so when they see us they use us as the opportunity to turn the patient, or to wash the patient so then that's when they doing the turning of the patient. "*

3.3.2.3.3 Autonomy and Scope of Practice

Autonomy and scope of practice was another aspect of the professional ethos perceived to be linked to the PP ICU physiotherapists role in the private ICU setting. The **autonomy** of PP ICU physiotherapists was perceived to be affected as PP ICU physiotherapists needed written referrals from doctors to treat and manage patients. There was a sense that patients could receive physiotherapy treatment without the doctor identifying the need and referring patients to the PP ICU physiotherapists but the PP ICU physiotherapists reported that they had to approach doctors to make them aware that patients could benefit from physiotherapy. However, they were not guaranteed the referral as doctors would choose which practice they would refer to, based on the relationship with particular physiotherapists and which physiotherapists the doctors knew or had a professional relationship with. Therefore, physiotherapists were not allowed to assess and treat private ICU patients on their own but needed to get a doctor's referral and would not treat any private ICU patient without this referral. Another aspect of that affected the autonomy of the PP ICU Physiotherapists was that they were limited in clinical reasoning and decision making with regards to patient management in particular treatment activities used and treatment frequency as doctors and nurses made decisions about what they thought patients required from the physiotherapist and therefore giving such orders to physiotherapists working in the private ICU

setting. Some felt that the doctor guided them in patient management especially in patients who were critically ill but some felt that their autonomy as PP ICU physiotherapists was limited as doctors mainly prescribed treatments and treatment frequency. Lastly, medical aid funders affected the autonomy with regards to using clinical reasoning and decision making around the treatment of patients as the medical aid funders were reported to dictate what treatment techniques could be used based on what they would pay for in terms of PP ICU physiotherapy treatment. This lack of autonomy with regards to using clinical reasoning and decision making around the treatment of patients was also perceived to be due to the fact that treatments provided ended up being determined by the tariff code (cost) for treatment activities used to increase financial income of the practice. Autonomy is also affected due to the fact that PP ICU physiotherapists working for private physiotherapy practice owners also treat according to what the practice owner deems necessary according to treatment billing codes and numbers of patients that require treatment for the financial income of the practice.

P15: "And they will also sometimes tell you uhm no I don't think you should mobilise the patient, but then the patient is stable. There is not really any indication of not treating the patient, and then you cannot go against their word, you cannot say but I want to treat the patient there's nothing wrong with the patient."

P18: "... doctors do give orders early in the morning as to what do they want."

P20: "...one of the paediatricians are very pro TDS physiotherapy on the day that the patient gets extubated and for one or two days after that and whereas everyone has allowed us to make our own decisions, this doctor is hell bent on TDS, and it's not even TDS during the day, he makes us go at night."

P7: "You don't want to over service the patient also you know. They don't understand the second session there is actually nothing needed so we won't...you now, do it but they don't always understand that."

P7: "... because we work together as a team, three people will go and help mobilise and stuff and you know so the doctors sometimes feel that a more aggressive team is better for this patient, but then they will go and complain but the name is written down. So we don't see a patient if our name is not written down. So we adhere, and it became so bad that the hospital had to intervene so the hospital put rules and just reminding everybody you know you are not a first line practitioner within the hospital, you need to wait for the doctor to refer."

P12: "I know that doctors generally have the mandate that patients need to mobilise and I find that there are challenges in that regard because patients might not be medically stable but need to be mobilised. So it's very difficult to find the middle ground where we can satisfy the needs of the doctors but also make sure that the patients aren't being pushed too much."

P5: "The other challenge, that I think as a private practice that we face now is that a lot of our treatment funders, medical aid tries to dictate what can and can't be done, how often it's done, and authorization, etc. and unfortunately the clinic that we are working at, the demographics and the funds are not easily available and has the ability to compromise your treatment and you need to tailor it according that which we don't but it's something we need to consider."

P13: "Whereas I am a therapist working for them, I don't look at numbers, I am not money orientated in that regard so I would like to treat my patients as I see fit."

The PP ICU physiotherapists also reported that they felt that their **scope of practice** in the management of private ICU patients was limited. Some felt that they had little or no role in suctioning of ICU patients or limited role in the cardiothoracic ICU while others described that their treatments were prescribed by the doctor therefore limiting what they were able to do with the patient and affecting clinical reasoning skills and independence in clinical reasoning and therefore had an effect on autonomy as well. They also explained that nurses had a preconceived perception or idea of what physiotherapists should be doing with ICU patients and that if certain treatment activities were not performed then the PP ICU physiotherapists would be deemed as not having treated the patient. The latter affected what the PP ICU physiotherapists would and could do with regards to treating private ICU patients. The PP ICU physiotherapists also reported that they felt that they had no role or little role in suctioning ICU patients and that nurses played a role in the suctioning of ventilated patients. The scope of practice is also affected by what treatments and treatment techniques the medical aid funders will authorise and pay for. Lastly, the PP ICU physiotherapists reported sharing roles within the scope of practice in ICU. They reported sharing the role of patient positioning and mobilisation together with the nurse which helped reduced and ease the workload in the ICU. One PP ICU physiotherapists also reported sharing the role of mobilisation for function with the occupational therapist (OT).

P2: So the sister (nurse) is also involved in the positioning to see that the patient is coping/not coping and then to help us."

P5: The other challenge, that I think as a private practice that we face now is that a lot of our treatment funders, medical aid tries to dictate what can and can't be done, how often it's done, and authorization, etc. and unfortunately the clinic that we are working at, the demographics and the funds are not easily available and has the ability to compromise your treatment and you need to tailor it according that which we don't but it's something we need to consider."

P15: "One of the other challenges uhm like in the cardio thoracic ICU, it feels as if our job as a physiotherapist is getting less and less… like uhm … we are not allowed to suction anymore in cardio thoracic."

P7: "So as they've mentioned about professionalism. The other thing, because we work together with the OT man so there's been some complaints for instance you know where we will be seeing the patient and they will just and tag along in our session and our question, do they bill that patient as well? you know, so how do I now approach that and ask them? So one day I already said you know we mobilising the patient, so then you rather do it, then it already happened then they say yah but it's the same thing. It's difficult … how do you address …"

3.3.2.3.4 Ethics

Ethics was an important aspect of professional ethos discussed by the PP ICU physiotherapists and was reported to be a challenge in the private ICU setting. There was a variety of perceptions regarding issues around ethical behaviour of and ethical challenges faced by PP ICU physiotherapists. These are explained and illustrated by quotes that follow. Professionalism during treatment and confidentiality with regards to patients details and their health condition needs as well as lack of professional behaviour in front of patients was reported to be an ethical behaviour issue and should be given attention.

P15: "So they (PP ICU Physiotherapists) will take out the phone, being on the phone or uhm they will speak about other patients in front of a patient. Discussing the condition, or discussing something private about the patient…". "Yah, and then other thing as well uhm it's not just the sisters, mostly it's them, but you will get while you are working with the patient, some of the people (PP ICU physiotherapists/nurses) will take out the phone, turn down the curtains even if the patient is sedated, it doesn't matter it's a patient, and you have to give your attention to the patient."

P21: "Maybe professional behaviour attitudes would be uhm cross referrals from doctors to other physios. I think that sounds a bit petty, but I would definitely say it's an issue in private practice, but there's like a lil bit of a hunger games for patients sometimes. And I think that's very unprofessional because actually it's not about the work, it's more about the physio… I mean the patient so…, I sometimes think like bedside manner is lacking."

P5: "... unfortunately we are faced with the fact that we have patients poached from under our eyes and it makes things difficult and affects your treatment and patients suffer at the end of the day because a patient is at the mercy of the physiotherapists who are treating them. "

The PP ICU physiotherapists reported that they experienced ethical dilemmas with regards to the treatment frequency for ICU patients. Some said that while bi-daily or tri-daily treatments of patients may not be suitable or necessary and considered it to be over treating the patient, they also felt that they needed to do it to please the doctor/s to maintain referrals to the practice and maintain the income of the private physiotherapy practice. Some also reported that bi-daily treatments had become a standard practice for some physiotherapy practices and doctors in the private ICU setting.

P15: "But sometimes I feel like if the patient doesn't need the physio, but then I am obligated to do it because that's what the doctor wants."

P7: "Yes, yes you create a problem list and then there are sometimes where the patient is not stable or there is really no need to see the patient, but then they (doctors or nurses) don't understand that. You don't want to over service the patient also you know. They don't understand the second session there is actually nothing needed so we won't…you know, do it but they don't always understand that."

P5: "I do find that there is a sense of over treating and over servicing patient's. It's a standard requirement in that physiotherapy practice, that every ICU patient will be seen twice which in my opinion is over servicing."

P17: "I would say 90-100% of ICU patients are b-daily. If they are referred for physio, the doctors know already ICU patient, all bi-daily. Sometimes, sometimes tri-daily if it's now a severe case."

P13: "It's become a monopoly and money-making situation where therapists are fighting over their patients and our treatment stops becoming patient centred and becomes more money orientated and the unethical aspect comes in where patients are being treated where they don't really require therapy. Especially where you don't run your own practice and you are working for someone you sit and think this patient does not require such intense therapy but because the pressure is from management and we need to keep the numbers up."

On the other hand, some PP ICU physiotherapists reported that they made their own decisions regarding the necessity of patient treatments and did not treat patients that did not require physiotherapy intervention and when treating ICU patients provided treatments that were based on each individual patients' condition. Resting periods in some ICUs also did not allow some PP ICU

physiotherapists to do tri-daily treatments. Although not everyone was perceived to treat according to the patient case and necessity that was felt by some PP ICU physiotherapists to be ethically incorrect and to be discouraged.

> *P3: "Also if we seeing a patient and the patient doesn't require physiotherapy, even if the doctor refers the patient, we do a screen, right the patient is mobile and does not require physiotherapy. We not just going to see the patient because the patient is there and has been referred because it's unfair to see a patient who doesn't need physiotherapy. "*
>
> *P1: "Depending on what they need, we see them for that and not just exercise for every patient and it's dependent on each individual."*
>
> *P14: "Some of our patients we do see uhm three times a day if the doctor specifically asks for three times a day. But that will be like in severe cases, uhm we don't do it usually because we do have resting times in the ICU."*
>
> *P5: "It's (treatment frequency and activity) not a standard operating procedure, not with ICU. Because every patient is different. It's patient to patient, day to day, and hour to hour. So you can't say that every patient of yours is going to receive x, y, and z. This is happening and is something that is strongly discouraged."*

Another aspect of poor ethical behaviour was that many of the PP ICU physiotherapists reported that treatment activities used were based on which treatment activities the medical aid funders would pay for and/or on the tariff rate (cost) of each treatment activity code paid by the medical aid funders. PP ICU physiotherapists therefore felt that they were guided by these funders and the tariffs in order to bring in money to maintain the financial stability of the practices to support their income. It was also perceived that they had to recruit patient numbers, treat and bill accordingly as practice owners needed to maintain their business and physiotherapists employed needed to be paid a salary where some salaries were based on commission that was an incentive to recruit large numbers of patients to earn more. Some felt that treatments became more standard practice than based on evidence and the needs of each patient and their condition. Competing for numbers due to commission-based payments was also deemed an area that needed to be addressed by PP ICU physiotherapists and physiotherapists in general.

