Health care workers’ awareness of and compliance with legal prescribing requirements in selected Mediclinic hospitals in the Tshwane region

A dissertation submitted by

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Department of Pharmacy

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2016
DECLARATION

I, Yvette Joubert, declare that the dissertation hereby submitted to the Sefako Makgatho Health Sciences University, for the degree of Master of Science (Medical) in Pharmacy, in the Faculty of Health Sciences, School of Health Care Sciences, has not previously been submitted by me for a degree at this or any other university; that it is my work in design and execution and that all material contained herein has been duly acknowledged.

__________________________________________  ________________________
Surname, Initials (Title)                      Date
DEDICATION

The work in this dissertation is dedicated to my two daughters, Sune and Carla, for standing by me and having faith and confidence in me. May I leave them with the knowledge that one is never too old to learn something new, take another chance, create yet another goal or keep on dreaming. Thank you Father and Mother for your parenting and the love that you lavish upon me each day.
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## ABBREVIATIONS AND ACRONYMS

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<th>Full Form</th>
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<tr>
<td>ASHP</td>
<td>American Journal of Hospital Pharmacy</td>
</tr>
<tr>
<td>COHSASA</td>
<td>Council for Health Service Accreditation of Southern Africa</td>
</tr>
<tr>
<td>CPD</td>
<td>Continuing Professional Development</td>
</tr>
<tr>
<td>GPP</td>
<td>Good Pharmacy Practice</td>
</tr>
<tr>
<td>HPCSA</td>
<td>Health Professions Council of South Africa</td>
</tr>
<tr>
<td>ISO</td>
<td>International Standards Organisation</td>
</tr>
<tr>
<td>MCC</td>
<td>Medicines Control Council</td>
</tr>
<tr>
<td>MP</td>
<td>Medical practitioner</td>
</tr>
<tr>
<td>MREC</td>
<td>Medunsa Campus Research Ethics Committee</td>
</tr>
<tr>
<td>OPPD</td>
<td>Out-patient Pharmacy Department</td>
</tr>
<tr>
<td>RN</td>
<td>Registered professional Nurse</td>
</tr>
<tr>
<td>SANC</td>
<td>South African Nursing Council</td>
</tr>
<tr>
<td>SAPC</td>
<td>South African Pharmacy Council</td>
</tr>
<tr>
<td>STAT</td>
<td>“immediately” (&quot;statim&quot; from Latin)</td>
</tr>
<tr>
<td>WHO</td>
<td>World Health Organization</td>
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ABSTRACT

Introduction: Shortcomings were identified in the Mediclinic group with prescribing according to legal requirements and Mediclinic prescribing protocols. A responsible pharmacist’s role in terms of dispensing of medication to a patient, is represented by adherence to the relevant legal requirements, as well as by ensuring that the correct medicine is delivered to the right patient. The study aimed to assess health care professionals’ awareness of, and compliance with, legal requirements in prescribing medicines at selected Mediclinic hospitals.

Objectives: The objectives of the study were firstly to determine the awareness of health care professionals in selected Mediclinic hospitals with regards to appropriate policies in terms of compliance with legal requirements for prescribing. Secondly it was aimed at determining the number of prescriptions prescribed by medical practitioners in compliance with Mediclinic policies for legal prescribing. In the third place it identified challenges experienced by health care professionals in terms of compliance with the legal requirements for prescribing as stipulated by Mediclinic hospital policies.

Method: This was a two-part descriptive and quantitative study conducted at three private hospitals in the Tshwane Region of the Mediclinic group of hospitals between September 2014 and November 2014. Part 1 constituted a retrospective review of prescriptions written during the four-week period prior to data collection, to determine compliance with policies and legal requirements. In Part 2 of the study a self-administered semi-structured questionnaire was completed by health care professionals attending work on the day of data collection.

Data were captured on Microsoft Office Excel™ spread sheets. Data entry was cross-checked, followed by a mainly descriptive analysis in consultation with a statistician. The health care professionals’ awareness of and compliance with legal prescribing were compared and verified against the Mediclinic Corporate Policy on prescriptions from medical practitioners and the Medicines and Related Substances Control Act (Act 101 of 1965).

Permission to conduct the study was obtained from the General Manager Pharmacy Services of Mediclinic South Africa, and the hospital managers at each of the selected hospitals. Ethical clearance was obtained from the Medunsa Campus Research Ethics Committee (MREC) of the University of Limpopo, prior to the commencement of the study [MREC/H/102/2013:PG].
**Results:** In total, 89 health care professionals attending work on the day of data collection completed the self-administered questionnaire, of whom 16 were medical practitioners, 62 professional nurses and 11 pharmacists. Participants’ awareness of applicable legislation in terms of the legal prescribing was evaluated, based on criteria as stipulated by the Mediclinic Corporate Policy on prescriptions from medical practitioners and the Medicines and Related Substances Control Act (Act 101 of 1965).

Results revealed that 80% of the participants had read the Mediclinic Corporate Policy on prescribing from medical practitioners, while 89% of participants understood and knew what is expected of them in terms of the Mediclinic Corporate Policy on prescriptions from medical practitioners. Nearly three quarters (74%) of participants indicated that they are familiar and know the contents of the Medicines and Related Substances Control Act (Act 101 of 1965).

Five features of the Mediclinic Corporate Policy on prescriptions from medical practitioners were focused on during the evaluation of the physical attributes of a written prescription. The overall compliance with all of these features was 80% for all health care professionals participating in this study from the selected Mediclinic hospitals. Compliance per category health care worker on the revisions days for routine prescribed medication illustrated that only 50% of the participants were aware that all Mediclinic prescriptions must be reviewed every seven days. Knowledge about telephonic S5 and S6 medication prescription legislation indicated a compliance of more than 90% within all three groups of health care professionals participating. Evaluation in terms of compliance with the responsibility on patients’ own chronic medication on admission, an overall 90% was achieved. The awareness of all participants about the dispensing pharmacist’s responsibility with regards to indication of allergy on the inpatient prescription charts was determined. Twelve percent of participants were unaware that a prescription may not be dispensed if it lacks the required prescription chart allergy sticker in accordance with the Mediclinic Corporate Policy on prescriptions from medical practitioners.

A total of 447 prescriptions from the three selected Mediclinic hospitals were retrospectively reviewed and evaluated for compliance in terms of ten measurement parameters. An overall compliance score of 78.1% for Mediclinic Brits, 80.1% for Mediclinic Legae and 78.6% for Mediclinic Muelmed was achieved.

Challenges in terms of compliance with the legal prescribing requirements highlighted some problematical areas, which require attention and further investigation. Sixty percent of participants felt that there were aspects that hindered them to comply with all legal aspects
of prescriptions, policies and procedures regarding legal prescribing. The three most important hindering aspects were firstly that medical practitioners would not sign a telephonic prescription within the 24 hour time frame and as the nurses worked a 12 hour shift, they could not always follow-up on the prescription compliance to this aspect. An incomplete signature and no qualification of the medical practitioner on the prescription chart was reported. Consequently, the professional nurses have to add a stamp of the medical practitioner’s qualifications on every patient prescription chart to legalise the prescription for dispensing. Another concern was that the medical practitioner expected the professional nurse to transcribe a prescription onto a patient prescription chart and then not add his/her signature and qualifications on the prescription to confirm the legality of the prescription.

**Conclusions:** Analysis of the awareness of and compliance to legal prescribing requirements, revealed that 80% of all health care professionals were aware of legislation, policies and procedures at their place of work and 74.2% indicated that they are familiar with the contents of the Medicines and Related Substances Control Act (Act 101 of 1965). The study showed that compliance with the ten measurement parameters for legal prescription writing ranged from 78.1% to 80.2% for the three hospitals. Challenges with complying to legal requirements for prescribing were identified by 60% of respondents, which would require future attention and training.

**Recommendations:** Further investigation on this subject is recommended. Future studies should include hospitals from different provinces in South Africa, as well as hospitals from the public sector, to obtain an overview of legal prescribing in all sectors of practice. Patient safety is an international drive in all hospitals. Safe, applicable and legislative correct prescribing would be one of the first steps to ensure patient safety. A training intervention should take place to address problem areas identified with monitoring and evaluation to determine the outcome and impact of the training. E-prescribing may add value to safe patient care, but must be evaluated and all legal implications understood, before medical practitioners, professional nurses and pharmacists may achieve 100% compliance.
CHAPTER 1
INTRODUCTION

1.1 INTRODUCTION

This chapter describes the background and rationale for the study. The research question, aim and objectives are given. The chapter ends with a short discussion on the importance and significance of the study, followed by an outline of the different chapters included in the dissertation.

1.2 BACKGROUND AND RATIONALE FOR THE STUDY

In South Africa all prescribers are obliged to comply with the Medicines and Related Substances Control Act (Act 101 of 1965), which stipulates all legal and procedural requirements for a prescription. Limited published data are available on compliance to legal requirements for prescribing.

A study conducted at an outpatient pharmacy department of a hospital in Kuala Lumpur, Malaysia, showed a low compliance rate with legal and procedural requirements in prescription writing. The results indicated a need for pharmacy and medical educators to emphasise the importance of writing clear and complete prescriptions. The researchers called for the implementation of educational and monitoring programmes to increase awareness among all concerned, with the aim to reduce the rate of non-compliance and hence minimise the occurrence of prescribing errors (Ni, Siang & Ramli, 2002).

Dispensing of prescriptions is negatively impacted by prescribing errors. A project conducted by ‘The Rising Sun’ peer group in the Gauteng Province of South Africa, established a correlation between prescribing errors and dispensing errors (Boston, Mtwetwa, Dlulane & Manley. The Rising Sun Group. 2011). The authors concluded that medication errors can have both financial and health status implications, but human error is inevitable, and therefore needs to be prevented (Boston et al., 2011).

Mediclinic Southern Africa is a private hospital group in Southern Africa, which currently operates 52 private hospitals throughout South Africa and Namibia, with more than 7000 beds (Mediclinic Southern Africa, 2015). In addition to the legal requirements of the Medicines and Related Substances Control Act (Act 101 of 1965), Mediclinic has various policies which stipulate information required on prescriptions written by medical
practitioners, allergic reaction prevention as well as Schedule 5 and Schedule 6 medicines control. In 2011, the Mediclinic Clinical Committee identified seven areas in which the compliance levels with legal regulations in terms of prescribing required improvement. It was evident that non-adherence to legal regulations and non-compliance with policies represent an area of serious concern to Mediclinic, which requires investigation (Mediclinic, 2011).

Mediclinic Southern Africa which represents the Southern African operations of Mediclinic International, approaches clinical quality by focusing on structure, processes and outcomes of care. In their striving to reach set goals they entered into a process of accreditation, process management and measuring of outcomes.

The Council for Health Services Accreditation of Southern Africa (COHSASA) is the only internationally accredited quality improvement and accreditation body for healthcare facilities based in Africa (The Council for Health Service Accreditation of Southern Africa, 2015). Mediclinic Southern Africa entered the COHSASA programme in 2010 to improve quality and safety of the healthcare service provided to patients.

As part of its service to the public, in September 2011, Mediclinic committed itself to protecting the environment by implementing the Environmental Management System, based on ISO14001:2004. The International Standards Organisation (ISO) ensures that products and services are safe, reliable and of good quality. For business, they are strategic tools which reduce costs by minimizing waste and errors and increasing productivity (ISO, 2015).

The researcher, an employee at Mediclinic Brits, is involved in the daily process of interpretation and evaluation of prescriptions. Compliance with legality and procedures is very important to all members of any clinical team. Mediclinic Brits was COHSASA accredited in 2013 and also ISO14001 accredited in 2013. A shortcoming, in terms of prescribing according to legal requirements and prescribing protocols was identified. This highlighted the need for the study described in this dissertation. The study was subsequently aimed at assessing health care professionals compliance with, and awareness of, legal requirements when writing a prescription and completing the dispensing cycle, in selected hospitals of Mediclinic South Africa.
Chapter 1: Introduction

1.3 RESEARCH QUESTION

Are health care professionals in selected Mediclinic hospitals aware of, and do they comply with, policies for the legal prescribing of medication?

1.4 AIM OF THE STUDY

The aim of the study was to assess health care professionals’ awareness of and compliance with legal requirements in prescribing medicines at selected Mediclinic hospitals.