P17: "I'm reading an article on uhm the efficacy of IPPB. We are not using it but I see so many physios using it…still because the medical aids will pay for it. And it's a big code and it brings in money. That the reality of it…a lot of physios will...and it's quick, and it's easy and that's why physios use it."

P13: "The unethical behaviour that is happening in ICU is widely known, and how treatment has become standardised and is not necessarily specific to the patient. Whereas further knowledge and understanding the complexity of the ICU patient will ensure that you are not being unethical in standardising a therapy specific to your patients' needs, for example identifying markers that are contraindicated because when it becomes standardised you have a patient that has a MAP (mean arterial pressure) of 42mmHg and because it's standardised you have to see that patient. As a practice owner they are running a business, so meeting certain numbers is essential or the success of their business. Also when it comes to chasing the numbers, this blinds them a bit. For example, if they have twelve patients that they need to see in the morning, they just do haphazard therapy and the patient is not receiving the attention they need because they are so busy trying to fill up numbers. It's not that they are bad therapists it's more that they are acting like halfway therapists and that's my opinion. But since there needs to be some protocols, I've noticed so that you can bill accordingly and you ask yourself is this really required? For instance, I would think that something else is more important such as trunk control above chest physiotherapy, but because prevention is better than cure, and numbers need to be reached, and codes need to be billed, chest physiotherapy is mandatory in a sense. It's unethical and it drives me crazy but I am just an employee working for someone who wants to make money."

P12: "Keeping the numbers up will always be on the mind of the practice owner in comparison to the treating physiotherapist who will always think about rehabilitation. Chest physiotherapy is mandatory and you can go ahead and do whatever treatment you feel you need to do but the billing will always follow in a certain direction."

P7: "So as they've mentioned about professionalism. The other thing, because we work together with the OT man so there's been some complaints for instance you know where we will be seeing the patient and they will just and tag along in our session and our question, do they bill that patient as well? you know, so how do I now approach that and ask them? So one day I already said you know we mobilising the patient, so then you rather do it, then it already happened then they say yah but it's the same thing. It's difficult ... how do you address ... because at the end of the day it's their business I can't tell them how they must do their business and mobilise a patient … at the end of the day it's an ethical issue How do we approach that? You know I thought how do we get people to change their mind set?"

P7: "From a business only point of view and what you trying to do in hospital, so observing and seeing the people in the past that work on commission base, that incentivises them to see more people, then it's a rushed treatment, not everyone, I'm just generalizing, but that's just my observation you know, …". But the three people that's dedicated to work in hospital here, are on fixed salaries so that there is no competition of I need to see 10 people today and fight, you know. I always tell them if you see three people, see three people, you can see that three people for two hours you know. The time that you spend with the patient is not uhm …On an outpatient basis it is a bit more difficult that's why you have to have a commission structure thing there. …But so I think in private practice, from a physio point of view that needs to be addressed because in hospital that is one of the factors why they are fighting, why they want more patients you know. There's enough work for everybody, no need to fight you know. So ideally, if something like that can be addressed."

Lastly, in terms of informed consent, this was mentioned by one PP ICU physiotherapists to add to the ethical dilemmas faced when needing to treat ICU patients especially when patients are ventilated and do not understand what is required or patients think they are signing for payment of services.

> *P1: "Even informed consent, in ICU it's a big, big challenge, the patient is ventilated and you can't get hold of the family and sometimes it's a big issue, who do you get informed consent from? and even the patients who are awake they think informed consent is from medical aid and then they don't want to sign, and ask am I signing because I need to pay something? So even though we need informed consent it's quite a big issue if they ventilated and they also don't understand."*

3.4 Discussion

The private practice ICU physiotherapists described their profile, role and current practices within the private ICU setting. The findings of this study are new and novel. While there is a huge proportion of physiotherapists that work in the private sector both globally and locally, there is very little evidence of private practice physiotherapy and private ICU structure and organisation, PP ICU physiotherapist profile, role and current practices with regards to private ICU patient management (Perreault, Dionne, Rossignol, Poitras & Morin, 2014) including South Africa. This qualitative study provides an in-depth insight into the latter and provides a baseline for more in-depth enquiry of these physiotherapists' roles and current practices in the private ICU setting and demonstrates that numerous factors play a role and influence practices of PP ICU physiotherapists. While survey studies internationally (Baidya et al., 2016; Sigera et al., 2016; Taito et al., 2016; Malone et al., 2015; Yeole et al., 2015; Chokshi, Alaparthi, Krishnan, Vaishali, & Zulfeequer, 2013; Appleton, MacKinnon, Booth, Wells, & Quasim, 2011; Wiles & Stiller, 2010; Hodgin et al., 2009; Kumar, Maiya, & Pereira, 2007; Norrenberg & Vincent, 2000) and locally in Africa including Nigeria (Oke, Birabi, & Oghumu, 2015), Zimbabwe (Tadyanemhandu & Manie, 2015) and South Africa (Karachi et al., 2018; Lottering & van Aswegan, 2016; van Aswegan & Potterton,

2005) have provided quantitative information on public and minimal private ICU physiotherapy role, services and current practice patterns in ICU this qualitative study has provided a more in-depth understanding of how PP ICU physiotherapists work and function in the private ICUs in private hospitals in SA and includes some of the factors that are perceived to affect their services, role and current practices and the challenges they face in this setting with regards to the latter. It also provides further information on the findings of the survey study conducted with this same population (Chapter Two).

Three major themes were identified with regards to the profile, role and current practices of PP ICU physiotherapists in this study and provide evidence for the factors that influence how PP ICU physiotherapists work and function in the private ICU setting in SA. These themes were competence, practice patterns and services and professional ethos related to PP ICU physiotherapists. Overall, there was variation amongst physiotherapy private practices providing ICU care. These variations were not only between practices in one hospital but between practices in different hospitals too. This variation in PP ICU physiotherapists practices were similar to that reported in local survey studies (Karachi et al., 2018; Lottering & van Aswegan, 2016; van Aswegan & Potterton, 2005). A comparison of the findings of this study with others proved to be difficult as there are minimal to no studies in this area and in particular studies with qualitative designs and thus much of the findings are compared to available survey studies and similar studies in other ICU disciplines. Inferences of the findings and their implications therefore form the broader part of this discussion.

The competence of the PP ICU physiotherapists was deemed vital for appropriate, effective, efficient and safe management of the private ICU patient. The PP ICU physiotherapists valued continuous professional development. They showed a keen interest in ICU training by attending as many ICU training courses and even provided these training courses for their fellow physiotherapists employed in the practice. They took the initiative to read and research on their own and were involved in ICU tutorials, journal clubs and discussion forums and also upskilled themselves by completing post-graduate degrees (Masters and PhD) in the area of ICU and cardiopulmonary rehabilitation similar to the small sample of PP ICU physiotherapists in the survey by van Aswegan and Potterton, (2005) and Lottering and van Aswegan (2016). There was also emphasis placed on peer learning and induction and orientation training in the ICU to improve confidence and ability to work safely and effectively in the ICU. They explained however that while they attended the ICU refresher courses these did not provide information that they were not already aware of and also lacked specific physiotherapy-related ICU information and practical training. It is therefore important to relook the available ICU training courses available, evaluate their content and provide more specific training for ICU physiotherapists that can be achieved through a needs analysis of what aspects of postgraduate clinical ICU training for physiotherapists are required. This is corroborated by van Aswegan, et al. (2017) who states that patient outcome from ICU can be affected by the way in which physiotherapy is provided and therefore it is crucial to clarify competencies required to ensure a safe and effective clinical practice.

These competencies can then be addressed through more appropriate ICU physiotherapy related training courses. Lastly, the variability in postgraduate training and attendance of ICU training courses and the years of ICU work experience may affect the effectiveness and efficacy of patient

treatments and thus patient outcomes. While practice owners were older and had more years of ICU experience it was mostly the younger with fewer years of ICU experience, new physiotherapists who completed community service as well as locum physiotherapists with minimal or no ICU-related training and experience who worked in these ICUs and therefore may affect the PP ICU physiotherapists practice patterns and services and professional ethos. It has been reported that the lack of experience and training of ICU healthcare professionals has an effect on patient outcome and satisfaction of such care (Malelelo-Ndou, Ramathuba, & Netshisaulu, 2019). According to Malelelo-Ndou et al. (2019), 50% of the nurses who practise in critical care have less than 5 years' experience and as such nursing in ICU is becoming ever more complex and more intense, and nurses cannot quickly acquire the specific skills they need to practise in ICU without the support of experienced peers. This may be a similar concern for the PP ICU physiotherapists in private ICUs in SA and needs to be assessed and addressed as Malelelo-Ndou et al. (2019) found that ICU nurses and doctors in a public sector ICU in SA highlighted that patient care is compromised because of inadequate numbers of trained ICU staff which may infer a similar problem for ICU physiotherapists in private ICUs in SA.

Practice patterns and services was identified as the second major theme. The PP ICU physiotherapists explained that the private ICU environment was complex and different to other settings in the hospital and that the set up and organisation of these ICUs affected their practice patterns and services rendered in terms of ICU teamwork and patient care. The PP ICU physiotherapists practice patterns with regards to their practice set up, resources, workload and time spent in the ICU, discharge planning and follow up and evidence-based practices varied but there was consensus on referral patterns, documentation and administration, patient workload,

treatment activities and prescription of treatment as they reported the same challenges. There was however variability of how these PP ICU physiotherapists responded to these challenges and provided private ICU patient management.

In terms of resources, it was clear that PP ICU physiotherapists and the private ICUs were not short of equipment and that practices were well staffed in order to provide quality of care as reported. However, with regards to equipment, they reported that this has become a challenge due to the lack of medical aid funds to pay for such equipment that has resulted in financial losses within their practices. In comparison, the public ICU sector in SA has mainly one physiotherapist that would treat ICU and ward patients and equipment used for treatment is limited (Karachi et al., 2018). But, similar to public ICUs where ICU resources including equipment are reported to be limited, there was a perceived lack of equipment in some private ICUs such as suction catheters and appropriate chairs for patients to sit in to name a few.