1.5 OBJECTIVE OF THE STUDY

The objectives of the study were as follows:

- To determine the awareness of health care professionals in selected Mediclinic hospitals on appropriate policies regarding compliance with legal requirements for prescribing.

- To determine the number of prescriptions prescribed by medical practitioners in compliance with Mediclinic policies for legal prescribing.

- To identify challenges experienced by health care professionals in terms of compliance with the legal requirements for prescribing as stipulated in Mediclinic hospital policies.

1.6 IMPORTANCE OF SIGNIFICANCE OF THE STUDY

The results of this study illustrated health care professionals’ perceptions regarding the necessity and importance of correct and legal prescribing according to policies outlined by Mediclinic and the Medicines and Related Substances Control Act (Act 101 of 1965). The study is important as it could alert all healthcare facilities treating patients to be more proactive in preventing medication errors. Understanding why medication errors occur is an important priority. The acknowledgement of legality of prescriptions could assist with the clinical team’s approach to medication errors.

The results of this study could guide the implementation of systems, processes and interventions for legal prescribing across all levels of the health care system, especially hospital pharmacies and prescribing medical practitioners in hospitals. This could
progressively and sustainably enhance the quality of healthcare services rendered to all patients admitted to a hospital in Mediclinic South Africa.

1.7 OUTLINE OF THE DISSERTATION

Chapter 1 serves as an introduction to the dissertation. Chapter 2 provides a review of the literature pertaining to the study subject. In Chapter 3 the methodology used for the study is described in detail. The results and discussion thereof are provided in Chapter 4. Chapter 5 includes a summary of the results, followed by the limitations of the study, recommendations based on the results and overall conclusion.
CHAPTER 2
LITERATURE REVIEW

2.1 INTRODUCTION

In this chapter, the literature on the study topic and previous research conducted in this particular study field is discussed. The chapter commences with an introduction describing relevant legislation and the rules and guidelines for the health care professionals on legal prescribing. It describes what a prescription entails and the vision of the South African Pharmacy Council on the statutory obligation of health care professionals, particularly pharmacists. Thereafter the dispensing process is discussed with specific reference to the dispensing cycle and all the different components thereof as part of medicines distribution. Reference is then made to the challenges to compliance with legality of prescriptions and prescribing of a legal prescription with a classification of errors made. Further challenges at the place of work, attitudes and training are discussed. The chapter is concluded by a discussion of knowledge assessment relevant to the study topic.

2.2 LEGAL FRAMEWORK FOR PRESCRIBING AND DISPENSING

In South Africa, law is promulgated by Parliament, in accordance with the Constitution of the Republic of South Africa (Act 108 of 1996, as amended). The law regarding medicine is based on the Medicine and Related Substance Act (Act 101 of 1965) and the Acts governing the various health professions. These Acts give informed guidance to the people of South Africa, to make them aware that medical practitioners, dentists, veterinary surgeons and some allied health practitioners are permitted to prescribe medicine and that pharmacists and some allied health practitioners are permitted to prepare and dispense prescribed medicine. It further states that nurses are allowed to administer the medication prescribed and dispensed and that finally all of these health practitioners should evaluate the effectiveness of such medication (Schellack, 2010).

The legislative framework and policies involved in the prescribing and dispensing of medicine include the following:

- The Medicines and Related Substances Control Act (as amended) (Act 101 of 1965)
- The Pharmacy Act (as amended) (Act 53 of 1974)
- Health Professions Act (Act 56 of 1974)
• Nurse Practitioners Scope of Practice. Regulation 2598 (as amended), (Nursing Act, 2005)

• Practice Guidelines of the South African Nursing Council (SANC, 2005)

• Good Pharmacy Practice (GPP) (SAPC, 2010)

• Mediclinic Corporate Policy on prescriptions (version 5, 2012) (see Appendix 1)

2.2.1 Regulating councils

The legislation pertaining to the practice of the various health care professionals indicates the right and obligations of the particular health care professional involved. Legislation includes the Health Professions Act (Act 56 of 1974) which is managed by the Health Professions Council of South Africa (HPCSA) in conjunction with its twelve professional boards. The Pharmacy Act (Act 53 of 1974) pertaining to pharmacists and the Nursing Act (Act 50 of 1978) provide guidelines for registered nurses and midwives.

None of the above Acts provides legislation for the handling of medicines. This is done by the Medicines and Related Substances Control Act (Act 101 of 1965), which also makes provision for the Medicines Control Council (MCC), responsible to oversee the handling of medicines in South Africa.

The various Acts for health care professionals provide certain rules for the different professionals in the health care service. There are various areas of overlap in the scope of practice of the different professional groups. The need for rendering excellent patient care by all health care professionals involved necessitates moving into grey areas where the scope of practice of the professional nurse, medical practitioner and pharmacist, as well as other allied health practitioners, overlap (Geyer, 2001). In this case it requires not only knowledge, skills and expertise, but also the ability to apply legislation and regulations.

All health care professionals practice standards must be monitored and enforced. This responsibility falls to the regulatory bodies, for example the National Department of Health, South African Pharmacy Council and South African Nursing Council. Practice standards are statements about what various health professions are required and expected to do as professionals. These standards represent benchmarks and achievable levels of professional performance, which reflect the values of the profession and clarify what the regulatory body expects of its health practitioners and, in turn, represent the criteria against which all health practices would be measured by the public, clients/patients, employers and colleagues.
2.2.2 Legislation pertaining to health care professionals

2.2.2.1. Health Professions Act (Act 56 of 1974)

The Health Professions Act (Act 56 of 1974) determines that only persons registered under this Act may examine a person, formulate a diagnosis and treatment, give advice, prescribe or provide medication pertaining to the situation, to such a person, unless provided for in another Act as described in Sections 33, 34 and 39 of the Health Professions Act (Act 56 of 1974). The Health Professions Act (Act 56 of 1974) therefore does not preclude the professional nurse and pharmacist from performing such professional services, as they are entitled to perform specific tasks as per each different profession by virtue of their professional status according to Strauss and Marais, as cited by Geyer (2001). These professional services include diagnosis and prescribing of medicines, provided that the Nursing Act (Act 50 of 1978) and/or the Pharmacy Act (Act 53 of 1974) make legal provision for these activities.

2.2.2.2. Nursing Act (Act 50 of 1978)

The South African Nursing Council, as a regulatory body, is authorised by the Nursing Act (Act 33 of 2005) to develop and maintain the Scope of Practice, Professional Standards and Competencies through Section 3(e), which stipulates that the objects of the Council are, among others, to maintain professional conduct and practice standards for practitioners and to uphold and maintain professional and ethical standards within nursing. Sections 4(1)(i) and (iv) further maintain that the Council must determine the scope of practice of nurses and the requirements for any nurse to remain competent in the manner prescribed.

According to Geyer (2001), the scope of nurses’ practice is too wide and non-specific, but that it needs to be wide to make provision for professional nurses in every environment.

The following essential parts of an order for medicines (prescription) as outlined by Kozier, Erb, Berman & Burke (2000) are to be followed in a hospital/inpatient environment by a professional nurse:

- Descriptive information about patient: name, address and age
- Date on which the prescription is written
- The Rx symbol meaning to give or to take medicine or the words “to take”
Chapter 2: Literature Review

- Medication name, dosage and strength
- Route of administration
- Dispensing instructions for the pharmacist
- Directions for administration to be given to the patient
- Refill and/or special labelling instructions
- Prescriber’s signature

2.2.2.3. Pharmacy Act (Act 53 of 1974)

The vision of the South African Pharmacy Council (SAPC) is to serve the interests of the public, and in terms of its statutory obligations, to ensure quality pharmaceutical services for all people of South Africa (SAPC, 2010). The SAPC continuously strives to ensure that the highest standards are maintained, which is evident from legislation, published as rules in Good Pharmacy Practice (SAPC, 2010). The GPP is utilised to bring all new amendments or additions to the attention of all pharmacists and other health care professionals. All practising pharmacists are obliged to ensure that the services they provide are of quality and comply with GPP Standards. The GPP is obligatory in terms of Section 35A of the Pharmacy Act (Act 53 of 1974) as amended, as well as of the Medicines and Related Substances Control Act (Act 101 of 1965).

According to GPP, the general objectives and requirements of pharmaceutical services provided by pharmacists include the establishment and maintenance of a safe system of work to eliminate, as far as possible, errors in any component of pharmaceutical service. This requirement is particularly important in the interpretation and dispensing of prescriptions and the distribution of medicines (SAPC, 2010).

Another objective and requirement for pharmacists is to establish a prescription monitoring service to ensure that both prescribing and administration of medicines are monitored regularly, aiming to ensure compliance with accepted practice and safe systems of work, and to encourage effective prescribing (SAPC, 2010).

When a physician writes a prescription for a patient, the prescription also includes information for the pharmacist. The content of a prescription therefore differs from that of a medication order in a hospital setting (Kozier et al., 2000). In the hospital setting, a medication order is written on the patient’s prescription bed chart by a medical practitioner or
by a nurse receiving a telephone or verbal order from a medical practitioner. There is a specific time frame (e.g. 24 or 48 hours) in which the medical practitioner issuing the telephone or verbal order must co-sign the order written by the nurse (Kozier et al., 2000).

### 2.2.2.4. Medicines and Related Substance Control Act (Act 101 of 1965)

Point 28 of the Medicines and Related Substances Control Act (Act 101 of 1965), stipulates the particulars that should appear on a prescription in South Africa. Every prescription or order for a medicine must be written in legible print, typewritten or computer generated and **signed in person** by a medical practitioner, dentist, veterinarian or authorised prescriber or in the case of an order, an authorised person. The prescription or order for a medicine must state at least the following details:

- The name, qualifications, practice number and address of prescriber
- Patient details
- Date of issue of prescription or order
- Approved name or proprietary name of medicine
- Dosage form
- Strength of dosage form and quantity of medicine to be supplied

When the above guidelines, rules and legislation are not adhered to by health care professionals, the writing of non-compliant prescriptions may result in errors and/or mistakes made by dispensers and nursing personnel.

### 2.3  PRESCRIBING AND DISPENSING OF MEDICINES

#### 2.3.1  Attributes of a prescription

According to the Oxford English Dictionary (1993) to dispense is to "**distribute or provide a service or information to a number of people as well as a pharmacist (chemist) to make up and give out medicine according to a doctor’s prescription**". A prescription is an ‘**instruction written by a medical practitioner that authorises a patient to be provided a medicine or treatment**’.

The Mosby Medical Dictionary (2009) elaborates further on the definition of a prescription by adding that the prescription or medication order may be e-mailed, written, phoned or faxed
and must include the patient’s name and address, the date and the Rx symbol, the
medication prescribed, directions to the pharmacist, if generic substitution is acceptable as
well as the directions to the patient. The practice number of the medical practitioner writing
the prescription must also appear on prescription. Considering this definition from the Mosby
Medical Dictionary, one must remember that not all of these guidelines represent the South
African legislation as per discussion in Section 2.2.2 in this chapter.

A prescription is a communication mechanism between health care professionals. Both
pharmacists and professional nurses play vital roles in the interpretation and adherence to
this method of communication in the health care sector.

Prescription writing is one of the most important and basic skills required of a medical
practitioner (Ansari & Neupane, 2009). Prescribing errors may have various detrimental
consequences. Hence, the components of a prescription should be clearly written, free of
drug-related omission (incomplete prescription), commission (incorrect information) and
integration errors, without non-official abbreviations, and fulfil all the legal requirements of a
prescription. Since errors of prescribing are the most common form of avoidable medication
ers, it is the most important target for improvement (Ansari & Neupane, 2009).

The prescription symbol seen on medical practitioners’ prescription pads and on pharmacy
direction boards and signs, showing the way to the dispensary, is shown in Figure 2.1. The
Rx symbol is derived from the Latin word “recipe” meaning “take” and is used to indicate that
a medical prescription should be filled. Amongst several alternative theories, the belief is that
the Rx symbol evolved from the Eye of Horus, an ancient Egyptian symbol associated with
healing powers. The practice of pharmacy, including the preparation and dispensing of
medicines, has been in use for thousands of years (Nix, 2014).

![Image of Rx symbol]

Figure 2.1: Prescription symbol

A written prescription is an instruction from a prescriber to a dispenser (De Vries, Henning,
Hogerzeil, Fresle, 1994). The prescriber is not always a doctor, but can also include
paramedical workers, such as a medical assistant, midwife or professional nurse. The
dispenser is not always a pharmacist, but can include a post-basic pharmacist assistant working under the direct or in-directed supervision of a pharmacist or professional nurse (De Vries et al., 1994). Every country has its own standards for minimum information required for a prescription and its own laws and regulations to define which medication requires a prescription and who is entitled to write and dispense it. In South Africa there is strict legislation guiding all health care professionals and regulatory bodies to enforce legislation as described in Section 2.2.

Prescriptions may be entered into an electronic medical record system and electronically transmitted to a pharmacy. A prescription written in the private and public health sector in South Africa is usually handwritten on a pre-printed prescription document, assembled into prescription pads or printed onto similar forms using a computer printer. In the private hospital environment, pre-printed hospital prescription and dosing charts are used to prescribe medication for patients. In some cases, a prescription may be transmitted from the medical practitioner to the pharmacist or professional nurse verbally by telephone, although this practice may increase the risk of medication errors (De Vries et al., 1994).

The content of a prescription is specific and regulated. Unique to each prescription is the name of the patient. Each prescription is dated and the Pharmacy Act (Act 53 of 1974) regulates a time limit from date of prescribing for all prescriptions issued to a patient by a medical practitioner. No prescription may be filled after 30 days from date of prescription unless the prescription is indicated by the prescriber for monthly repeats.

The attributes of a prescription is guided by the Medicines and Related Substances Control Act (Act 101 of 1965) as well as the Pharmacy Act (Act 53 of 1974). The GPP defines minimum standards for these legislations for the pharmacy dispensers regarding dispensing of medicine or scheduled substances on the prescription of an authorised prescriber.

### 2.3.2 Dispensing process

Dispensing is defined as a process which ensures that an effective form of the correct drug is delivered to the right patient, in the prescribed dosage and quantity with clear instructions, and in a package that maintains the potency of the drug (Spivey, 2011).

In terms of the Pharmacy Act (Act 53 of 1974) “dispensing” means “the interpretation and evaluation of a prescription, the selection, manipulation or compounding of the medicine, the labelling and supply of the medicine in an appropriate container according to the Medicines Act and the provision of information and instructions by a pharmacist to ensure the safe and
effective use of medicine by the patient and “dispense” has a corresponding meaning” (GNR. 1158 of 20 November 2000).

Although the roles and responsibilities of pharmacists and professional nurses might differ in terms of the dispensing and administration of prescribed medication, both are required to adhere to the relevant legal requirements (Geyer, 1998; Kozier et al., 2000). The pharmacist must adhere to the Medicine and Related Substances Control Act (Act 101 of 1965) and the Pharmacy Act (Act 53 of 1974) while the professional nurse has the guidelines of the Nursing Act (Act 50 of 1978) as well as the Medicines and Related Substances Control Act (Act 101 of 1965).

The pharmacist is required to complete three phases in the dispensing process before medicine may be dispensed thereafter and issued by the professional nurse to a patient in accordance with the medical practitioner’s prescription on the dosing/medicine chart.

2.3.2.1. Dispensing phases followed in the pharmacy

The dispensing process is described in the Good Pharmacy Practise as three phases and is also referred to as the dispensing cycle. The person who is responsible for the dispensing of a prescription must ensure that all three phases of the dispensing process are performed by an appropriately authorised person (SAPC, 2010).

The pharmacist as the custodian of medicines must constantly ensure the implementation of the dispensing cycle. Firstly the receiving and validating of the prescription, as well as the interpretation and evaluation of the prescription as per GPP Phase 1 of the dispensing process. All pharmacists must be committed to fulfil the healthcare needs of South Africa and its people. This process starts with evaluating the prescription, verifying that it complies with the South African legal standards/requirements for a prescription as stipulated by the SAPC, and the Medicines and Related Substances Control Act (Act 101 of 1965).

For the purpose of the study described in this dissertation, the focus will be on the process the pharmacist follows during Phase 1 of the dispensing cycle, which is regarded as the most important phase of the dispensing cycle (SAPC, 2010). Phase 2 and Phase 3 will be described in order to elucidate the study.

The detailed steps of Phase 1 of the dispensing cycle are described below, followed by a summary of Phases 2 and 3 (SAPC, 2010).
a) **Phase 1: Interpretation and evaluation of the prescription**

Upon **receiving a prescription** adequate procedures must exist for the following:

- Identifying the patient, the prescriber and the entity responsible for payment (as applicable)
- Ensuring the legality/authenticity of the prescription
- A permanent copy of a faxed, e-mailed, telephonic or other electronically transmitted prescription or order made for record purposes; this must be followed by the original prescription or order within seven working days
- Helping the patient to resolve the problem when the prescription cannot be dispensed
- Interpreting the type of treatment and the prescriber’s intentions
- Identifying the medicine and checking the pharmaceutical form, strength, appropriate dosage, presentation, method of administration and duration of treatment
- Informing the patient of the benefits and implications of substitution
- To ensure **optimal use** of medicines, each prescription must be professionally **assessed** by a pharmacist with respect to the following:
  - Therapeutic aspects (Pharmaceutical and Pharmacological) i.e. the safety of the medicine, possible contra-indications, drug/drug interactions, drug/disease interactions and treatment duplications
  - Appropriateness for the individual and the indications for which the medicine is prescribed
  - Social, legal and economic aspects

In terms of pharmacist **interventions**, whenever necessary, the pharmacist should communicate with the prescriber regarding any identified problems, and work out a plan of action with the prescriber and/or the patient.

When **assessing** the prescription, the following information sources maybe used:

- Put questions to the patient or caregiver
- Questions put to the prescriber where doubts arise or further information is required
Pharmacopoeias, formularies, technical books, electronic sources, professional journals, compendia etc.

Outside information

b) Phase 2: Preparation and labelling of the prescribed medication

This phase includes the correct selection of medicine and/or preparation of the correct medication. Phase 2 also describes all equipment needed during this process, as well as the condition of the apparatus used during dispensing process.

Information indicated on the label of dispensed medication is clearly stated in accordance of the General Regulations published in terms of the Medicines and Related Substances Control Act (Act 101 of 1965).

In this phase the accountability of the pharmacist accepting liability for the correctness of the dispensing of medicine and the confirmation that medicine has been supplied is likewise discussed, followed by the process of recordkeeping regarding the supply of medicine.

c) Phase 3: Provision of information and instructions to the patient to ensure the safe and effective use of medicine

In Phase 3 advice to a patient is elaborated upon. The information regarding dispensed medication must tally with the relevant local and national guidelines. It is stated in the description of this phase that the information about the dispensed medication must meet the needs of the individual patient.

This phase also consists of the pharmacist’s duty to monitor patient outcomes.

Internationally the dispensing cycle done in a pharmacy is described by Spivey (2011) as an understanding and interpretation of a prescription done by an appropriately authorised staff member. The dispensing cycle as described consists of all three phases as per GPP in South Africa (SAPC, 2010). The authorised staff member must be able to do the following:

- Read the prescription
- Correctly interpret any abbreviations used by prescriber
- Confirm that the doses prescribed are in the normal range for the patient (noting sex and age)
• Correctly perform any calculation of dose and issue quantity

• Identify any common drug-drug interactions

A visual presentation of the dispensing cycle, as adapted from Spivey (2011), is shown in Figure 2.2.

Spivey (2011) explains that the consistent, repeated use of good dispensing procedures are considered vital, ensuring that errors are detected and corrected at all stages of the dispensing process. The term “dispensing process” covers all activities involved, from receiving the prescription to issuing the prescribed medicine to the patient.

The dispensing cycle is also of assistance with the assessment of medication prescribed for in-hospital patients by the medical practitioner to be issued by the professional nurse. When followed step by step, the dispensing cycle assures a control procedure when dispensed by a pharmacist in the pharmacy, and issued to the patient by the professional nurse. This plays an essential role in terms of the legal requirements as provided in Section 35A of the Pharmacy Act (Act 53 of 1974).
2.3.2.2. Dispensing process barriers

A prescription received in the hospital pharmacy for dispensing by the pharmacist and/or the post-basic pharmacist assistant working under the direct supervision of a pharmacist must be reviewed and the staff member responsible should confirm the name of the patient (SAPC, 2010).

This action is particularly important when the hospital is dealing with a large number of patients and/or prescription charts at one time. Patients who are unable to understand English and collecting medication to take home from the pharmacy may take a wrong prescription from the ward/unit or not understand the counselling provided by the pharmacist. In a hospital with different units and different patients the use of matching numbers and/or symbols and alphabetic numbering on the prescription chart is essential. Attaching identification to a prescription chart can also contribute to making sure the right patient is given the correct medicines and is particularly helpful in situations where many people share the same surname.

The basis for good dispensing practice is provided by a safe, clean and organised working environment (Spivey, 2011). When disciplined uses of effective procedures are implemented, the pharmacist should be able to perform the dispensing process and the dispensing cycle accurately. The pharmacist must be accountable for all actions taken in the process and staff members who dispense must be trained in knowledge, skills and practices pertaining to the facility.

2.3.2.3. Role of the prescriber

The Medicines and Related Substances Control Act (Act 101 of 1965) states that “prescribed” indicates the process of writing a prescription only by persons registered under the Health Professions Act (Act 56 of 1974), bearing in mind the regulations of the Medicines and Related Substances Control Act (Act 101 of 1965).

In Section 22A of the Medicines and Related Substances Control Act (Act 101 of 1965) regulations stipulate that Schedule 3-6 substances may be sold/dispensed by a pharmacist, a pharmacist intern or pharmacist’s assistant acting under the personal supervision of a pharmacist, upon a written prescription by an authorised prescriber.

Current legislation can be very confusing to health care professionals. The unclear definition of which particular health care professional needs to perform which tasks, has become a
major barrier for determining what training and supervision should be provided, particularly among community and public health care professionals who are already overburdened with tasks (Gray, 2014).

In the private hospital environment, only a medical practitioner is legally authorised to complete a prescription for a patient. The medical practitioner writes a prescription, referred to as an order, on a form in the patient’s medical records, in an order book, on a legal prescription pad, or by typing a prescription and sending it from a computer, laptop or tablet. Electronic prescriptions must be signed in person by the medical practitioner. Medication may also be ordered by the medical practitioner by telephone or by a verbal order. The latter must be written down by a professional nurse in the presence of a second nurse. The name of the prescriber ordering the medication, followed by the professional nurse’s signature, must appear on the prescription. The prescriber must countersign the order within 24 hours after order issue has been made. In the case of a Schedule 5 or Schedule 6 medication order, the order must be rewritten by the medical practitioner with complete signature, qualifications and date of prescription (Medicines and Related Substances Control Act, Act 101 of 1965; Mediclinic Corporate Policy on Prescriptions from medical practitioners, 2014).

2.3.2.4. **Role of the pharmacist**

The pharmacist’s role is set out in the Pharmacy Act (Act 53 of 1974) and the GPP describes in great detail the standards of pharmacy practice in South Africa. A pharmacist evaluates, prepares and distributes the prescribed medication to a patient. The pharmacist is responsible to verify that prescriptions are valid and to fill the prescriptions accurately (Kozier et al., 2000). Pharmacists must also assess the medication plan and evaluate the patient’s medication-related needs. A medication plan is a patient-centred approach, in which the pharmacist engages patients to become more active in the continuum of decision-making about their treatment and the consequent health outcomes (Nichols-English & Poirier, 2000).

In terms of the Pharmacy Act (Act 53 of 1974), the minimum standards for the dispensing of medicines or scheduled substances on the prescription of an authorised prescriber, are stipulated as rules in the GPP, according to the following three phases (SAPC, 2010):

- **Phase 1:** Interpretation and evaluation of the prescription
- **Phase 2:** Preparation and labelling of the prescribed medicine
- **Phase 3:** Provision of information and instructions to the patient to ensure the safe and effective use of the medicine.
2.3.2.5. **Role of the professional nurse**

The professional nurse plays an essential role in medication administration, evaluation and reporting on the effectiveness of medication and educating the patient about restoring and/or maintaining of health. The professional nurse’s role in medication administration is different to that of other health care providers based on the setting of the client-nurse and patient-nurse interaction. In a hospital setting the professional nurse would be working in an acute care setting (Potter & Perry, 2003).