Although there was enough staff as reported, the variety of PP ICU physiotherapists treating patients in the private ICU from one or more practices may affect the continuity of care that may affect ICU patient outcomes. Leigh (2017) reported that continuity of care in patients is a central focus for quality improvement in current health care because medical errors, adverse events and worse patient outcomes are affected by the movement of people and information especially for patients with complex care needs, such as those who receive care in an ICU and thus the findings of this study with regards to continuity of care needs exploration and attention.

Referral practices are different to the public sector where PP ICU physiotherapists do not manage ICU patients without a written or verbal doctor's referral and are dependent on referrals in the ICU and need to have a rapport or relationship with the ICU doctors in order to get referrals which can affect the practice income and income is dependent on the number of referrals (Karachi et al., 2018). Patient workload and time spent in the ICU is dependent on referrals but also on the setup of the ICU such as its visiting times and the protocols or policies regarding when and how physiotherapy can be performed as well as the timing of patient treatments, time for each treatment activity required and treatment frequency. Bi-daily treatments and even tridaily treatments are reported even though the physiotherapists perceived these to be unnecessary and over treating which is the believed was to be ethically unsound practice by the PP ICU physiotherapists. PP ICU physiotherapists are able to perform bi-daily treatments compared to ICU physiotherapists in the public sector treating patients only once a day due to staffing issues (Karachi et al., 2018). However, the rationale for bi-daily treatments were not only for improved patient outcome but unfortunately related to income generation for the private physiotherapy practice and their physiotherapists as many PP ICU physiotherapists were employed on a commission basis and had to have patients to earn an income. The patient workload was also dependent on time needed to educate the patient and family members as well as communication with the multidisciplinary team and assistance received from the nurses when treating patients in the ICU especially during mobilisation.

While it was reported in the survey by Karachi et al. (2018) that the nurses in ICU assisted with mobilisation of ICU patients, the findings of this study suggests that nurses in the private ICU perceive this role to be that of the physiotherapist in some cases and do not always assists the

physiotherapists in this regard adding to the workload and time spent in the ICU by physiotherapists who then have to manage the mobilisation process alone that was reported to take more time in this case. The sharing of roles between nurse and physiotherapists in the private ICU with regards to patient care and the challenges associated this is a gap that needs exploration to determine scope of practice and assist in defining the role of physiotherapy in the ICU setting.

The referral practice, prescription of treatments, lack of multidisciplinary team communication and involvement and the attitude and behaviour of nurses and doctors towards the PP ICU physiotherapists found in this study affects the autonomy, role and scope of practice of PP ICU physiotherapists in the private ICU setting but also their effectiveness and efficiency in patient management that may affect patient outcomes. The latter may have a negative impact on the importance of their role in this setting and their ability to sustain the profession in private practice ICUs. Awareness of the critical role, evidence of the beneficial effects of ICU physiotherapy and proven positive patient outcomes and reduced costs associated with early physiotherapeutic intervention (Hanekom et al., 2013) amongst ICU nurses and doctors should be increased (Ponto et al., 2019). With the invent of COVID-19 the integral role of ICU physiotherapists has slowly but successfully been highlighted in both the acute phase as well as the rehabilitative phase and therefore the latter challenges may improve. However, PP ICU physiotherapists need to continue to create awareness of their importance in this setting and within the MDT ICU team. This is corroborated by (Ponto, Lupton-Smith, & Karachi et al., 2019) who stated that in a neonatal ICU the lack of autonomy, awareness, attitude and behaviour and scope of practice needs to be addressed in order to better define PP ICU physiotherapists role and their importance in ICU and

improve ICU patient outcomes that will reduce the use of expensive resources by reduced respiratory and functional complications and length of stay.

The lack of discharge planning and follow up was perceive to be due to the lack of step down facilities in some hospitals and due to the fact that once the patient leaves the ICU, these physiotherapists are not involved in the follow-up and only provide a report to the physiotherapists who will continue post ICU management. The latter was reported to be due to the fact that many of the private physiotherapy practices were not involved in pulmonary or other required physiotherapy rehabilitation post ICU discharge. Follow up is also affected due to the lack of medical aid funds for follow-up physiotherapy following expensive ICU medical treatments and procedures. This is an area of ICU physiotherapy practice that requires exploration. Lasiter, Oles, Mundell, London and Khan (2016) conducted a scoping review and reported that ICU follow-up clinics exist in some settings but evidence for the treatment or management applied in these follow-up clinics and their effectiveness have not been well explored thus supported the latter recommendation.

There seemed to be a contradiction in terms of treatment activities used to treat private ICU patients and the reported use of evidence-based early mobilisation protocols. The treatment activities used to treat ICU patients still included manual chest physiotherapy techniques together with mobilisation practices. However, it was identified that as chest physiotherapy techniques were charged at a higher tariff this may be the reason for its standardised inclusion as reported in the findings but in addition reported as a challenge with regards to clinical reasoning and decision making as well as ethics. With regards to evidence-based practices such as the use of evidence-

based protocols and outcome measures, similar to the public sector ICU physiotherapist in SA, PP ICU physiotherapists lacked use of standardised ICU-related outcome measures using mainly physiological measures but on the other hand PP ICU physiotherapists reported to use early mobilisation protocols and were proactive with patient mobilisation and positioning and reported walking patients in the ICU and mobilising ventilated patients which was not rated as some of the most used treatment activities in the public sector ICU survey by Karachi et al. (2018). A later study by Iles and Davidson (2006), identified that the main barrier to the implementation of evidence-based practice was time needed to keep up to date with current and new evidence, access to easily understandable research summaries, and journal articles and insufficient skills regarding search strategies and critical appraisals. Although the PP ICU physiotherapists have shown involvement in trying to do research through tutorials, journal clubs and individual research and postgraduate degrees, more emphasis needs to be placed on addressing these barriers in order to ensure that physiotherapy practices implemented in private ICU are of a high standard and play a positive role in patient outcome across the entire sector of the ICU physiotherapy profession. Lastly, in order to provide appropriate evidence for the benefits of ICU physiotherapy PP ICU physiotherapists should attempt to use more standardised functional and quality of life outcome measures to show patient improvements in outcome that can be used to advocate for their role in the private ICU and increased medical aid funds for physiotherapeutic intervention in this setting.

The third and last major theme related to the professional ethos of PP ICU physiotherapists and the ICU team in the private ICU setting that affects the autonomy and scope of practice of the PP ICU Physiotherapists. There seemed to be challenges with communication and integration of the PP ICU physiotherapists in the MDT ICU team. This may affect how the PP ICU physiotherapists

are perceived with regards to their role in patient management but also prevents them from sharing their knowledge of the patient's condition with other members of the team that can aid in appropriate patient management and patient goal setting that may improve patient outcome and reduce costs. The HPCSA Physiotherapy Board states that physiotherapists are first line practitioners and have first line practitioner status thus should be able to assess and treat any patient independently. However, in the ICU in both private as found in this study and public as stated in Karachi et al. (2018) this status is lacking. Private physiotherapy practices who are therefore mainly involved in ICU patient care are dependent on referrals and have to compete with each other in order to survive and make an income for themselves and their employees, as many are working on a commission basis as was reported in this study. The lack of first line practitioner status may affect the role and scope of practice of the ICU physiotherapist in the private ICU setting

Linked to the theme of professional ethos, ethics was an important and critical aspect of PP ICU physiotherapy practice that was discussed with regards to PP ICU physiotherapy practices in the private ICUs. The PP ICU physiotherapists seemed to be torn between what was considered ethically correct versus what was expected of them in the management of ICU patients based on referral patterns, prescription from the ICU doctors and nurses and medical aid funders authorisation criteria as well as practice billing requirements related to tariff codes and treatment costs. The ethical dilemma faced related mainly to bi-daily patient management prescribed by some practices and the majority of ICU doctors as the physiotherapists perceived that bi-daily treatment should not be standard practice but be based on the patients' needs following a thorough assessment and that patient treatments should not be routine. However, doing what the ICU doctors

prescribed was reported to be out of obligation and fear of not receiving future referrals if the treatments were not done. They also perceived that they were ethically challenged as medical aid funders prescribed or dictated what treatments would be paid for which were not necessarily what patients needed and therefore had to perform these treatments and bill the related tariffs in order to earn an income for the practice and themselves. The authorisations for physiotherapy treatment required by medical aid funders also affected the autonomy of physiotherapists who were thus dependent on the ICU doctors' referral to be able to treat ICU patients. The latter limited the use of their own clinical reasoning and decision making with regards to patient management as well. Therefore, in summary the tariff rates for different treatment activities regulated by medical aid funders, the frequency of patients seen, allegiance to doctors to maintain referrals to the practice by doing what is prescribed even though it may be perceived as over treating and thus harmful, as well as rivalry amongst practices in getting ICU patient referrals has affected the professional ethos of PP ICU physiotherapists in this setting. One of the differences that were highlighted from this study was that unlike the public sector ICU physiotherapists in SA who would receive a set salary as government employers, the PP ICU physiotherapists salary was solely dependent on the number of patients and frequency of treatments that could be provided per patient to earn their income. This dependency on patient referrals and frequency of treatment resulted in a problem with ethical behaviour and professionalism within and between practices as stated earlier.

The treatment costs were determined by which modalities were used and therefore affected which treatment activities would be used as some physiotherapists would use modalities that were on a higher tariff and pass it off as preventative treatment required to prevent complications even though

this may not be based on any scientific evidence as there is minimal scientific evidence available for the efficacy of chest manipulations to prevent respiratory complications.

Lastly, medical aid funders only provide a small percentage of the medical aid funds for physiotherapy in and out of hospital and therefore patients may have to pay for treatments out of their pocket that affects the patient in terms of care that can be received. The increased financial impact on the patient to therefore receive physiotherapy affects their response to accepting physiotherapy care in ICU and in following through with the necessary management post ICU to improve outcomes. This in turn affects the income that can be generated by PP ICU physiotherapists resulting in the various unethical behaviours reported when recruiting patients in the ICU. The latter requires serious attention. Another factor that does not necessarily justify treatment cost is that while the physiotherapist may perform treatments that are valid, the cost of the treatment activity performed does not necessarily translate into the time spent with the patient as different patients took different amounts of time for the same treatment to be completed due to the severity of illness and complicated nature of certain ICU patient cases. The physiotherapists described taking longer to treat a patient who was more severely ill or was connected to more attachments that needed to be monitor and navigated during treatment versus a patient who was less severely ill and more mobile or functional. Thus, physiotherapists would receive the same amount of money for the same treatment that took longer in one patient compared to another.

The SASP and physiotherapy profession as a whole need to evaluate the challenges around medical aid funds for physiotherapy treatments including tariff codes and costs and find ways to

combat the need for the latter behaviour related to treatment activity choices and billing to protect employees but also employers in private practice ICUs and improve ethical behaviour.

In conclusion therefore, this qualitative study highlights the role and current practices of PP ICU physiotherapists and the challenges faced that require assessment and improvement for the wellbeing of the profession in the private ICU setting.