Registered professional nurses' duties vary in accordance with the areas of their expertise. They play a key role in promoting wellness by performing a wide range of services. A professional nurse mainly focuses on caring for and educating the patients and their family members about early recovery and ways of prevention of diseases. Hence, nurses assess patients’ health problems and needs, develop and execute nursing care plans and uphold medical records.

The list of the **duties and responsibilities of a registered professional nurse** regarding in-hospital patient care is the following:

- Observing and recording patients' behaviour.

- Co-ordinating with medical practitioner and other health care professionals in terms of the creation and evaluation of customised medication/care plans.

- In order to provide emotional and psychological support to the patients and their families, professional nurses create a harmonious environment.

- Diagnosing the disease by analysing patient’s symptoms and taking required actions for his/her recovery.

- Maintaining reports of patients’ medical histories, and monitoring changes in their condition.

- Carrying out the requisite treatments and medications.

- Checking the stock on a regular basis for maintaining the inventory level, and placing orders, if required.

- Changing patients’ medication as indicated by their conditions and responses.
Adherence to policies, procedures and regulations in order to maintain complete medical records.

Maintaining hygienic and safe working environment in compliance with the healthcare procedures.

Providing instant care during medical emergencies, such as car accidents, burns, heart attacks and strokes.

Discussing treatment with pharmacists and medical practitioners in critical cases.

Providing necessary guidance on health maintenance and disease prevention.

Keeping an eye on every aspect of patient care, including physical activity plus proper diet.

Preparing rooms, and decontaminating equipment and instruments.

Preparing patients for examinations.

Educating patients’ families about disease and its treatment.

Assisting doctors during surgery.

Interacting with the healthcare teams in order to maintain harmonious relationships.

Recommending drugs and other forms of treatment, such as inhalation therapy, physical therapy, etc.

Registered nurses work in different areas of the healthcare sector, such as hospitals, clinics, schools, rehabilitation centres, outpatient and mental health facilities, ambulatory care centres and private physician’s clinics. They may also work in community centres, schools and patients’ homes (Registered nurse, 2015).

In summary, the role of the nurse as described by Potter and Perry (2003) implies that the administration of medication to patients requires knowledge and a set of skills that are unique to nursing. Responsibilities of medication administration include assessing the patient’s ability to self-administer medication, administering a patient medication at a given time, administering medication correctly and monitoring the effects of prescribed medication.
2.3.3 Prescribing within Mediclinic South Africa

Mediclinic has its own corporate policy on prescriptions and legal requirements for prescriptions, known as the ‘Mediclinic Corporate Policy on prescriptions from medical practitioners’. Mediclinic Pharmacy Services developed the Mediclinic Corporate Policy on medicine prescribing and co-attributes based on the South African legislation pertaining to the practice of all health care professionals as well as the GPP rules of the SAPC.¹

The policy has been reviewed a number of times. Version 5 of 2012 of the Mediclinic Corporate Policy on prescription from medical practitioners was current at the time of this study (see Appendix 1).

The purpose of Mediclinic policies is to provide health care practitioners with guidelines according to the Medicines and Related Substances Control Act (Act 101 of 1965) regarding all legal aspects pertaining to patient prescriptions in the nursing units in Mediclinic hospitals. The policy includes legal requirements of prescriptions as well as Mediclinic guidelines. The scope of this policy is applicable to all health care professionals in Mediclinic hospitals, who include the following:

- Medical practitioners who admit patients to Mediclinic hospitals
- Professional nurses
- Pharmacists

2.3.3.1. Routine medication and STAT prescriptions

The policy accurately states the legible information which should appear with every routine prescription written for a patient seen in an unit or at an emergency centre within Mediclinic.

¹Personal communication. Mr Douglas Defty. General Manager Pharmacy, Mediclinic South Africa. 14 November 2014.
These prescriptions must be written on a Mediclinic Prescription Chart and comply with the following criteria:

- Date of prescription
- Name of medication (generic/trade)
- Dose
- Frequency
- Route of administration
- Time when medication is to be taken (if applicable)
- Signature of medical practitioner, initials, surname and qualifications (printed)
- No open lines are allowed between prescriptions.

If the medical practitioner wants to start with the medication immediately he/she will write a STAT (which comes from the Latin word “statim”, meaning “immediately”) prescription for the patient. Legible information that should appear on every STAT prescription on a Mediclinic Prescription Chart comprises the following:

- Date and time of prescription
- Name of medication, dose, and route of administration
- Signature of medical practitioner, initials, surname and qualifications (printed)

2.3.3.2. Discontinuation of medication on a Mediclinic Prescription Chart

The medical practitioner discontinuing the patient’s medication must comply by doing the following:

- Draw two (2) transverse lines after the last administration
- Signature, date and time between the lines
- No deleting or overwriting on the previous prescription is allowed. Any change in orders is to be given by means of a new prescription
2.3.3. Revision and transcribing of a prescription within Mediclinic

The policy also stipulates that Mediclinic requires the medical practitioner to revise all routine medication at least once every seven days. If medication is to be continued it should be rewritten and signed by the medical practitioner as a new prescription. It is very clearly stated on the policy that no professional nurse or pharmacist may transcribe a prescription.

2.3.3.4. Telephonic prescriptions

The procedure of a medical practitioner giving a telephonic prescription must always include a professional nurse who must verify the authenticity of the medical practitioner. The professional nurse must repeat the prescription to the medical practitioner in the presence of a second nurse. The professional nurse will then write the telephonic prescription (date, time, type of medication, dose frequency and route) on the prescription chart and both the professional nurse and the second nurse included in process must sign the prescription.

In the case of the pharmacist receiving the telephonic prescription, he/she must also verify the authenticity of the prescriber. A permanent record of the telephonic prescription must be made and retained. The prescriber must supply the pharmacist with the original signed prescription within 7 (seven) days.

With reference to telephonic prescriptions, the Mediclinic Corporate Policy on prescriptions from medical practitioners states that the prescriber must supply the pharmacist with the original signed prescription under the conditions stipulated below:

- The medical practitioner must sign a telephonic prescription (up to schedule five) within 24 hours
- The medical practitioner must rewrite and sign a schedule six telephonic prescription within 24 hours.

2.4 CHALLENGES TO COMPLIANCE IN PRESCRIBING

2.4.1 Health care professionals awareness

The requirements of ethical and legal frameworks have an impact on the daily tasks of the health care professional. According to Erickson (cited by Tee, 2009) the four key attributes of the health care professionals’ situation may be described as follows:
- Awareness of oneself
- Awareness of the situation
- Awareness of the professional perspective
- Awareness of the legislation

For the purpose of this study it may be stated that the health care professional cannot function safely and effectively without awareness of legislation (Tee, 2009).

Today, health care professionals must be aware of regulatory activities and legislation and be ready to support or oppose in an informed manner. Only in this way will health care professionals become a powerful and influential voice for health care: realising that their roles as patient advocates do not end at the bedside, desk or countertop, but rather becoming involved with legislative issues (National Student Nurses' Association, 2013).

It may be concluded that being unaware of rules and standards and of what is expected of a healthcare professional in order to comply with legal requirements for prescribing, could result in illegal prescriptions, non-compliance with the dispensing cycle and prescription-writing requirements, prescribing errors and possible medication errors to name but a few.

2.4.2 Prescription evaluation and compliance

Upon receiving a prescription for a patient, a pharmacist must evaluate the prescription as per discussion in Section 2.3.2 of this chapter. The evaluation of this prescription is all about compliance with legality of the prescription in terms of the Medicines and Related Substances Control Act (Act 101 of 1965). Writing a prescription that is not in accordance with legal requirement may cause failure in treating the patients. These errors can occur when the prescription either lacks any of the important information regarding the patient or the medicines and also when incorrect information is present on the prescription (Gul, 2014).

2.4.2.1 Prescription errors

Ansari and Neupane (2009) observed that errors may occur anywhere from the point where the prescription is written to the administration of the medicine. The safety of a patient in a hospital environment is influenced by medication safety. Thus, medication safety by compliance to all prescription writing policies, procedures and legislation is considered as a top priority for the patient's healthcare. Of all the medication errors, prescription errors are
most common and have a negative impact on the patient's experience of the healthcare services received.

Prescriptions not written clearly and legibly can be misunderstood. It is important to identify, solve and prevent prescription errors as this can hinder the treatment of the patient (Neville, Robertson, Livingstone & Crombie, 1989).

a) Classification of prescription errors

Prescription errors have been classified as errors of commission or errors of omission (see Table 2.1) (Adapted from Gul, 2014).

A commission error relates to the incorrect information regarding the medicine prescribed for a patient. The wrong drug, dosage, route, form or strength and drug-drug interaction may all lead to dispensing errors (Dean, Schachter, Vincent & Barber, 2002).

An error of commission can lead to harmful situations for a patient as the prescription may have some legal requirements missing when information about the medicine is written by the medical practitioner. To make sure all of the information on the prescription is correct the pharmacist must call the medical practitioner when in any doubt about treatment (Ni et al., 2002).

An omission error could either be related to the information that should appear on the prescription or to the information required for the prescribed medication.

The prescription is incomplete due to missing the patient’s information. Patient information is essential on a prescription particularly for hospitalised patients. The dosage is incomplete, dosage form not mentioned and the handwriting is illegible. An error of omission results in a waste of time, because the pharmacist has to contact the physician to obtain information omitted from the prescription in order to comply with legislative requirements.


Table 2.1: Prescription error classification

<table>
<thead>
<tr>
<th>Error classification</th>
<th>Type of error</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Drug related</td>
</tr>
<tr>
<td>Commission</td>
<td>Wrong drug</td>
</tr>
<tr>
<td>(may lead to harmful situation)</td>
<td>Wrong dose</td>
</tr>
<tr>
<td></td>
<td>Wrong dose form</td>
</tr>
<tr>
<td></td>
<td>Wrong route</td>
</tr>
<tr>
<td></td>
<td>Wrong strength</td>
</tr>
<tr>
<td></td>
<td>Drug-drug interaction</td>
</tr>
<tr>
<td>Related to physician</td>
<td>Patient name not mentioned</td>
</tr>
<tr>
<td></td>
<td>Patient age not mentioned</td>
</tr>
<tr>
<td></td>
<td>Patient number/details not mentioned</td>
</tr>
<tr>
<td></td>
<td>Patient weight not mentioned</td>
</tr>
<tr>
<td></td>
<td>Date not mentioned</td>
</tr>
<tr>
<td></td>
<td>Physician's name not mentioned</td>
</tr>
<tr>
<td></td>
<td>Physician's signature not mentioned</td>
</tr>
<tr>
<td></td>
<td>Physician's address not mentioned</td>
</tr>
<tr>
<td></td>
<td>Diagnoses not mentioned</td>
</tr>
<tr>
<td></td>
<td>Illegible</td>
</tr>
<tr>
<td>Drug related</td>
<td>Route not mentioned</td>
</tr>
<tr>
<td></td>
<td>Dose not mentioned</td>
</tr>
<tr>
<td></td>
<td>Dose form not mentioned</td>
</tr>
<tr>
<td></td>
<td>Frequency not mentioned</td>
</tr>
<tr>
<td></td>
<td>Strength not mentioned</td>
</tr>
<tr>
<td></td>
<td>Refill time not indicated</td>
</tr>
</tbody>
</table>

Source: Adapted from Gul, 2014

Prescription errors commonly occur and it may be assumed that in some cases prescription errors might be life-threatening, although all prescription errors are preventable. The medical practitioner, the professional nurse and the pharmacist all have to play their specific role in minimising such errors. All prescriptions should be reviewed frequently and immediately in order to identify the error before it is too late. The implementation of certain policies within the hospital is required to overcome the occurrence of such errors (ASHP, 1993).

b) Evaluation and reviews of prescriptions to identify prescription errors made internationally

Prescribing in conflict with legislation subsequently results in dispensing error. This became very evident from two international studies conducted in Malaysia and Pakistan.
Chapter 2: Literature Review

The Malaysian study involved retrospective screening of new prescriptions received and were conducted in the Outpatient Pharmacy Department (OPPD) of a major teaching hospital in Malaysia. At the time of the study the out-patient pharmacy department received an average of 1057 prescriptions per day. The pharmacy collected the prescriptions for a single day and screened them retrospectively. Prescriptions which failed to comply with one or more of the legal or the hospital procedural requirements would be considered as non-compliant. These errors were mainly errors of omission, including illegible prescriptions. Unreadable prescription would be considered as illegible. Errors of commission that were related to the medicines prescribed were also recorded. Any drug-drug interaction was confirmed with standard references (Ni et al., 2002).