3.4.1 Strengths and Limitations:

One of the limitations of this study was that the findings could not be generalised to all private sector ICUs within South Africa since participants were not representative of all the provinces due to the fact that some declined participation. However, the majority of participants were from provinces in which the majority of private ICUs are located and thus provides information from this majority which is a strength of the study. In addition, focus group interviews were time consuming and individuals were distracted by time as they needed to return to work. Some interviews were completed telephonically as the researcher was unable to do interviews in the various provinces face to face and thus the researcher may have missed environmental, bodily or facial cues or group dynamics that are normally picked up on with face to face individual and focus group discussions. One of the major strengths of this study is that the researcher was able to include both a number of face-to-face individual interviews and two focus group discussions to reach data saturation. Another major strength is that the information provided exceeds some of the survey findings done previously as aspects such as why the PP ICU physiotherapists function as they do in the ICUs with regards to services and current practice, and why their role in the ICU may be affected is explained. The study provides information on the challenges faced especially with regards to Communication and Professional Conflict, Awareness of, Attitude and Behaviour towards PP ICU Physiotherapists, Autonomy and Scope of Practice and Ethics related to their

services, role and current practices in the private ICU not elicited by both international, national and local surveys available.

3.5 Conclusion

This qualitative study is one of the first studies that has evaluated and provided much needed evidence for PP ICU physiotherapy profile and current practices that can be used as a baseline for future studies in the area. The study provides evidence of the specific challenges that PP ICU physiotherapist face in private ICUs in SA and these challenges can be addressed by physiotherapists in order to improve their role and status in the private ICUs, their referral patterns and criteria, involvement in the private ICU MDT, discharge planning and goal setting and creating awareness of the benefits of physiotherapy to the ICU MDT, ICU patients and what treatments are deemed appropriate and beneficial for improved patient outcomes. There is a need to address the challenges around the medical aid funds and private funding of private patients in order to receive the appropriate follow-up physiotherapy post-ICU discharge and also to address the issue of appropriate tariff rates that may minimise the unethical nature of using certain treatments and tariff rates for their consultations. It is recommended that the challenges faced by PP ICU physiotherapists and solutions to these challenges be evaluated in order to improve practices, the working environment and financial aspects in this sector of physiotherapy. Future studies should focus more in depth on the individual aspects of PP ICU physiotherapy such as training, referral, autonomy, resource challenges, and evidence-based care and outcome measurement in order to improve the way in which PP ICU physiotherapists practice and are able to provide services in private ICUs in SA.

Chapter Four: Overall Discussion

The overall aim of the study was achieved. The survey findings were confirmed by the qualitative findings and the qualitative findings provide more insight into the survey findings and provided detail regarding the challenges that affect the profile, role and practices of PP ICU physiotherapists in the private ICU. The overall discussion attempts to bring together the main aspects of the how the survey data and qualitative enquiry provide insight into the current situation in PP ICU physiotherapy profession with regards to their profile, role and current practice.

The study showed that the physiotherapists working in private ICUs were mainly young women, while the practice owners were older. Therefore, it portrayed a sort of hierarchy related to age and years of experience. There was variability amongst the physiotherapists practices that were affected by how the ICUs and hospitals were managed, structured and organised. There are clearly differences in some aspects of physiotherapy practice in private versus public sectors and in some aspects there were similarities.

The main aspects of the findings from the qualitative enquiry that informed the quantitative findings from the survey was related to training and qualifications, resources, the reasons for the workload and time spent in ICU, treatment activities used and chosen, frequency of treatment and time spent on patient treatment, evidence-based practices including the use of protocols and outcome measures in the private ICU. The qualitative enquiry also highlighted aspects not covered in the survey study such as aspects related to communication and professional conflict, awareness of and attitude and behaviour towards the PP ICU physiotherapists, autonomy and scope of

practice and ethics together with the challenges associated with these categories that affected the role and current practice of the PP ICU physiotherapist in private ICUs.

Training and qualifications were somewhat different from what was reported in the public sector with more involved in MSc and PhD degrees and everyone attended some or the other PG training course and also had in house training. The challenges with courses explained in the qualitative study was that they were not specifically ICU physiotherapy related or what the PP ICU physiotherapists wanted with regards to ICU training. Some practices were only ICU based or had physiotherapists just for ICU whereas in the public sector the physiotherapists work in both the ward and ICU. This difference was due to different private physiotherapy practices having access to either only the ICU or the ward as part of their contract. A 24-hour dedicated ICU physiotherapist in ICUs has been reported by Hanekom et al. (2013) to improve ICU patient outcomes and reduce costs but in both private and public there is no 24-hour dedicated ICU physiotherapist.

Some of the variability described in the treatment times documented in the survey was explained by the qualitative data to be affected by the characteristics of the patient related to the severity of illness, rules in the ICUs as to when physiotherapists can treat patients and also the ICU environment. With regards to the ICU environment the challenge of having a MDT who are all involved in ICU care and thus having to treat the patient in turns affected the time spent in the ICU.

In the public sector equipment such as incentive spirometers were not used whereas many private physiotherapists reported using these and other devices for respiratory treatments that shows how resources differ between the sectors and affect treatments received by the two groups of public and private ICU patients. IPPB, positioning and postural drainage was also used to treat the private ICU patients and from the qualitative enquiry it was explained that sometimes these treatments were used by some as these modalities, specifically IPPB had a higher tariff cost than other treatment activities for respiratory care. The reasons behind bi-daily treatments reported in the survey and the types of treatment activities used was provided and was related to the billing tariffs, medical aid funds and prescription from doctors and nurses that were also the reason provided for the professional conflict and unethical behaviour reported as PP ICU physiotherapists had to compete for patient referrals and felt obligated to treat according to the prescriptions of the ICU doctors, nurses and medical aid funders. The effect of the latter therefore on clinical reasoning and decision making by PP ICU physiotherapists, need to be evaluated. It seemed as if the private sector physiotherapists were more aware of EBP than those in the public sector but that their implementation of EBP was also affected by whether medical aids would pay for certain treatments or not and an obligation to provide treatments prescribed by doctors to maintain rapport and referrals.

Unlike the PP ICU physiotherapists, the public sector ICU physiotherapists in SA only treated patients once and their treatments were not regulated by medical aid funders, the hospital or ICU doctors or nurses and did not affect their income or salary (Karachi et al., 2018). Another difference was that weekend PP ICU physiotherapy was always available and locums were involved in weekend ICU patient management unlike the public sector where the permanent physiotherapists

employed did weekend ICU physiotherapy in rotation for a limited number of patients deemed to require weekend ICU physiotherapy. Both the private and public sector ICU physiotherapists have no physiotherapists allocated to the ICUs at night on site. Lastly, autonomy of practice was a common struggle noted between the two groups of both private practice and public ICU physiotherapists and is clearly an issue and challenge for physiotherapists across the board in South Africa ICU settings.

4.1 Strengths and Limitations of the Study

One of the major strengths of the study is in the clear methodological process followed in particular the recruitment procedure that followed a structured process whereby all physiotherapists directly involved in the management of private ICU patients were included and thus provides information that is directly from those working in the private ICUs in the country and includes those with minimal to maximum years of private ICU work experience providing a more realistic and overall view of the PP ICU physiotherapists profile, role and currents practices. The mixed methodology including in depth qualitative exploratory enquiry provides more depth to the information gained from the survey and provides new information not available in the current literature nor obtained in the survey such as documentation and administration, professional ethos including communication and professional conflict, challenges with awareness of and attitude and behaviour towards the ICU physiotherapists, autonomy, scope of practice and ethics. A strength of the study was also the number of participants who participated in the qualitative study. With regards to limitations, the recruitment of the sample proved difficult and as there is not a specific database of private hospitals, ICU and private physiotherapy hospitals in the country. The hospitals registered on the HASA list was the only database that had a list of private hospitals that could be contacted to identify private ICUs and physiotherapy practices in these hospitals that rendered ICU

physiotherapy services. Another limitation was the low response rate as it proved to be difficult to get the PP ICU physiotherapists to respond to the survey, however, previous survey studies also reported low response rates (Lottering & van Aswegan, 2016; Karachi et al., 2018). Participants who responded were mainly from three provinces that house the majority of private hospitals and thus private physiotherapy practices. The results of the study may not be generalisable to the entire South African private practice ICU physiotherapists. Participants were asked to only complete the survey once because one physiotherapist may work for more than one private practice and thus we could not determine the number of physiotherapists that work per practice or in total in the private ICU setting. As the researcher was unable to travel to the different provinces where some participants had agreed to participate in the interviews the researcher had to use telephonic interviews and therefore missed out on facial or bodily cues that may have been picked up in a face-to-face interview and may have limited in-depth information sharing. While it was not evident to the researcher, power play between the younger or newer physiotherapists in particular practices and their older more experienced colleagues or employer may have been present due to possible intimidation and thus these PP ICU physiotherapists may have limited open discussion. However, the number of face-to-face individual interviews may have counteracted for this limitation as PP ICU physiotherapists could speak freely in these interviews.

4.2 Summary of Findings:

Private practice ICU physiotherapist are mainly young women, with practice owners being older people. They use more equipment especially breathing devices in the treatment of their patients and mainly do bi-daily treatments. There are differences in the use of outcome measures with a lack of use of these in practice however the majority use early mobilisation protocols as part of evidence-based practice but still include chest manipulation techniques as well. Referral systems

are mainly by the doctor and practices are dependent on doctors referring to them. PP ICU physiotherapists services and treatments are affected by prescription from ICU nurses and doctors and medical aid funders who authorise treatments and regulate treatment code costs. The lack of awareness of the role of and attitude and behaviour towards PP ICU physiotherapists, autonomy and scope of practice, communication and professional conflict as well as ethics have negative rather than positive effects and consequences for the PP ICU physiotherapists' professional status and role in the ICU as well as their management of private ICU patients.

4.3 Recommendations:

It is recommended that the PP ICU physiotherapy practices and the HPCSA and/or SASP CPR specialist interest group develop a database of all PP ICU physiotherapists that have and are currently working in the private ICUs. It is clear that private practice physiotherapists in the ICU compete for work and that doctors control the referrals and work opportunities. Physiotherapists, being first line practitioners and owning practices, should promote their profession in these private ICU settings and advocate for autonomy in decision making in these units as evidence states that they form a part of the ICU multidisciplinary team and should not be subordinate.

Chapter Five: Conclusion

The findings of this study are new and novel. This is the first study to provide both quantitative and qualitative data regarding the profile, role and current practices of private practice physiotherapists rendering services to private sector ICUs in South Africa. It is clear that while the PP ICU physiotherapists have a different organisation and structure compared to the public sector ICU physiotherapists, they have the same challenges with regards to variability in role in the ICU, qualifications and years of experience and training, referral as well as treatment and use of evidence-based protocols and outcome measures. The information regarding training can be used by the HPCSA, South African Society of Physiotherapy and CPR Specialist Group to identify areas for training and improvement in ICU physiotherapy skills and to advocate for improved skills for work in these units.