The four-month study done in Pakistan was conducted in a tertiary care hospital located in Pakistan, the pharmacy analysed 312 prescriptions. In-patient prescriptions were excluded. The selected prescriptions were reviewed for prescription errors. Errors of omission and errors of commission were detected. The percentage of all the errors was calculated and then evaluated (Gul, 2014).

c) Type of errors identified internationally

The Malaysian study identified that in overall 96.7% of prescriptions at least one of the legal or procedural requirements was not followed. Errors of commission were identified in which the wrong dosage was written and in 5% of reviewed prescriptions drug-drug interaction was identified. Analysis revealed that out of these interactions, 70% could be classified as potentially hazardous. With correct and appropriate monitoring and careful avoidance of error possibilities, the hazards should be avoided.

Retrospectively, 397 prescriptions were identified with error of omission and only 13 retrospectively reviewed prescriptions complied with all the legal requirements in Malaysia’s Poisons Act 1952 as well as the procedural requirements of the hospital surveyed. The absence of the prescriber’s signature would invalidate the prescription and cause inconvenience to the patient and staff involved. Whether a prescription is legible or not depends on the assessor’s familiarity with the handwriting of the prescriber as well as information provided in the prescription. However, it should be emphasised that it is important to make sure that prescriptions can be easily read by anyone involved in the dispensing activities since the prescriptions could be filled by any pharmacy outside the hospital.
The international study conducted in Pakistan revealed that the overall number of prescription errors was 846 which would amount to 2.71 errors per prescription. Commission errors were 10.5% while errors of omission comprised of 89.2%. Errors of omission related to the medical practitioner numbered 72.3% and those related to the drug were 27.7%. Prescribing the incorrect strength (28.1%), dose (18%) and drug-drug interactions (25.8%) were found to be the leading errors among the errors of commission.

d) Evaluations, reviews and errors identified in South Africa

In South Africa a project conducted by ‘The Rising Sun’ peer group in the Gauteng Province, established a correlation between prescribing errors and dispensing errors (Boston et al., 2011).

It was concluded that prescribing errors could have a negative impact on the dispensing of prescriptions. Baseline data were collected. Prescribing and dispensing errors were identified and categorised. Training interventions were developed to address the identified errors at all of participating hospitals. Post-interventions results were collected and compared to baseline. The group then compared errors and intervention. Evidently the training impacted positively on prescribing and dispensing errors and resulted in an overall reduction in prescribing and dispensing errors from 42.1% to 24.8%.

In 2010 the Clinical Department of Mediclinic South Africa conducted a Mediclinic Prescription Chart audit of 500 prescriptions over a three month period. Omission errors were identified, as only 18% of the prescriptions contained the date and time of prescription and for only 7% of the prescriptions the medical practitioner’s initials, surname and qualifications appeared on the prescription. The audit concluded that these areas need improvement (Mediclinic, 2011).

In the same Mediclinic prescription audit of 2011, telephonic prescription compliance with policies was determined for 122 prescriptions. Only 26% of doctors had signed the Schedule 5 prescription within 24 hours and in 37% of cases, the Schedule 6 medicines’ prescriptions were completely rewritten and signed by the doctor within 24 hours.

e) Consequences of prescription errors

Errors of commission represent a greater threat to the patient’s health. These may lead to a harmful situation for the patient. If the strength of a drug required is written down incorrectly, it may lead to more serious consequences than if the strength is not written down at all. However, the aim of reporting is to bring awareness to the health care professionals so that
appropriate precautions would be observed to minimize any adverse consequences. Errors of omission may waste the time of the pharmacist and the patient due to a medical practitioner non-compliance with legislation.

Medication errors do occur and can have both financial and health status implications, while human error is inevitable, it needs to be minimised (Boston et al., 2011).

Medication errors are any patient safety incident where there has been an error in the process of prescribing, preparing, dispensing, administering, monitoring or counselling a patients on medication. Research evidence indicate that 7% of prescribed item errors is due to prescribing errors in hospitals alone. In England it is predicted that 1.8 million serious prescribing errors is made each year (United Kingdom, Department of Health, 2015).

2.4.2.2. Reason for prescription errors

The reason for low compliance rate with the legal and procedural requirements in prescription writing indicated a need for pharmacy and medical educators further to emphasize the importance of legibility and complete prescriptions. It also calls for the implementation of educational and monitoring programmes to bring more awareness to all concerned. This will reduce the rate of non-compliance and hence minimise the occurrence of prescribing errors. Prescription errors should also be an indication to a hospital further to emphasise the necessity of writing clear and complete prescriptions (Ni et al., 2002).

Other causes may include the medical practitioners not being in good physical or mental condition, inadequate training or lack of knowledge (Ni et al., 2002). Poor legibility of handwriting cannot be neglected and similarities in the brand and generic names of the medications must always be taken in to account (ASHP, 1988). Prescription errors occur commonly in hospitals and clinics, both in out-patient and in-patient prescriptions (Dean, et al., 2002).

Studies have also been conducted for the purpose of determining the reasons behind prescription errors (Aronson, 2009). Every step related to prescription writing is error-producing. Selecting the correct drug, dose, frequency and dosage form contributes to the prescription errors.

A prescription error may occur by mistake or ignorance, which may happen during calculation, writing a prescription, judgment or verbal and/or telephonic prescription instructions by a medical practitioner while consulting the patient (Gul, 2014).
2.5 CHALLENGES AT THE WORKPLACE

Managing conflict, violence, legal-, ethical- and safety issues and then struggling through poor communication is all in a day’s work for a health care professional (Ramsey, 2001).

Conflict may exist within the health care team, with a patient or with the patient’s family. Signs of impending violence include verbal threats, profanity, belligerence and intimidating statements (Ramsey, 2001).

The prevailing assumption has been that private beliefs and feelings determine the public behaviour. In order for the way people act to be altered there is a need to change their hearts and minds.

2.5.1 Workforce attitudes

When people question someone’s attitude they refer to beliefs and feelings related to a person or event and the resulting behaviour. A person’s attitude towards something is defined by reactions, favourable or unfavourable, whether exhibited in beliefs, feelings or inclinations to act (Olson & Zanna, 1993). Attitudes are an efficient way to size up the world. When we have to respond quickly to something, how we feel about it can guide how we react (Olson & Zanna, 1993; Breckler & Wiggins, 1989). To know the relationship between what you are on the inside and what you do on the outside would help to discover if attitudes determine behaviour.

According to the Pomona College (2015) in California, the attitude and characteristics of the successful health care professional would be seen as follows: A good health care professional is a good communicator with the ability to listen truly to their patients, empathise, and provide information about diagnosis and treatment in a way their patients will understand. Good health care professionals are altruistic (that is, they are always ready to put their patients' needs first). Good health care professionals also have a strong sense of service, of wanting to help people feel better, making health care work better, and, in many cases, giving back to their communities. Above all, good health care professionals are motivated by a strong sense of professionalism - they have integrity and honour and are committed to upholding medicine's timeless values (Pomona College, 2015).

Life experience and training are contributing factors to values and attitudes in a place of work such as a health care facility. In today’s complex medical environment, lacking communication skills, people skills and team collaboration may lead to exhibiting disruptive
behaviour. External factors may also influence the mood and demeanour of the health care professional.

Having the right policies and procedures in place, supporting the programme with appropriate education and leadership, and addressing disruptive events from a perspective of prevention, real-time intervention and follow-up action are all the right things to do (Rosenstein, 2009).

However, it is important to appreciate that attitudes within a profession, or between professions, are not just the result of one-off encounters, but the culmination of many interactions between professionals.

2.5.2 Adequate training

During a study conducted in Spain by Iglesias and Vallejo (2012), it was observed that ethics is taking an increasingly prominent place in nursing education. Health care professionals are confronted with unique ethical problems that arise from their involvement in patient care. Legal knowledge and awareness help professionals justify what is or is not correct and appropriate professional conduct. Lack of commitment to policies and procedures as a professional priority could be due to insufficient exposure to and/or inadequate knowledge of legal requirements and may be seen as a contributing factor to poor socialisation to ethical responsibilities. The research of Iglesias and Vallejo (2012) showed that while most nurses recognised that ethical and legal problems arise, they felt that they were not sufficiently trained in these areas. The younger nurses reported having more knowledge than the older nurses, and that this knowledge and training was acquired through their university-level nursing degree.

The success and sustainability of a shared understanding of professional roles and the benefits linked with a team approach to health care is an on-going team training intervention for pharmacists, doctors and nurses (Makowsky, Schindel, Rosentahl, Campbell, Tsuyuki & Madill, 2009).

Offering health care students opportunities to learn and work together throughout their studies and careers, will encourage the on-going development of positive professional attitudes. Early exposure can help students understand their respective roles as individual professionals, making them aware how each can contribute to patients’ medicines management. Educational interventions must be planned in the most effective way in order for the inter-professional learning intervention to impact on attitudes, allowing students to
develop their own professional identity as well as the knowledge, skills, attitudes and behaviour that will facilitate future collaboration (Hawkes, Nunney & Lindqvist, 2013).

2.6 SUMMARY

Section 22 of the Constitution (South Africa, 1996) states that all citizens have the right to choose their occupation or profession freely, but that such profession or occupation maybe regulated by law. The fundamental purpose of the Pharmacy Act (Act 53 of 1974) and the Medicines and Related Substances Control Act (Act 101 of 1965) is to regulate the manner in which scheduled substances are made available to members of the public.

Quality control and supply of medicines generally needed to be controlled are maintained to provide and ensure proper standards and quality. All citizens, as well as honest health professionals need protection. Regulation of the establishment, maintenance and safeguarding of standards in the multiple healthcare professions need to be monitored. Quality healthcare services to all people of South Africa are not optional and all health care professionals must continuously strive to ensure that the highest standards are maintained.

This target is reachable by enforcing all legislation, policies and procedures. In return it will assist with reducing prescription errors. Prescription error management is one of the most time consuming aspects in a hospital for several of the health care professionals and by complying from the start will have a time and cost saving implication.

Prescription-writing is the first step in a patient’s treatment regime and the dispensing of the treatment and/or medication is the second step to the patient’s recovery. Interpretation and evaluation of the prescription plays a vital role in the assessment of each prescription. It is important to understand the prescription to prepare the correct items for issue. If the first phase of the dispensing cycle fails, the patient will not receive the correct treatment.

Each of the healthcare professions has a role to play when a patient is treated. Mediclinic South Africa endeavours to assist all its staff members and facility users to abide by legislation. A corporate policy was put into place by compiling all legislative acts for all professions in order to treat all the patients safely.

Awareness of health care professionals of hospital policies and legal requirements has always been an issue and a point of discussion. It can be said that if any person is informed, trained and re-educated about legal requirements, policies and procedures the resulting behaviour could change to attain the desired outcome.
CHAPTER 3

METHOD

3.1 INTRODUCTION

This chapter represents a description of the methodology used to investigate health care professionals awareness and compliance with legal prescribing requirements in selected Mediclinic hospitals in the Tshwane Region. The first section presents the study design followed by background information about the study sites. A detailed description of the sample selection is provided. The data collection process, which includes the data collection instruments, data collection training and the pilot phase, is discussed. The data analysis procedures and measures to ensure the reliability and validity of the data are described. The chapter is concluded with a discussion of the ethical considerations for this study.

3.2 STUDY DESIGN

This was a two-part descriptive and quantitative study.

Part 1 included a retrospective review of prescriptions prescribed by medical practitioners in selected Mediclinic hospitals participating in the study. The review was conducted in a bid to determine the compliance with Mediclinic policies and the Medicines and Related Substance Control Act (Act 101 of 1965).

Part 2 comprised of a self-administered semi-structured questionnaire for all participating health care professionals in the selected Mediclinic hospitals. The questionnaire sought to determine the health care professionals knowledge on policies and the compliance with legal requirements as well as determining the challenges associated with the tasks of the professional health care worker. The results of the two parts were combined for the purpose of the overall interpretation.

The study design is illustrated in Figure 3.1.
Chapter 3: Method

Figure 3.1: Study design

3.3 STUDY SITES

There are ten Mediclinic hospitals in the Tshwane Region. In Table 3.1 the Mediclinic hospitals in the Tshwane Region are listed, stratified according to size and location.

For the purpose of this study, three hospitals were selected purposively with consideration of accessibility, feasibility and financial expenses to the researcher as well as of the size of the hospital. The sample included one large (more than 200 beds), one medium (between 100 and 200 beds) and one small (fewer than 100 beds) hospital. A description of the three selected Mediclinic hospitals in which the study was conducted is provided in the subsequent sections.
Table 3.1: Classification of hospitals in the Mediclinic group: Tshwane Region

<table>
<thead>
<tr>
<th>Hospital</th>
<th>Size (number of beds)</th>
<th>Location (province)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mediclinic Muelmed</td>
<td>Large (222)</td>
<td>Metropolitan district, Gauteng</td>
</tr>
<tr>
<td>Mediclinic Sunnyside</td>
<td>Small (53)</td>
<td>Metropolitan district, Gauteng</td>
</tr>
<tr>
<td>Mediclinic Hart</td>
<td>Small (90)</td>
<td>Metropolitan district, Gauteng</td>
</tr>
<tr>
<td>Mediclinic Kloof</td>
<td>Large (225)</td>
<td>Metropolitan district, Gauteng</td>
</tr>
<tr>
<td>Mediclinic Medforum</td>
<td>Large (204)</td>
<td>Metropolitan district, Gauteng</td>
</tr>
<tr>
<td>Mediclinic Legae</td>
<td>Medium (137)</td>
<td>Metropolitan district, Gauteng</td>
</tr>
<tr>
<td>Mediclinic Brits</td>
<td>Small (79)</td>
<td>Bojanala district, Northwest</td>
</tr>
<tr>
<td>Mediclinic Tzaneen</td>
<td>Small (64)</td>
<td>Mopani district, Limpopo,</td>
</tr>
<tr>
<td>Mediclinic Marapong</td>
<td>Small (12)</td>
<td>Waterberg district, Limpopo,</td>
</tr>
<tr>
<td>Mediclinic Thabazimbi</td>
<td>Small (19)</td>
<td>Waterberg district, Limpopo,</td>
</tr>
<tr>
<td>Mediclinic Limpopo</td>
<td>Large (286)</td>
<td>Capricorn district, Polokwane</td>
</tr>
</tbody>
</table>

3.3.1 Mediclinic Brits

Mediclinic Brits is situated in the mining town of Brits in the North West Province. The hospital renders services to the Brits, Hartbeespoort, Majakaneng and Rustenburg areas.

Source: Mediclinic website (www.mediclinic.co.za)

Figure 3.2: Mediclinic Brits hospital entrance
Mediclinic Brits is a 79 bed hospital. The hospital has an emergency centre, intensive high care unit, neonatal intensive/high care unit, theatres and other specialised clinics.

### 3.3.2 Mediclinic Legae

Mediclinic Legae is located in Mabopane, 40km north-west of Tshwane (Pretoria) in the Gauteng Province

![Mediclinic Legae main entrance](http://www.mediclinic.co.za)

**Figure 3.3: Mediclinic Legae main entrance**

Mediclinic Legae is a 137 bed hospital which offers an emergency centre, intensive high care unit, neonatal intensive/high care unit, theatres and other specialised clinics to the community.

### 3.3.3 Mediclinic Muelmed

Mediclinic Muelmed is a multi-disciplinary private hospital located in Arcadia, Pretoria and had the first private trauma unit in Pretoria. The hospital is accessible from the N1 and N4 highways on the inbound main road to Pretoria’s central business district.
Mediclinic Muelmed is a 222 bed hospital with a trauma centre, oncology unit, rehabilitation centre, intensive high care unit, neonatal intensive/high care unit, theatres and other specialised clinics to offer.

3.4 TARGET STUDY POPULATION

The target study population for Part 1 of the study included prescriptions for inpatients at the three selected Mediclinic hospitals, issued over a four-week period prior to data collection.

The health care professionals present on the day of the data collection formed the target study population for Part 2 of the study. This included all medical practitioners, professional nurses and pharmacists working in the three selected Mediclinic hospitals.

3.5 SAMPLE SELECTION

3.5.1 Part 1: Prescriptions for review

Before visiting each of the sites for data collection an e-mail was sent to the patient administration manager of the participating hospital, to request an electronic patient admission register. The patient administration manager was requested to print the register for inpatients only and for a period of four weeks prior to the data collections. As patient files contain confidential information and pertain to the Mediclinic Patient Confidentiality Policy
and Procedure (Appendix 8), review of the patient files for data collection could only take place in the presence of the patient administration manager or an assigned representative.

Sample size estimation for the prescription review was performed on nQuery Advisor, Release 7.0. With a sample size of 447 prescriptions, a two-sided 95% confidence for the true percentage of compliant prescriptions would have been within approximately 4.5% of the calculated percentage of compliant prescriptions as calculated from the sample.

Therefore, a final sample of 447 prescriptions was selected for the review, distributed between the hospitals according to hospital size in terms of number of beds shown in Table 3.2.

Table 3.2: Distribution of sample according to hospital size

<table>
<thead>
<tr>
<th>Mediclinic hospital</th>
<th>Number of beds (%)</th>
<th>Prescriptions (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mediclinic Brits</td>
<td>79 (18%)</td>
<td>76 (17%)</td>
</tr>
<tr>
<td>Mediclinic Legae</td>
<td>137 (31%)</td>
<td>132 (30%)</td>
</tr>
<tr>
<td>Mediclinic Muelmed</td>
<td>222 (51%)</td>
<td>239 (53%)</td>
</tr>
<tr>
<td>Total</td>
<td>438</td>
<td>447</td>
</tr>
</tbody>
</table>

3.5.2 Part 2: Health care professionals

With consideration of feasibility and practical implications, purpose convenience sampling was used to select the healthcare professional for Phase 2 of the study. All professional nurses and pharmacists, who were present on the day of data collection and medical practitioners doing ward rounds and attending to patients at the selected Mediclinic hospitals, were invited to participate in the study and complete a self-administered questionnaire.

The following inclusion criteria applied:

- Qualified pharmacists and professional nurses, permanently or part-time employed by Mediclinic South Africa.
- Qualified medical practitioners admitting patients to selected Mediclinic South Africa hospital.
• Willingness to provide written informed consent for participation.

The following **exclusion** criteria applied:

• Potential participants absent during the data collection period.

• Medical practitioners who were not employed by Mediclinic and who were not willing to complete questionnaire.

The final sample for the three hospitals included a total number of 62 professional nurses, 11 pharmacists and 16 medical practitioners.

### 3.6 DATA COLLECTION PERIOD

Data collection took place over a period of six weeks from September 2014 to November 2014. All data were collected by the researcher, who is a pharmacist.

Data collection only commenced after ethical approval for the study had been obtained from the Medunsa Campus Research Ethics Committee (MREC) of the University of Limpopo [MREC/H/102/2013:PG] (see Appendix 10), and permission to conduct the study was granted by the hospital managers at the three participating Mediclinic hospitals.

### 3.7 DATA COLLECTION PROCESS PART 1

#### 3.7.1 Recruitment and enrolment

A retrospective review of randomly selected prescriptions at each of the participating Mediclinic hospitals was conducted on site at each of the three Mediclinic hospitals participating in the study.

The review of prescriptions had to be done in the presence of the Patient Administration Manager or assigned representative. Random hospital patient file numbers were generated from the electronic patient admission register as received per e-mail from the Patient Administration Manager. A four-week period prior to data collection was selected from the inpatient admission register and a computer list was generated. These numbers were then e-mailed back to the Patient Administration Manager. The files of these random patient numbers were then drawn from the specific participating Mediclinic hospital document archive room beforehand, as data collection could impose potential time constraints on the process.
3.7.2 Data collection instrument

A retrospective review of randomly selected prescriptions at each of the participating Mediclinic hospitals was conducted and recorded on a Prescription Review Sheet (Appendix 2).

Each prescription was reviewed against the legislative framework and cross-checked with the Mediclinic policies (Appendices 1 and 9). A pre-printed sheet with columns and headings which indicated the information to be controlled was used for the recording of the data. The following information was collected from each prescription and recorded on the Prescription Review Sheet:

- Patient number
- Date of issue
- Doctor signature
- Doctor qualifications
- Diagnosis
- Legible handwriting
- Drug name
- Correct dosage
- Correct route of administration
- Allergy information (sticker)

All files evaluated contained a patient number as per allocated hospital patient file number, which was charted on the data capture sheet. Patients who were in hospital for periods longer than one day and those who were in an intensive care unit or a high care unit mostly had more than one medical practitioner attending to them. This also entailed that these patients had more than one prescription chart.

Each medical practitioner’s prescription was evaluated per hospital patient file number. Compliance was illustrated on the Prescription Review Sheet with a “yes” and a “no” was used to indicate non-compliance.
3.7.3 Data collection process

With a view to obtaining consent to conduct a study at each of the intended hospitals, a letter of intent to conduct the study was e-mailed to each of the Hospital Managers of Mediclinic Brits, Mediclinic Legae and Mediclinic Muelmed. This letter provided the Hospital Manager with a broad overview of the study and enabled him/her to grant approval to the researcher to conduct the study at the selected site (Appendix 6).

Measuring the health care professional’s compliance with legal prescribing was set as the aim of Part 1, a retrospective review of prescriptions. This review evaluated the prescription writing by the medical practitioner on the hospital prescription charge sheet, the professional nurse’s compliance as well as the pharmacist evaluation and dispensing of the prescription.

A research assistant was trained to understand the data collection sheet ensuring that the content would be valid and correct. Data were recorded manually on the Prescription Review Sheet (Appendix 2).

3.8 DATA COLLECTION PROCESS PART 2

3.8.1 Recruitment and enrolment

Part 2 comprised a self-administered semi-structured questionnaire for all participating health care professionals in the selected Mediclinic hospitals (Appendix 3). Prior to the data collection an e-mail was sent to each of the participating Mediclinic hospitals’ Nursing Manager and Pharmacy Manager. A brief outline of the study was presented by e-mail and a date for data collection was arranged.

On the day of data collection at each of the participating Mediclinic hospitals the researcher introduced the study to the Nursing Manager. The monthly Unit Manager meeting provided an ideal opportunity to discuss the study with the nursing target group. This meeting is held on a monthly basis at all Mediclinic hospitals and is attended by all unit managers and senior professional nurses to discuss nursing issues and data. The researcher gave a brief introduction to the attendees and explained the aim and objectives of the study.

On the same day, the researcher also scheduled an appointment with the Pharmacy Manager at the selected Mediclinic hospitals participating in the study. The same introduction to the study was communicated to the Pharmacy Manager and all pharmacists at work on the day of data collection at participating Mediclinic hospitals.
3.8.2 Data collection instrument

In Part 2 of the study, a study information leaflet (Appendix 5) provided health care professionals with information related to the study and assured them of anonymity. All health care professionals who agreed to participate provided written informed consent (Appendix 4).

A self-administered structured questionnaire consisting of both open- and close-ended questions (Appendix 3) was used to collect data from the health care professionals, to evaluate their knowledge and awareness of the content of policies, procedures and legal requirements. The questionnaire was available in English, the official language of communication in all the Mediclinic hospitals. The questions in the questionnaire were structured so as to determine awareness of the legal requirements as stipulated in the Mediclinic Policies. The questionnaire was completed anonymously and completion of the questionnaire took approximately ten minutes.

3.8.3 Data collection process

All health care professionals who attended information session at the participating Mediclinic hospital were invited to take part in the study. Professional nurses and pharmacists willing to participate were asked to provide written informed consent (Appendix 4) after information about the study had been given to them (Appendix 5) was handed to them. The importance of completing all questions was emphasised to the health care professionals and they were instructed to indicate “unknown” if they were unable to answer a question.

After written consent was obtained and all questions explained, the researcher handed out the questionnaire to the participants for immediate completion. The completed self-administered questionnaire was placed in a sealed box by participants. A box was made available at each information session at the participating Mediclinic hospitals. This process ensured anonymity and confidentiality.

The entire process took no more than 30 minutes.

Getting the medical practitioners to participate in the self-administered questionnaire challenging. The self-administered structured questionnaire was distributed to all the medical practitioners who attended Continuing Professional Development (CPD) events organised by the hospital and those who were on the hospital’s e-mailing listing. Ten minutes were used to introduce the research project and explain what it entailed to the medical practitioners.
The study information leaflet was handed out to them, explaining the aim and process of the study. Medical practitioners who were willing to participate provided written consent, after which the questionnaire was distributed to them for immediate completion. After completion, the questionnaires were placed in a sealed box, which was available at the venue.