Although PP ICU physiotherapists are controlled or limited to some extent by medical aid funders and doctors in the private sector and lack autonomy with regards to clinical reasoning and decision making and should be addressed through increased awareness created from the level of the health professions council down to the level of the individual private physiotherapy practices Therefore, the findings of this study provides important information that can assist PP ICU physiotherapists to improve their services, implement changes to how they provide their services and promote their role in the private intensive care setting.

Private sector physiotherapists may want to re-assess their referral systems, practices and involvement in the MDT, discharge planning and follow up for ICU patients in the private ICU setting. They may want to evaluate how their current role and practices in these private ICUs are

perceived by the doctors and nurses with whom they work in order to determine ways for promoting their services, clarifying their scope of practice in the ICU setting, reclaiming autonomy and place in the private ICU healthcare professionals team. Lastly, physiotherapists and the HPCSA or SASP should keep complete, accurate and transparent records of practices and of the physiotherapists who work in these practices and ICUs for the purpose of audits and research that can provide evidence for future improvements. A baseline now exists from which PP ICU physiotherapists can benchmark these improvements.

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Addendum 1: Ethics Approval

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22 August 2016

Mr S Pheerbhay
Physiotherapy
Faculty of Community and Health Sciences

Ethics Reference Number HS/16/5/36

Project Title: Current practices of private sector ICU physiotherapists in South Africa.

Approval Period: 29 July 2016 – 29 July 2017

I hereby certify that the Humanities and Social Science Research Ethics Committee of the University of the Western Cape approved the methodology and ethics of the above mentioned research project.

Any amendments, extension or other modifications to the protocol must be submitted to the Ethics Committee for approval. Please remember to submit a progress report in good time for annual renewal.

The Committee must be informed of any serious adverse event and/or termination of the study.

Ms Patricia Josias
Research Ethics Committee Officer
University of the Western Cape

PROVISIONAL REC NUMBER - 130416-049

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27 November 2017

Ms S Pheerbhay
Physiotherapy
Faculty of Community and Health Sciences

Ethics Reference Number: HS16/5/36

Project Title: Current practices of private sector ICU physiotherapists in South Africa.

Approval Period: 17 November 2017 – 17 November 2018

I hereby certify that the Humanities and Social Science Research Ethics Committee of the University of the Western Cape approved the methodology and ethics of the above mentioned research project.

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The Committee must be informed of any serious adverse event and/or termination of the study.

Ms Patricia Josias
Research Ethics Committee Officer
University of the Western Cape

PROVISIONAL REC NUMBER - 130416-049

Addendum 2: Survey Questionnaire

PRIVATE ADULT ICU PHYSIOTHERAPY SURVEY: PROFILE AND CURRENT PRACTICES

PRIVATE ADULT ICU GENERAL DATA

* 1. Province* (tick the relevant one): *

* 2. Hospital Name: * (for researcher use only)

* 3. Practice Name: * (for researcher use only)

* 4. Your email address * (for researcher use only)

* 5. You are the * (tick the relevant one): *

- ◯ Practice Owner
- ◯ Practice Partner
- ◯ Permanent Practice Physiotherapist
- ◯ Physiotherapy Practice Locum

* 6. Number of Physiotherapists working in or for the practice * (please write a number if not applicable type 0): *

Practice Owner/s & Partner	
Permanent Practice Physiotherapist/s	
Physiotherapy Practice Locums	

* 7. Who mainly works in the ICU in the week*

- ☐ Practice Owner/s & Partner
- ☐ Permanent Practice Physiotherapist/s
- ☐ Physiotherapy Practice Locums
- ☐ Both permanent and locum physiotherapist
- ☐ Practice owner/partner, permanent and Locum physiotherapists

1

* 8. Who mainly works in the ICU on the weekend*

- [ ] Practice Owner/s & Partner
- [ ] Permanent Practice Physiotherapist/s
- [ ] Physiotherapy Practice Locums
- [ ] Both permanent and locum physiotherapist
- [ ] Practice owner/partner, permanent and Locum physiotherapists

* 9. Are you the physiotherapist who mainly provides services to the ICUs your practice covers* (tick the relevant one): *

* 10. Are you exclusively allocated (only ICU no ward duties) to the ICU/s for the practice* (tick the relevant one): *

* 11. Your Age*

* 12. Gender*(tick the relevant one)

* 13. Types of ICUs covered by you for the Practice* (tick all the relevant ones): *

- [ ] Burns
- [ ] Cardiac
- [ ] Cardio-thoracic
- [ ] Coronary
- [ ] Medical
- [ ] Mixed/Multidisciplinary
- [ ] Medico-Surgical
- [ ] Neonatal (please complete neonatal/pediatric survey as well)
- [ ] Neurosurgical
- [ ] Obstetrics and Gynecological
- [ ] Pediatric (please complete neonatal/pediatric survey as well)
- [ ] Renal
- [ ] Respiratory
- [ ] Spinal
- [ ] Surgical
- [ ] Trauma
- [ ] Other (please specify)

* 14. Level of ICU/s you cover* (tick the relevant one): *

- [ ] Level I closed unit with dedicated medical intensivist
- [ ] Level II specialized unit (example cardiac, neurological)
- [ ] Level III (limited invasive monitoring)
- [ ] Level IV (step down facility or high care)

* 15. Number of total ICU beds in the Hospital/s the Physiotherapy Practice covers

* 16. Multidisciplinary staff in the unit (tick the relevant one/s):

- [ ] Dietician
- [ ] ICU Nurse
- [ ] ICU Technician
- [ ] Intensivist
- [ ] Medical Doctor
- [ ] Nurse
- [ ] Occupational Therapist
- [ ] Pharmacist
- [ ] Physiotherapist
- [ ] Psychologist
- [ ] Social Worker
- [ ] Speech Therapist
- [ ] Other (please specify)

PRIVATE ICU PHYSIOTHERAPY SERVICES AND WORKLOAD ALLOCATION

* 17. Does the physiotherapy staff rotate in the unit? *

20. Number of students that work in the unit:

In the WEEK

On the WEEK-END

* 21. The physiotherapy service provided in the unit on a daily basis (24 hour period) in the WEEK ON SITE is by:

18. How often does this rotation occur (tick the relevant block)?

* 19. Do you have students working in the unit?

22. Percentage of the time spent by you (physiotherapist/s) in a 24hour period in the:

	0-25%	26-50%	51-75%	76-100%
ICU in the WEEK ON SITE	○	○	○	○
WARDS in the WEEK ON SITE	○	○	○	○

* 23. Do you have an ON CALL roster?

* 24. Physiotherapists involved in ON CALL duty (tick the relevant one/s)?

- [ ] Practice Owner/s
- [ ] Practice Partner/s
- [ ] Permanent Practice Physiotherapist
- [ ] Part Time Practice Physiotherapist
- [ ] Locum Physiotherapist

Other (please specify)

* 25. The physiotherapy service provided in the unit on a daily basis (24 hour period) in the WEEK at NIGHT ON SITE is by:

- ( ) Exclusively allocated physiotherapist (ONE PHYSIO, NO WARD DUTIES)
- ( ) Exclusively allocated physiotherapist (ONE PHYSIO) with ward duties
- ( ) A variety of physiotherapists allocated to the unit (NO WARD DUTIES)
- ( ) A variety of physiotherapists allocated to the unit and wards
- ( ) No physiotherapist/s at night on site

* 26. Percentage of the time spent by you (physiotherapist/s) in a 24 hour period in the:

	0-25%	26-50%	51-75%	76-100%
ICU in the WEEK at NIGHT ON SITE	◯	◯	◯	◯
WARDS in the WEEK at NIGHT ON SITE	◯	◯	◯	◯

* 27. The physiotherapy service provided in the unit on a daily basis (24 hour period) on the WEEK-END ON SITE is by:

- ◯ Exclusively allocated physiotherapist (ONE PHYSIO, NO WARD DUTIES)
- ◯ Exclusively allocated physiotherapist (ONE PHYSIO) with ward duties
- ◯ A variety of physiotherapists allocated to the unit (NO WARD DUTIES)
- ◯ A variety of physiotherapists allocated to the unit and wards
- ◯ No physiotherapist/s on week-end on site

* 28. Percentage of the time spent by you (physiotherapist/s) in a 24 hour period in the:

	0-25%	26-50%	51-75%	76-100%
ICU on the WEEK-END ON SITE	◯	◯	◯	◯
WARDS on the WEEK-END ON SITE	◯	◯	◯	◯

* 29. The physiotherapy service provided in the unit on a daily basis (24 hour period) on the WEEK-END at NIGHT ON SITE is by:

- ◯ Exclusively allocated physiotherapist (ONE PHYSIO, NO WARD DUTIES)
- ◯ Exclusively allocated physiotherapist (ONE PHYSIO) with ward duties
- ◯ A variety of physiotherapists allocated to the unit (NO WARD DUTIES)
- ◯ A variety of physiotherapists allocated to the unit and wards
- ◯ No physiotherapist/s on week-end at night on site

* 30. Percentage of the time spent by you (physiotherapist/s) in a 24 hour period in the:

	0-25%	26-50%	51-75%	76-100%
ICU on the WEEK-END at NIGHT ON SITE	○	○	○	○
WARDS on the WEEK-END at NIGHT ON SITE	○	○	○	○

* 31. Are you exclusively allocated (ONE PHYSIO, NO WARD DUTIES) to this unit for weekdays?

ACADEMIC TRAINING AND QUALIFICATIONS OF THE PRIVATE ICU PHYSIOTHERAPIST

* 32. Your Qualification

* 33. Are you trained in South Africa

* 34. Did you have an ICU clinical block rotation during undergraduate studies?

* 35. Your total years of working experience as a physiotherapist

* 36. Your total years of working experience as an ICU physiotherapist

37. Do you have International working experience as an ICU physiotherapist

* 38. Do you have any post-graduate training related to Intensive Care?

* 39. What post-graduate training have you had (tick the relevant one/s)?

- [ ] Cardiopulmonary Rehabilitation Course I
- [ ] ICU Refresher Course (Adult)
- [ ] ICU Refresher Course (Paediatrics)
- [ ] ICU or Cardiopulmonary Congresses/Conferences/Symposiums
- [ ] ICU or Cardiopulmonary Journal Club
- [ ] ICU or Cardiopulmonary Seminars/Workshops/CPD activities
- [ ] ICU or Cardiopulmonary Research participation (authorship of publications/research projects/presentations)
- [ ] Master's in the area of ICU or Cardiopulmonary Rehabilitation
- [ ] Doctorate/PhD in the area of ICU or Cardiopulmonary Rehabilitation
- [ ] Other (please specify)

* 40. Are you interested in a specific ICU post-graduate training programme for further specialization in Intensive Care?

* 41. Are you involved in training/supervising students in this ICU setting?

PRIVATE ICU PHYSIOTHERAPY WORKING HOURS

* 42. What are your working hours in unit for the following (eg 7:00 - 17:00 or hour/s per day):

WEEK DAY ON SITE	
WEEK DAY ON CALL (off site)	
WEEK-END DAY ON SITE	
WEEK-END DAY ON CALL (off site)	

PRIVATE ICU PHYSIOTHERAPY STAFF NUMBERS

* 43. Number of physiotherapists working in the unit (please insert zero if none):

on a WEEK DAY ON SITE	
on a WEEK DAY ON CALL (off site)	
on a WEEK-END DAY ON SITE	
on a WEEK-END DAY ON CALL (off site)	

PRACTICE ICU PHYSIOTHERAPY PATIENT LOAD

* 44. Percentage of on call referrals received from the unit on average (if no on call duty facility tick 0%)

	0%	less than and equal to 25%	less than and equal to 50%	less than and equal to 75%	100%
per WEEK	☐	☐	☐	☐	☐
on a WEEK-END	☐	☐	☐	☐	☐

* 45. Percentage of patients receiving physiotherapy management in the unit on average (if no weekend work tick zero)

	0%	less than and equal to 25%	less than and equal to 50%	less than and equal to 75%	100%
per day in the WEEK	☐	☐	☐	☐	☐
per day on a WEEK-END	☐	☐	☐	☐	☐

* 46. Average number of physiotherapy treatments received per patient in the unit (frequency) - if no on call duty tick not applicable:

	No Treatment/day	One Treatment/day	Two Treatments/day	Three Treatments/day	More than Three Treatments/day	Not Applicable
per day in the WEEK ON SITE	☐	☐	☐	☐	☐	☐
per day in the WEEK ON CALL (off site)	☐	☐	☐	☐	☐	☐
per day on a WEEK-END ON SITE	☐	☐	☐	☐	☐	☐
per day on a WEEK-END ON CALL (off site)	☐	☐	☐	☐	☐	☐

PRIVATE ADULT ICU PHYSIOTHERAPY SURVEY: PROFILE AND CURRENT PRACTICES

PHYSIOTHERAPY INDUCTION TRAINING FOR PRIVATE ICU PHYSIOTHERAPISTS

* 47. Is inductive training provided for the physiotherapist/s working in the unit? *

	Yes	No
Training regarding Organisation/Operation of the ICU for physiotherapists working in the ICU	○	○
Training regarding Physiotherapy Services in terms of Physiotherapy Assessment, Treatment, Documentation and Referral Letters in the ICU	○	○
Training regarding emergency on call or call-out duties	○	○

* 48. Who provides the training?

	ICU Doctor/Physician/Intensivist	ICU Sister/Nurses	ICU Administrator	Physiotherapy Practice Owner/Partner	Previous Physiotherapist working in the ICU	Other	Not Applicable
Training regarding Organisation/Operation of the ICU for physiotherapists working in the ICU	○	○	○	○	○	○	○
Training regarding Physiotherapy Services in terms of Physiotherapy Assessment, Treatment, Documentation and Referral Letters in the ICU	○	○	○	○	○	○	○
Training regarding emergency on call or call-out duties	○	○	○	○	○	○	○

Other (please specify)

* 49. Duration of the training?

Page 17 removed as it is blank therefore survey continues on page 18.

PHYSIOTHERAPY REFERRAL SYSTEM FOR PRIVATE ICU PHYSIOTHERAPY

* 50. Are patients referred for physiotherapy in this ICU?

* 51. Rank on a scale from 1 to 4 in order of the most used method to the least used method of referral to physiotherapy in the WEEK when ON SITE - tick not applicable for groups not involved in referral:

- Medical Doctor/Intensivist/Physician ☐ N/A
- Nurse Referral ☐ N/A
- Routine Assessment ☐ N/A
- ICU Team (Multidisciplinary) ☐ N/A

* 52. Rank on a scale from 1 to 4 in order of the most used method to least used method of referral to physiotherapy in the WEEK when ON CALL (off site) - tick N/A for all if no ON CALL DUTY Facility:

- Medical Doctor/Intensivist/Physician ☐ N/A
- Nurse Referral ☐ N/A
- Routine Assessment ☐ N/A
- ICU Team (Multidisciplinary) ☐ N/A

* 53. Do all patients receive physiotherapy on a week-end in this ICU?

* 54. Rank on a scale from 1 to 4 the most used method to the least used method of referral to physiotherapy on the WEEK-END when ON SITE:

- Medical Doctor/Intensivist/Physician ☐ N/A
- Nurse Referral ☐ N/A
- Routine Assessment ☐ N/A
- ICU Team (Multidisciplinary) ☐ N/A

* 55. Rank on a scale from 1 to 4 the most used method to the least used method of referral to physiotherapy on the WEEK-END when ON CALL (off site):

Medical Doctor/Intensivist/Physician	☐ N/A
Nurse Referral	☐ N/A
Routine Assessment	☐ N/A
ICU Team (Multidisciplinary)	☐ N/A

* 56. Does your physiotherapy practice have their own referral guideline for patients in the ICU/s you provide services too?

* 57. Please elaborate on the referral guideline stated above.

* 58. Who developed and employed the Physiotherapy Practice Referral guidelines for the ICU/s? (If no on call duty facility, tick other and say no on call in specify box)

	Doctors/Physicians/Intensivists	Nurses	ICU Team	Physio	Unknown	Other
ON SITE	◯	◯	◯	◯	◯	◯
ON CALL (off site)	◯	◯	◯	◯	◯	◯

Other (please specify)

PHYSIOTHERAPY MANAGEMENT OF THE PRIVATE ICU PATIENT

* 59. The number of treatment sessions (frequency) required per patient per day is (Tick relevant one/s):

- [ ] Decided Personally following structured physical examination
- [ ] By Physician/Intensivist/Doctors orders
- [ ] Decided by discussing with or together with Physician/Intensivist/doctors
- [ ] By Nurses orders
- [ ] Decided by discussing with or together with Nurse/s
- [ ] Decided by discussing with or together with the ICU Team
- [ ] Other (please specify)

* 60. Prescription of positioning changes of the ICU patients is (Tick relevant one/s):

- [ ] Decided Personally following structured physical examination
- [ ] Prescribed by Physician/Intensivist/Doctors
- [ ] Decided by discussing with or together with Physician/Intensivist/doctors
- [ ] By Nurses orders
- [ ] Decided by discussing with or together with Nurse/s
- [ ] Decided by discussing with or together with the ICU Team
- [ ] Other (please specify)

* 61. Prescription of chest physiotherapy of the ICU patients is (Tick relevant one/s):

- [ ] Decided Personally following structured physical examination
- [ ] Prescribed by Physician/Intensivist/Doctors
- [ ] Decided by discussing with or together with Physician/Intensivist/doctors
- [ ] By Nurses orders
- [ ] Decided by discussing with or together with Nurse/s
- [ ] Decided by discussing with or together with the ICU Team
- [ ] Other (please specify)

* 62. Prescription of mobilization of the ICU patients is (Tick relevant one/s):
Mobilization = passive/active/strengthening exercises in bed, bed cycling, bridging, sitting over egde of bed, active/passive transfer to chair, sitting in chair

- [ ] Decided Personally following structured physical examination
- [ ] Prescribed by Physician/Intensivist/Doctors
- [ ] Decided by discussing with or together with Physician/Intensivist/doctors
- [ ] By Nurses orders
- [ ] Decided by discussing with or together with Nurse/s
- [ ] Decided by discussing with or together with the ICU Team
- [ ] Other (please specify)

* 63. Prescription of rehabilitation of the ICU patients is (Tick the relevant one/s):
Rehabilitation = Exercises in chair, chair/stationary cycling, tilt table, standing frame, ambulation with/out ventilator on spot/away from bed

- [ ] Decided Personally following structured physical examination
- [ ] Prescribed by Physician/Intensivist/Doctors
- [ ] Decided by discussing with or together with Physician/Intensivist/doctors
- [ ] By Nurses orders
- [ ] Decided by discussing with or together with Nurse/s
- [ ] Decided by discussing with or together with the ICU Team
- [ ] Other (please specify)

* 64. Rank on a scale from 1-5 who is mainly involved in POSITIONING the ICU patient in the ICUs over a 24hour period?
1 being MOST involved and 5 being LEAST involved

- Doctor/Physician/Intensivist
- Only the Nurse/s
- Only the Physiotherapist/s
- Nurse/s and Physiotherapist
- ICU Team (Multidisciplinary)

* 65. Rank on a scale from 1-5 who is mainly involved in MOBILIZATION of the ICU patient in the ICUs over a 24hour period?
1 being MOST involved and 5 being LEAST involved
Mobilization = passive/active/strengthening exercises in bed, bed cycling, bridging, sitting over egde of bed, active/passive transfer to chair, sitting in chair

- Doctor/Physician/Intensivist
- Only the Nurse/s
- Only the Physiotherapist/s
- Nurse/s and Physiotherapist
- ICU Team (Multidisciplinary)

* 66. Rank on a scale from 1-5 who is mainly involved in REHABILITATION of the ICU patient in the ICUs over a 24hour period?
1 being MOST involved and 5 being LEAST involved
Rehabilitation = Exercises in chair, chair/stationary cycling, tilt table, standing frame, ambulation with/out ventilator on spot/away from bed

- Doctor/Physician/Intensivist
- Only the Nurse/s
- Only the Physiotherapist/s
- Nurse/s and Physiotherapist
- ICU Team (Multidisciplinary)

* 67. Tick which care protocols/clinical guidelines are used in the ICU/s and if those used are evidence based or not.

	Yes	No	Evidence Based (systematically developed, reviewed and appraised clinical research)	Non Evidence Based (clinical research or literature that has not gone through a rigorous, unbiased and transparent process of systematic review and appraisal, non peer reviewed and unpublished research)
Weaning for extubation	☐	☐	☐	☐
Suctioning	☐	☐	☐	☐
Positioning	☐	☐	☐	☐
Mobilization = passive/active/strengthening exercises in bed, bed cycling, bridging, sitting over egde of bed, active/passive transfer to chair, sitting in chair	☐	☐	☐	☐
Rehabilitation = Exercises in chair, chair/stationary cycling, tilt table, standing frame, ambulation with/out ventilator on spot/away from bed	☐	☐	☐	☐
Sedation	☐	☐	☐	☐
Analgesia	☐	☐	☐	☐
Decontamination	☐	☐	☐	☐
Other	☐	☐	☐	☐

Other (please specify)

* 68. Rank the following CHEST PHYSIOTHERAPY activities in order of the frequency they are prescribed or used by you in THE ICU/s (1= most used and 11 being the least used activity or 12 = not used).