As the CPD events were not attended by all medical practitioners on set dates it was decided also to make use of an electronic questionnaire in order to obtain a better response rate from the medical practitioners. The same questions which appeared on the original health care professional questionnaire were used to create an electronic multiple choice questionnaire on Typeform®.

The survey could be completed anonymously by any respondent in no more than ten minutes. The completion of the electronic questionnaire was first tested among willing participants to verify the process. E-mail addresses were obtained from all the medical practitioners admitting patients to the participating Mediclinic hospitals involved with the study, and an e-mail was then sent to all addresses with a link to the electronic questionnaire.

3.9 PILOT STUDY

Prior to commencement of the data collection, and after ethical approval for the study was obtained, the data collection instruments were pilot-tested at Mediclinic Kloof hospital.

Mediclinic Kloof was selected for the purpose of the pilot study on the basis of its size (large, 225 bed hospital), regional classification and location (Metropolitan District).

![Mediclinic building](source: Mediclinic website (www.mediclinic.co.za))
Figure 3.5: Mediclinic Kloof Hospital

Mediclinic Kloof is a multi-disciplinary hospital located in Erasmuskloof, Pretoria East, which is conveniently situated within easy reach of the N1. The hospital has a broad spectrum of professional medical service. It is a large urban hospital which does not form part of the study sample. The pilot study which was conducted over a period of one week, included a review of 20 prescriptions. The self-administered questionnaire was completed by three professional nurses, three medical practitioners and three pharmacists.

The aim of the pilot study was to obtain an overview of the study process, which assisted in making the necessary changes to the data collection instruments and improved the study design. The researcher was afforded the opportunity to evaluate whether the data collection instruments were appropriate to elicit the desired information. Based on the results of the pilot study, the necessary changes were made to the data collection instruments, prior to the commencement of the actual data collection.

Changes required were not significant, but for explanatory reasons very important to the participants. Mediclinic South Africa commenced on a Patient Journey campaign in 2011 which brought significant changes to patient counselling for the purpose of taking medication home. Wording of certain processes were changed e.g. “TO TAKE OUT” (TTO) medication was changed to “TO TAKE HOME” medication. Another example was difficulty with regards to the interpretation of the question referring to “home medication”. Prior to the pilot study the particular question read as: “The medical practitioner is responsible for prescribing of home medication to be issued in the hospital.” Based on the pilot study results, the question was rephrased to: “It is the medical practitioner’s responsibility to prescribe medication brought from home by the patient for continued use and dosing.”

Tick boxes were printed bolder to outline the questions better and certain words were highlighted to enhance the face validity of the questionnaire.

3.10 DATA ENTRY AND ANALYSIS

Data from the Prescription Review Sheet and the self-administered questionnaire were captured on Microsoft Office Excel™ spreadsheets. All entered data were cross-checked and proof-read by the researcher for accuracy and correctness. Where necessary, corrections were made prior to data analysis.
Analysis of data took place in consultation with a statistician. Data were summarised descriptively and expressed mainly as frequency percentages and mean values.

The review and control aspects for each prescription was measured against ten criteria as per GPP, the Medicines and Related Substances Control Act (Act 101 of 1965) and Mediclinic Corporate Policy on prescriptions from medical practitioners. Based on the prescription review compliance with set standards, a percentage for all criteria in terms of prescribing was calculated.

The health care professionals’ awareness of legal prescribing, was compared and verified against Mediclinic Corporate Policy on prescriptions from medical practitioners and the Medicines and Related Substances Control Act (Act 101 of 1965). Guidelines for legal prescribing as stipulated by GPP were also considered. Health care professional groups were compared for different variables using the Fisher’s Exact Test. Statistical significance was set at \( p \leq 0.05 \).

The questionnaire consisted of both open- and close-ended questions. Responses to open-ended questions in the semi-structured questionnaire were captured on Microsoft Office Excel™ spreadsheets. Categories were developed from the responses, after which responses were tabulated according to labelled categories. This process allowed for sorting and counting of responses.

### 3.11 RELIABILITY AND VALIDITY

All the data were collected by the researcher and one pharmacist’s assistant to enhance the reliability of the data collection process. A pilot study was conducted prior to the actual data collection, which increased the validity and reliability of the data (refer to Section 3.9). The feasibility of the questions and confirmation as to whether questions were understood by respondents were verified with the pilot study. This contributed to the face validity of the questionnaire.

All captured data were checked and verified for correctness prior to the data analysis (refer to Section 3.10).

The researcher recognised the fact that the sample for this study was limited to a certain geographical area and to the private hospital sector, and therefore may not be generalised to all hospitals in South Africa.
3.12 BIAS

The study was conducted in a small, medium and large hospital location and was purposefully selected to take place in both a metropolitan and a sub-rural area. All research tools were presented in a language all South African health care professionals are able to understand, write and speak. To prevent selection bias, all professional nurses, pharmacists and medical practitioners at the selected study sites were invited to participate in the study. It was explained that the questionnaire would be completed anonymously and would then be placed in a sealed box provided.

As the questionnaire was completed shortly after the briefing and within the set 30 minute timeframe, non-response bias was minimised.

3.13 ETHICAL CONSIDERATIONS

Ethical approval to conduct the study was obtained from the Medunsa Campus Research Ethics Committee (MREC) of the University of Limpopo, prior to the commencement of the study [MREC/H/102/2013:PG] (Appendix 10).

Permission to conduct the study at selected Mediclinic hospitals was obtained from the General Manager Pharmacy Services of Mediclinic South Africa (Appendix 6).

The Hospital Managers of each of the hospitals selected were contacted to obtain the right to admission and access to patient prescriptions, prior to data collection at the particular facility (Appendix 7).

A study information leaflet was provided to all potential participants (Appendix 5) and written consent was obtained from all participants prior to completion of documentation (Appendix 4). All participants were assured of confidentiality and informed that they would be able to withdraw from the study at any time, without any consequences to themselves.

The retrospective review of prescriptions only involved the evaluation of prescriptions by the researcher and one research assistant; therefore no consent by patients had to be obtained. Patient confidentiality was maintained by assigning a study number to each prescription and no patient name was recorded.

All the data collection sheets were locked away and only the researcher and supervisors had access to the data.
3.14 SUMMARY

This chapter presented a description of the two-part quantitative and descriptive study conducted at three Mediclinic hospitals in the Tshwane Region of Mediclinic South Africa. The study consisted of Part 1, a retrospective review of prescription at participating Mediclinic hospitals and Part 2, a self-administered questionnaire for health care professionals at participating Mediclinic hospitals.

For the purpose of this study, three Mediclinic hospitals were selected purposively with consideration of accessibility, feasibility and financial implications. Included in the sample were one large, one medium and one small hospital.

The target population for Part 1 of the study included inpatient prescriptions at each of the participating Mediclinic hospitals. Part 2 targeted the health care professionals present on the day of data collection at each of the three participating Mediclinic hospitals. Inclusion and exclusion criteria were applied for health care professional participation.

Data collection took place from September 2014 until November 2014. Data collection instruments for Part 1 of the study included a prescription review sheet. Prescriptions were evaluated against a list of ten points identified in Medicines and Related Substances Control Act (Act 101 of 1965) and the Mediclinic Corporate Policy on prescriptions from medical practitioners. Part 2 of the study consisted of a questionnaire for health care professionals to determine awareness of the legislative framework as set out in the Medicines and Related Substances Control Act (Act 101 of 1965) and the Mediclinic Corporate Policy on prescriptions from medical practitioners.

Steps taken to ensure data reliability and validity. The feasibility and clarity of the questions were verified with a pilot study and questions were rephrased. The face validity of the questionnaire was enhanced with format changes. Steps were taken to minimise possibilities of bias.

Ethical clearance for the study was obtained from the MREC and ethical principles were adhered to throughout the study. The results and discussion thereof are presented in the next chapter.
CHAPTER 4
RESULTS AND DISCUSSION

4.1 INTRODUCTION

The results of the study will be presented and discussed in this chapter. Firstly an overview of the study sites are given followed by the final study sample and response rate. The profession and years’ experience of the study participants are provided in the next section. The subsequent sections concern health care professionals’ awareness of the applicable legislation, awareness regarding compliance with legal requirements and compliance of prescriptions with Mediclinic policies and legal requirements for prescribing. The chapter ends with the challenges faced by the health care professionals with regards to adherence with legal prescribing requirements.

4.2 STUDY SITES

The study sites included one large (more than 200 beds), one medium (between 100 and 200 beds) and one small (less than 100 beds) hospital located in the Tshwane Region of the Mediclinic group of hospitals. At the time of the study and data collection, the hospitals were classified as small, medium and large hospitals, based on the available licensed number of beds in each hospital.

Table 4.1: Statistical data per hospital at study sites

<table>
<thead>
<tr>
<th></th>
<th>Mediclinic Hospital</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mediclinic Brits</td>
</tr>
<tr>
<td>Number of beds</td>
<td>79</td>
</tr>
<tr>
<td>Ave bed occupancy</td>
<td>77%</td>
</tr>
<tr>
<td>Ave length of stay(days)</td>
<td>1.5</td>
</tr>
<tr>
<td>Ave number of ethical items dispensed per day</td>
<td>203</td>
</tr>
</tbody>
</table>

Table 4.1 represents the differences between the small, medium and large study hospitals in the Mediclinic group. The average bed occupancy at the time of data collection at all three
participating Mediclinic hospitals was fairly high, especially Mediclinic Muelmed. It is evident from Table 4.1 that the average number of ethical items dispensed per day in the pharmacy was associated with the average length of stay in days per patient, as well as in terms of bed occupancy.

The Mediclinic International interim results for the six months ending 30 September 2014, reported that Mediclinic South Africa had a 4.8% increase in bed-days sold and a 1.7% growth in admissions. It was also reported that a stronger growth in medical patients was observed. The half year results showed an average bed occupancy rate of 75.6% calculations based on operational beds (Mediclinic, 2014). The bed occupancy of the three participating hospitals at the time of the study was therefore more than the average expected bed occupancy of Mediclinic Southern Africa.

4.3 STUDY SAMPLE

4.3.1 Prescriptions reviewed

A review of the prescriptions was conducted from September 2014 to November 2014 to determine the compliance with policies and legal requirements. The total number of prescriptions reviewed and audited during this period, at the three hospitals, comprised 447.

These prescriptions were controlled against ten set parameters/aspects as per GPP, the Medicines and Related Substances Control Act (Act 101 of 1965) and Mediclinic Corporate Policy on prescriptions from medical practitioners. In Figure 4.1 the proportion of prescriptions reviewed at each hospital is illustrated. Mediclinic Muelmed, with a capacity of 222 beds and bed occupancy of 93% during the period when the review was conducted, clearly had more patients and thus more prescriptions were included in the sample for review..
4.3.2 Health care professionals

All medical practitioners, professional nurses and pharmacists who were attending work on the day of data collection at the selected Mediclinic hospitals, were invited to participate in the study and complete the self-administered questionnaire. Data collection took place over a period of six weeks between September 2014 and November 2014.

Table 4.2: Participating health care professionals per category and hospital

<table>
<thead>
<tr>
<th>Category of health care professional</th>
<th>Anticipated sample size n (%)</th>
<th>Number at each Mediclinic Hospital</th>
<th>Total sample size n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Mediclinic Brits</td>
<td>Mediclinic Legae</td>
</tr>
<tr>
<td>Medical practitioners</td>
<td>25 (31%)</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>Professional nurses</td>
<td>45 (56%)</td>
<td>18</td>
<td>21</td>
</tr>
<tr>
<td>Pharmacists</td>
<td>10 (13%)</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>80 (100%)</td>
<td>28</td>
<td>27</td>
</tr>
</tbody>
</table>

Table 4.2 shows a summary of the number of participants who completed the questionnaire, categorised as medical practitioners, professional nurses and pharmacists, at each hospital. An anticipated sample size was calculated for the purpose of this study (see Chapter 3, Section 3.5). At the end of the six week data collection period, a final sample size of 89 participants was achieved.
From Table 4.2 it is evident that the number of medical practitioners who participated in the study (16) was much lower than what was anticipated (25). This can possibly be explained by the fact that professional nurses and pharmacists have more structure to their daily work routine, and therefore were more accessible in terms of recruitment for the study, compared to the medical practitioners. Medical practitioners are not employed by Mediclinic and are therefore not available at the hospital on a full-time basis, which made recruitment for participation difficult. They are considered as partners in the clinical teams at private hospital level, use the hospital facility for their patients and normally do rounds at the specific hospital. Medical practitioners who could be informed of the study on the day that the hospital was visited, were invited to participate. To obtain a better response rate, the questionnaire was also made available in an electronic format using Typeform™ for medical practitioners and pharmacists to complete.