	1	2	3	4	5	6	7	8	9	10	11	12
Manual Techniques - percussion, vibrations, shaking	○	○	○	○	○	○	○	○	○	○	○	○
Breathing techniques	○	○	○	○	○	○	○	○	○	○	○	○
Breathing Techniques with Equipment (PEP/Blow Bottle, Incentive Spirometry, Intermittent Positive Pressure Breathing [IPPB])	○	○	○	○	○	○	○	○	○	○	○	○
Secretion Removal (active expectoration)	○	○	○	○	○	○	○	○	○	○	○	○
Secretion Removal (Suctioning)	○	○	○	○	○	○	○	○	○	○	○	○
Postural Drainage Positioning	○	○	○	○	○	○	○	○	○	○	○	○
Positioning to improve ventilation/perfusion ratios	○	○	○	○	○	○	○	○	○	○	○	○
Manual Hyperinflation (Bagging)	○	○	○	○	○	○	○	○	○	○	○	○
Assisted Coughing	○	○	○	○	○	○	○	○	○	○	○	○
Tracheal Stimulation	○	○	○	○	○	○	○	○	○	○	○	○
Tracheal Aspirate	○	○	○	○	○	○	○	○	○	○	○	○

* 69. Rank the following VENTILATORY activities in order of the frequency they are prescribed or used by you in THE ICU/s (1= most used and 4 being the least used activity or 5 = not used).

	1	2	3	4	5
Weaning for Extubation	○	○	○	○	○
Extubation	○	○	○	○	○
Adjustment of ventilator settings	○	○	○	○	○
Supervision and implementation of non-invasive ventilator support(CPAP/mask intermittent positive pressure ventilation)	○	○	○	○	○

* 70. Rank the following MOBILIZATION activities in order of the frequency they are prescribed or used by you in THE ICU/s (1= most used and 9 being the least used activity or 10 = not used).

	1	2	3	4	5	6	7	8	9	10
Passive Movement	○	○	○	○	○	○	○	○	○	○
Continuous Passive Movement	○	○	○	○	○	○	○	○	○	○
Active Exercises in Bed	○	○	○	○	○	○	○	○	○	○
Bridging	○	○	○	○	○	○	○	○	○	○
Bed Cycling	○	○	○	○	○	○	○	○	○	○
Resisted Exercises in Bed	○	○	○	○	○	○	○	○	○	○
Sitting over edge of Bed	○	○	○	○	○	○	○	○	○	○
Active/Passive Transfer to Chair	○	○	○	○	○	○	○	○	○	○
Sitting out in Chair	○	○	○	○	○	○	○	○	○	○

* 71. Rank the following REHABILITATION activities in order of the frequency they are prescribed or used by you in THE ICU/s (1= most used and 9 being the least used activity or 10 = not used).

	1	2	3	4	5	6	7	8	9	10
Active Exercises in Chair	○	○	○	○	○	○	○	○	○	○
Resisted Exercises in Chair	○	○	○	○	○	○	○	○	○	○
Cycling in Chair	○	○	○	○	○	○	○	○	○	○
Tilt Table	○	○	○	○	○	○	○	○	○	○
Standing Frame	○	○	○	○	○	○	○	○	○	○
Marching on the Spot	○	○	○	○	○	○	○	○	○	○
Stationary Cycling	○	○	○	○	○	○	○	○	○	○
Ambulation with Ventilator (away from bed)	○	○	○	○	○	○	○	○	○	○
Ambulation without Ventilator (away from bed)	○	○	○	○	○	○	○	○	○	○

* 72. Percentage of time spent doing each of the following in the ICU/s:

	0-25%	26-50%	51-75%	76-100%
CHEST PHYSIOTHERAPY	○	○	○	○
VENTILATION	○	○	○	○
MOBILIZATION	○	○	○	○
REHABILITATION	○	○	○	○

* 73. Which of the following PHYSIOLOGICAL OUTCOME MEASURES do you utilize as a ICU Physiotherapist in the ICU/s?

	Yes	No
Lung Auscultation	◯	◯
Pulmonary Function Tests	◯	◯
Saturation O2	◯	◯
Other	◯	◯

74. If other above please specify or go to next question.

* 75. Which of the following PHYSICAL FUNCTIONING OUTCOME MEASURES do you utilize as a ICU Physiotherapist in the ICU/s?

	Yes	No
Walk Test - Exercise Tolerance – 6 Minute Walk Test	◯	◯
Time up and Go Test (TUG)	◯	◯
Barthel Index	◯	◯
New York Heart Association (NYHA) Functional Classification	◯	◯
Functional Independence Measure - FIM	◯	◯
Physical Function ICU Test - PFIT	◯	◯
Chelsea Critical Care Physical Assessment Tool (CPAx)	◯	◯
Other	◯	◯

76. If other above please specify or go to next question.

* 77. Which of the following HEALTH RELATED QUALITY OF LIFE OUTCOME MEASURES do you utilize as a ICU Physiotherapist in the ICU/s?

	Yes	No
Sickness Impact Profile (SIP)	○	○
Perceived Quality of Life Scale (PQOL)	○	○
Nottingham Health Profile (NHP)	○	○
EuroQol 5Dimension Questionnaire (EQ5D)	○	○
Short Form 36 Surveys (SF-36)	○	○
Rosser's disability and distress categories	○	○
Spitzer's quality-of-life index and uniscale	○	○
Psychological Well Being Index (PGWB)	○	○
Fernandez's questionnaire	○	○
Whinston Hospital questionnaire	○	○
ICF - International Classification of Functioning Scale	○	○
Other	○	○

78. If other above please specify or go to next question.

* 79. Are you, the ICU physiotherapist, involved in patient goal setting in the ICU/s?

* 80. Involvement in patient goal setting.

* 81. Are you, the ICU physiotherapist of the ICU/s involved in the discharge of patients from the ICU/s to other wards/home?

* 82. Do you have specific ICU physiotherapy discharge criteria for the patients in the ICU/s?

* 83. Please elaborate on the discharge criteria stated above.

* 84. Who is involved in the discharge of the ICU patient from the ICU/s? (if no ON CALL DUTY Facility, tick other and state no on call under please specify)

	Doctor/Physician/Intensivist	Nurse/s	Physio	Other
ON SITE	○	○	○	○
ON CALL (off site)	○	○	○	○

Other (please specify)

* 85. In your opinion is referral for follow-up physiotherapy and rehabilitation for these ICU patients required?

	Yes	No
In Ward	○	○
In an out-patient setting	○	○
In the Community (home visit)	○	○

* 86. Are you aware of any follow-up physiotherapy and rehabilitation services for these ICU patients in your surrounding community

87. If yes above, please provide details of these facilities.

* 88. Who mainly refers the ICU patients for follow-up physiotherapy and rehabilitation following hospital discharge? (If no on call duty facility, tick other)

	Doctor/Physician/Intensivist	Nurse/s	Unit Physiotherapist	Other	Unknown
ON SITE	○	○	○	○	○
ON CALL (off site)	○	○	○	○	○

* 89. Do you provide follow-up physiotherapy and rehabilitation in your hospital or practice to the ICU/s patients following hospital discharge?

* 90. Please provide us with any other relevant and related information regarding your profile or current practice in the ICU not covered in the survey.

THANK YOU FOR YOUR PARTICIPATION !

Addendum 3: Information Sheet Survey Study

UNIVERSITY OF THE WESTERN CAPE

Private Bag X 17, Bellville 7535, South Africa
Tel: +27 715075139 Fax: 27 21-959 1217
E-mail: *safoo_p@hotmail.com*

INFORMATION SHEET

Project Title: ***Current Practices of Private sector ICU physiotherapists in South Africa: Survey***

What is this study about?
This is a research project being conducted by myself Mr Sarfaraz Peerbhay at the University of the Western Cape. We are inviting you to participate in this research project because you are a physiotherapist working in the Private ICU sector. The purpose of this research project is to determine the current practice of physiotherapists in private sector ICU's within South Africa.

What will I be asked to do if I agree to participate?
You will be asked to complete and return a two-part survey questionnaire that will be sent to you via email. A two-week period will be granted to complete the questionnaires. The questionnaire will require you to complete information based on age, gender, qualifications, training and work experience, workload, patient care or management, utilization of protocols and outcome measures, referral system, discharge procedure and follow-up. You will be given two, two-week email reminders and a final reminder via telephone whereby an appointment will be made for you to complete the survey telephonically.

Would my participation in this study be kept confidential?
The researchers undertake to protect your identity and the nature of your contribution. To ensure your anonymity, the electronic surveys will be coded and only the researcher will have access to these codes and be able to track and prompt non-responders. These code lists will be destroyed on completion of the study. All hard data will be stored in a locked cabinet of the researchers' office. Electronic data will be password protected with only the researcher having access during the study period. Following completion of the survey, the electronic data will be scrambled so that even the researcher will be unable to identify or relate data to any particular participant. Anonymity and confidentiality will thus be maintained. If we write a report or article about this research project, your identity will be protected.

What are the risks of this research?
There are very few risks in participating in this research study. There may be a risk of feeling uncomfortable providing information about the physiotherapy practice in terms of the current private ICU physiotherapy practice. This risk will be taken care of in that information obtained will be anonymous and confidential due to destruction of code lists and data scrambling.

What are the benefits of this research?
This research is not designed to help you personally or directly, but the results may help the researcher learn more about the current practice of private practice ICU physiotherapists within South Africa. This information will benchmark practices in the country and allow for changes and improvements to be made in order to standardise physiotherapy ICU practices in South Africa

and include evidence based practice in order to improve patient outcome. This information can thus indirectly assist in improving expertize and skills of ICU physiotherapists through understanding the current resources available and still needed by ICU Physiotherapists in South Africa. Your participation in this research is completely voluntary. You may choose not to take part at all. If you decide to participate in this research, you may stop participating at any time. If you decide not to participate in this study or if you stop participating at any time, you will not be penalized or lose any benefits to which you otherwise qualify.

What if I have questions?

This research is being conducted by *Sarfaraz Peerbhay* at the University of the Western Cape. If you have any questions about the research study itself, please contact Sarfaraz Peerbhay at: 0715075139 or Email: safoo_p@hotmail.com.

Should you have any questions regarding this study and your rights as a research participant or if you wish to report any problems you have experienced related to the study, please contact:

Dr Nondwe Mlenzana
Faculty of Community and Health Sciences
Head of Department
Physiotherapy
University of the Western Cape
Private Bag X17
Bellville 7535
nmlenzana@uwc.ac.za

Prof José Frantz
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This research has been approved by the University of the Western Cape's Senate Research Committee. (REFERENCE NUMBER: *HS16/5/36)*

Addendum 4: Consent Form Survey Study

UNIVERSITY OF THE WESTERN CAPE

Private Bag X 17, Bellville 7535, South Africa
Tel: +27715075139 Fax: 27 21-959 1217
E-mail: safoo_p@hotmail.com

CONSENT FORM

Title of Research Project: ***Current Practices of Private sector ICU physiotherapists in South Africa: Survey***

The study has been described to me in a language that I understand. My questions about the study have been answered. I understand what my participation will involve and I agree to participate of my own choice and free will. I understand that my identity will not be disclosed to anyone. I understand that I may withdraw from the study at any time without giving a reason and without fear of negative consequences or loss of benefits.

Participant's name.....

Participant's signature.....

Date.....

Addendum 5: Additional information on Referral Guidelines

Comments related to ICU physiotherapy referral guidelines in the private ICU verbatim quotes

The doctor's have to give a written referral
the doctor must write down our practice name on a referral form. The doctor can also refer the patient via a telephone call to the physiotherapist or via a message service (whatsapp) but the Dr should still complete a referral form as soon as he can.
Our practice ensures to see any stable patient that underwent surgery/trauma, patients with medical/respiratory conditions; that will benefit from chest physio and exercise therapy, and/or rehabilitation. We also look to monitor unstable patients and perform preventative physiotherapy if it is safe to do so.
We have a set of doctors who use our practice and also some doctors that we share on a month to month basis. 90 percent of our referrals come from the physicians and intensivist.
If condition necessitates physiotherapy intervention and if doctor has not referred, the doctor will be notified or informed that referral is needed so treatment can commence
Upward referral to specialist or other doctor by recommendation or direct communication with attending dr. Referrals to other allied health team by discretion. Communication is direct by telephone communication. Discharge, step down or rehab referral by documentation on the icu chart as a suggestion to the attending dr for consideration.
Ward round attendance of a physio. Physio referral for all pts
4 surgeons have set post-operative protocol: treat patient immediately according to Dr`s protocol Dr sign referral as soon as possible Physician: Refer to 3 different practises strictly by referral (Not effective, as other practise claim most patients, without referral)
We require a doctors referral in the medical notes of the patient. Where after the sister will inform us that the patient has been referred.
Based on referral Dr list and all Trauma patients are automatically assessed and treated as soon as possible after admission and once stable
The doctor of the patient is alone responsible for referrals and will weite in the script. No other staff is allowed to refer for in hospital physio
Referrals are based on which Doctor has referred and their specific protocols. Referral is based on the admitting doctor. Each referral Doctor has their specific physiotherapy practice they use. Patients are assessed prior to intervention. If assessment shows the patient to be unstable or not requiring physiotherapy intervention, then the patient is not seen. Patients are not to be seen routinely.
There is a referral book in the icu and if a new patient is referred by a Dr then the sticker must be placed in the book which we check twice a day. We have our own practive on call roster with which we make sure there is 24/7 cover.
Any patient requiring chest physio/suctioning and/or rehabilitation/neuro-rehabilitation will be seen.
Physio on ward round
Doctors have a list of which practices treat which type of patient and refer accordingly as per their desire (i.e. doctors do not only exclusively refer to one or the other practice)

Addendum 6: Semi-structured Interview Guide

Qualitative Study

Semi structured interview guide

Procedure

Introduce self, explain nature and purpose of the study (completion of information sheet and consent form and confidentiality binding form for participants participating in the focus group discussions) including title and objective below. Participants to complete demographic information as in Part I provided as a separate sheet to each participant and collect pre-interview. Proceed with Part II, the qualitative individual face to face interview or focus group discussion

Title of Research Project: *Current Practices of Private sector ICU physiotherapists in South Africa*.

Study Objective: *To explore and describe the current practices and challenges and/or factors contributing to the current practices of private sector intensive care physiotherapists in South Africa.*

PART I:

Name (to be coded): _____

Age (years): _____

Gender (circle): Male / Female

Province: _____

Hospital (to be coded): _____

Practice name (to be coded): _____

Type of ICU worked in: _____

Qualification: _____

Years of ICU work experience: _____

Attendance of post graduate ICU training courses in the last 3 years (circle): Yes / No

Interest in specific postgraduate training programme for further specialization in ICU (circle):

Yes/No If yes, please specify:

_____

_____

_____

PART II:

1.Please can you describe *your perception and experience in private practice ICU* and *of working as* a *private practice ICU physiotherapist*. Can you describe how you perceive the *current practices of private sector intensive care physiotherapists in South Africa.*

Probes:

- Qualification, Training and Expertise
- Workload (time spent in ICU treating versus other wards and administration)
- Frequency and length of treatment sessions
- Treatment Activities and involvement in positioning, mobilisation, rehabilitation (prescription)
- Use of evidence-based practice treatments or protocols
- Using Outcome measures to document improvement
- Referral and Discharge planning and Follow-up

2. Please can you describe *the challenges and/or factors you perceive and may have experienced to contributing to the current practices of private sector intensive care physiotherapists in South Africa.* (relating back to some of the reasons for why the current practice patterns are as is reported in the survey)

Probes:

- Knowledge and Training
- Culture and Attitude
- Professional Behaviour
- Organisational or Institutional Factors
- Resources such as Manpower/Equipment

Addendum 7: Information Sheet Qualitative Study

UNIVERSITY OF THE WESTERN CAPE

Private Bag X 17, Bellville 7535, South Africa
Tel: +27 715075139 Fax: 27 21-959 1217
E-mail: safoo_p@hotmail.com

INFORMATION SHEET

Project Title: *Current Practices of Private sector ICU physiotherapists in South Africa*

Study Objective: *To explore and describe the current practices and challenges and/or factors contributing to the current practices of private sector intensive care physiotherapists in South Africa.*

What is this study about?

This is a research project being conducted by myself Mr Sarfaraz Peerbhay at the University of the Western Cape. We are inviting you to participate in this research project because you are a physiotherapist working in the Private ICU sector. The purpose of this research project is: ***To explore and describe the current practices and challenges and/or factors contributing to the current practices of private sector intensive care physiotherapists in South Africa.***

What will I be asked to do if I agree to participate?

You will be asked to participate in an in depth individual interview with the researcher via telephone or skype at a time convenient to you and will be required to be available for 45 minutes to one hour. You may be contacted again to provide further information or for checking of the data for accuracy later again in the study. The interview will ask about your perception of the current practices and challenges and/or factors contributing to the current practices of private sector intensive care physiotherapists in South Africa.

Would my participation in this study be kept confidential?

The researchers undertake to protect your identity and the nature of your contribution. To ensure your anonymity, the tape recordings and transcribed data will be coded and only the researcher will have access to these codes in order to go back to participants to check data obtained for credibility. These code lists will be destroyed on completion of the study. All hard data and tape recordings will be stored in a locked cabinet of the researchers' office. Electronic data will be password protected with only the researcher having access during the study period. Following completion of the survey, the electronic data will be scrambled so that even the researcher will be unable to identify or relate data to any particular participant. Hard data, electronic data and tape recordings will be destroyed following completion of the study. Anonymity and confidentiality will thus be maintained. If we write a report or article about this research project, your identity will be protected.

What are the risks of this research?

There are very few risks in participating in this research study. There may be a risk of feeling uncomfortable providing information about the physiotherapy practice in terms of the challenges

and factors contributing to the current private ICU physiotherapy practice. This risk will be taken care of in that information obtained will be anonymous and confidential due to destruction of code lists and data scrambling.

What are the benefits of this research?
This research is not designed to help you personally or directly, but the results may help the researcher learn more about the current practice of private practice ICU physiotherapists within South Africa and the challenges facing them as well as the factors contributing to their current practice patterns. This information will benchmark practices in the country and allow for changes and improvements to be made in order to standardise physiotherapy ICU practices in South Africa and include evidence based practice in order to improve patient outcome. This information can thus indirectly assist in improving expertize and skills of ICU physiotherapists through understanding the current resources available and still needed by ICU Physiotherapists in South Africa. Your participation in this research is completely voluntary. You may choose not to take part at all. If you decide to participate in this research, you may stop participating at any time. If you decide not to participate in this study or if you stop participating at any time, you will not be penalized or lose any benefits to which you otherwise qualify.

What if I have questions?
This research is being conducted by *Sarfaraz Peerbhay* at the University of the Western Cape. If you have any questions about the research study itself, please contact Sarfaraz Peerbhay at: 0715075139 or Email: safoo_p@hotmail.com.

Should you have any questions regarding this study and your rights as a research participant or if you wish to report any problems you have experienced related to the study, please contact:

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Private Bag X17, Bellville 7535
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Prof José Frantz
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This research has been approved by the University of the Western Cape's Senate Research Committee. (REFERENCE NUMBER: *HS16/5/36*)

Addendum 8: Consent Form Qualitative Study

UNIVERSITY OF THE WESTERN CAPE

Private Bag X 17, Bellville 7535, South Africa
Tel: +27715075139 Fax: 27 21-959 1217
E-mail: safoo_p@hotmail.com

CONSENT FORM

Title of Research Project: *Current Practices of Private sector ICU physiotherapists in South Africa*

Study Objective: *To explore and describe the current practices and challenges and/or factors contributing to the current practices of private sector intensive care physiotherapists in South Africa.*

The study has been described to me in a language that I understand. My questions about the study have been answered. I understand what my participation will involve and I agree to participate of my own choice and free will. I understand that my identity will not be disclosed to anyone. I understand that I may withdraw from the study at any time without giving a reason and without fear of negative consequences or loss of benefits.

Participant's name.....

Participant's signature.....

Date.....

Addendum 9: Focus Group Confidentiality Form

UNIVERSITY OF THE WESTERN CAPE

Private Bag X 17, Bellville 7535, South Africa
Tel: +27 21-959 2542, Fax: 27 21-959 1217
E-mail: safoo_p@hotmail.com

FOCUS GROUP CONFIDENTIALITY BINDING FORM

Title of Research Project: *Current Practices of Private sector ICU physiotherapists in South Africa*

Study Objective: *To explore and describe the current practices and challenges and/or factors contributing to the current practices of private sector intensive care physiotherapists in South Africa.*

The study has been described to me in language that I understand. My questions about the study have been answered. I understand what my participation will involve and I agree to participate of my own choice and free will. I understand that my identity will not be disclosed to anyone by the researchers. I understand that I may withdraw from the study at any time without giving a reason and without fear of negative consequences or loss of benefits. I understand that confidentiality is dependent on participants' in the Focus Group maintaining confidentiality.

I hereby agree to uphold the confidentiality of the discussions in the focus group by not disclosing the identity of other participants or any aspects of their contributions to members outside of the group.

Participant's name……..

Participant's signature……..

Date……