The distribution of health care professionals according to their profession represented in the final study sample is depicted in Figure 4.2. The majority (69.7%) of participants were nurses, while medical practitioners and pharmacist constituted 18.0% and 12.3% of the final sample respectively.

![Figure 4.2: Participants distributed according to their profession (n=89)](image)

In 2004, the California Assembly Bill 394 was passed and the California nursing staffing mandate was implemented. This mandate suggested a minimum nurse to patient ratio of 5:1 patient-to-nurse ratio for a medical-surgical unit (Tevington, 2011). In South Africa the patient-to-nurse ration is much higher. The District Health Barometer for 2014/2015 indicated that the professional nurses’ clinical workload averaged 29.4 patients per professional nurse.
In the Tshwane district, this ratio was even higher at 39.7 patients per professional nurse (Massyn, Peer, Padarath, Barron & Day, 2015). Evidence suggested that richer nurse staffing is associated with lower failure-to-rescue rates, lower inpatient mortality rates and shorter hospital stays (Lang, Hodge, Olson, Romano & Kravitz, 2004). Although South Africa has a ratio of nurses per patient on par with the international average for middle-income countries, a high disease burden contributes to the shortage and a need for higher nurse-to-patient ratio (Watson, 2015). Hence, there should always be more professional nurses than medical practitioners and pharmacists working in a hospital, due to the need to care for hospitalised patients. This provides an explanation why the majority of participants in this study were professional nurses.

4.4 PROFESSIONAL CHARACTERISTICS OF PARTICIPANTS

4.4.1 Years of professional experience

Table 4.3 represents a summary of the participating hospitals and the distribution of the participants by profession and years of experience.

Overall, just more than half of the participants (51.7%) had 16 or more years of experience. Compared to the other two hospitals, participants at Mediclinic Brits had more experience with 71.4% of participants with more than 16 years' experience. Participants with ≥16 years of experience were distributed amongst all health care professional groups within the participating hospitals. The Fisher’s Exact test revealed that the health care profession was independent of the years of experience at all three individual hospitals (p>0.05). Similarly there was no association between health care profession and years of experience for the overall sample (p=0.579).
Table 4.3: Distribution of participants per profession and years of experience

<table>
<thead>
<tr>
<th>Hospital</th>
<th>Profession</th>
<th>Years of experience</th>
<th>Total n (%)</th>
<th>P*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>0-7</td>
<td>8-15</td>
<td>≥16</td>
</tr>
<tr>
<td>Mediclinic Brits</td>
<td>Medical Practitioner</td>
<td>1</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Professional nurse</td>
<td>3</td>
<td>3</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>Pharmacist</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Sub-total</td>
<td>4 (14.3%)</td>
<td>4 (14.3%)</td>
<td>20 (71.4%)</td>
</tr>
<tr>
<td>Mediclinic Legae</td>
<td>Medical Practitioner</td>
<td>1</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Professional nurse</td>
<td>10</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Pharmacist</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Sub-total</td>
<td>12 (44.4%)</td>
<td>4 (14.8%)</td>
<td>11 (40.7%)</td>
</tr>
<tr>
<td>Mediclinic Muelmed</td>
<td>Medical Practitioner</td>
<td>0</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Professional nurse</td>
<td>6</td>
<td>7</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Pharmacist</td>
<td>2</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Sub-total</td>
<td>8 (23.5%)</td>
<td>11 (32.4%)</td>
<td>15 (43.5%)</td>
</tr>
<tr>
<td>Total</td>
<td>Medical Practitioner</td>
<td>2</td>
<td>3</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>Professional nurse</td>
<td>19</td>
<td>13</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>Pharmacist</td>
<td>3</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>24 (27.0%)</td>
<td>19 (21.3%)</td>
<td>46 (51.7%)</td>
</tr>
</tbody>
</table>

*Fisher’s exact test

4.4.2 Specialisation

Table 4.4 shows the distribution of participants at each hospital according to whether they specialised or not. There was a statistically significant association between specialisation of the health care professional and the specific profession at Mediclinic Brits (p=0.043) and Mediclinic Muelmed (p=0.002). At both hospitals more than two thirds of the participants did not specialise, in particular professional nurses. Overall an association (p=0.007) between
the specialisation of health care professionals and the specific professions involved. The majority of participating medical practitioners were specialised, while in the case of professional nurses and pharmacists, the majority of participants were not specialised.

Table 4.4: Health care professionals with specialisation

<table>
<thead>
<tr>
<th>Hospital</th>
<th>Profession</th>
<th>Non specialised</th>
<th>Specialised</th>
<th>Total n (%)</th>
<th>P*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mediclinic Brits</td>
<td>Medical Practitioner</td>
<td>4</td>
<td>3</td>
<td>7 (25.0%)</td>
<td>0.043</td>
</tr>
<tr>
<td>Mediclinic</td>
<td>Professional Nurse</td>
<td>12</td>
<td>7</td>
<td>19 (64.3%)</td>
<td></td>
</tr>
<tr>
<td>Mediclinic Muelmed</td>
<td>Pharmacist</td>
<td>2</td>
<td>3</td>
<td>3 (10.7%)</td>
<td></td>
</tr>
<tr>
<td>Mediclinic</td>
<td>Sub-total</td>
<td>21 (75.0%)</td>
<td>7 (25.0%)</td>
<td>28 (100%)</td>
<td></td>
</tr>
<tr>
<td>Legae</td>
<td>Medical Practitioner</td>
<td>1</td>
<td>3</td>
<td>4 (14.8%)</td>
<td>0.268</td>
</tr>
<tr>
<td>Mediclinic</td>
<td>Professional Nurse</td>
<td>12</td>
<td>9</td>
<td>21 (77.8%)</td>
<td></td>
</tr>
<tr>
<td>Mediclinic Muelmed</td>
<td>Pharmacist</td>
<td>2</td>
<td>0</td>
<td>2 (7.4%)</td>
<td></td>
</tr>
<tr>
<td>Legae</td>
<td>Sub-total</td>
<td>15 (55.6%)</td>
<td>12 (44.4%)</td>
<td>27 (100%)</td>
<td></td>
</tr>
<tr>
<td>Mediclinic</td>
<td>Medical Practitioner</td>
<td>0</td>
<td>5</td>
<td>5 (14.7%)</td>
<td>0.002</td>
</tr>
<tr>
<td>Mediclinic Muelmed</td>
<td>Professional Nurse</td>
<td>16</td>
<td>7</td>
<td>23 (67.6%)</td>
<td></td>
</tr>
<tr>
<td>Mediclinic</td>
<td>Pharmacist</td>
<td>6</td>
<td>0</td>
<td>6 (17.6%)</td>
<td></td>
</tr>
<tr>
<td>Muelmed</td>
<td>Sub-total</td>
<td>22 (64.7%)</td>
<td>12 (35.3%)</td>
<td>34 (100%)</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>Medical Practitioner</td>
<td>5</td>
<td>11</td>
<td>16 (18.0%)</td>
<td>0.007</td>
</tr>
<tr>
<td>Total</td>
<td>Professional Nurse</td>
<td>44</td>
<td>18</td>
<td>62 (69.7%)</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>Pharmacist</td>
<td>9</td>
<td>2</td>
<td>11 (12.4%)</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>Total</td>
<td>58 (65.2%)</td>
<td>31 (34.8%)</td>
<td>89 (100%)</td>
<td></td>
</tr>
</tbody>
</table>

*Fisher’s exact test

Figure 4.3 illustrates for each participating hospital, the number of health care professionals who specialised by furthering their studies in any particular field pertaining to their profession. Although the sample of pharmacists was small, only two of the 11 pharmacists
had specialised qualifications. More opportunities for pharmacists to specialised are currently being developed by the SAPC (2015).

![Figure 4.3](image)

**Figure 4.3:** Number of participants at each hospital with specialisation grouped by profession

### 4.5 AWARENESS OF APPLICABLE LEGISLATION IN TERMS OF LEGAL PRESCRIBING

The knowledge and awareness of health care professionals about the Mediclinic Corporate Policy on prescriptions from medical practitioners and the Medicines and Related Substances Control Act (Act 101 of 1965) were evaluated with the questionnaire. It determined whether the health care professional had read the Mediclinic Corporate Policy on prescriptions from medical practitioners and whether they understood what is expected of them as per mentioned legislation. Furthermore, it was investigated if participants were familiar with the contents of the Medicines and Related Substances Control Act (Act 101 of 1965).

#### 4.5.1 Mediclinic Corporate Policy on prescriptions

Health care professionals’ awareness about current legislation was determined with specific reference to whether the Mediclinic Corporate Policy on prescriptions from medical practitioners was read and whether the healthcare professional understood what is expected of him/her while practising within the Mediclinic hospital group.
4.5.1.1. Policy read

It was evident from the results that 18 (20.2%) of the 89 participants had failed to read the Mediclinic Corporate Policy on prescriptions from medical practitioners (see Table 4.5).

Table 4.5: Health care professionals who read the Mediclinic Corporate Policy on prescriptions

<table>
<thead>
<tr>
<th>Hospital</th>
<th>Profession</th>
<th>Not read Mediclinic Policy</th>
<th>Read Mediclinic Policy</th>
<th>Total n (%)</th>
<th>P*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Medical Practitioner</td>
<td>6</td>
<td>1</td>
<td>7 (25.0%)</td>
<td>0.001</td>
</tr>
<tr>
<td>Mediclinic Brits</td>
<td>Professional Nurse</td>
<td>2</td>
<td>16</td>
<td>18 (64.3%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pharmacist</td>
<td>1</td>
<td>2</td>
<td>3 (10.7%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sub-total</td>
<td>9 (32.1%)</td>
<td>19 (67.9%)</td>
<td>28 (100%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Medical Practitioner</td>
<td>0</td>
<td>4</td>
<td>4 (14.8%)</td>
<td>1.000</td>
</tr>
<tr>
<td>Mediclinic Legae</td>
<td>Professional Nurse</td>
<td>3</td>
<td>18</td>
<td>21 (77.8%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pharmacist</td>
<td>0</td>
<td>2</td>
<td>2 (7.4%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sub-total</td>
<td>3 (11.1%)</td>
<td>24 (88.9%)</td>
<td>27 (100%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Medical Practitioner</td>
<td>4</td>
<td>1</td>
<td>5 (14.7%)</td>
<td>0.002</td>
</tr>
<tr>
<td>Mediclinic Muelmed</td>
<td>Professional Nurse</td>
<td>2</td>
<td>21</td>
<td>23 (67.6%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pharmacist</td>
<td>0</td>
<td>6</td>
<td>6 (17.6%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sub-total</td>
<td>6 (17.6%)</td>
<td>28 (82.4%)</td>
<td>34 (100%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Medical Practitioner</td>
<td>10</td>
<td>6</td>
<td>16 (18.0%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Professional Nurse</td>
<td>7</td>
<td>55</td>
<td>62 (69.7%)</td>
<td>0.001</td>
</tr>
<tr>
<td></td>
<td>Pharmacist</td>
<td>1</td>
<td>10</td>
<td>11 (12.4%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>18 (20.2%)</td>
<td>71 (79.8%)</td>
<td>89 (100%)</td>
<td></td>
</tr>
</tbody>
</table>

*Fisher’s exact test
Chapter 4: Results and Discussion

The Mediclinic Corporate Policy on prescriptions from medical practitioners aims to provide health care professionals with guidelines according to the Medicines and Related Substances Control Act (Act 101 of 1965) and the Pharmacy Act (Act 53 of 1974), regarding written and telephonic prescriptions in Mediclinic hospitals. The policy includes legal requirements of prescriptions as per legislation and Mediclinic guidelines. The policy is applicable to all medical practitioners who admit patients to Mediclinic hospitals. Professional nursing staff and pharmacists must also be knowledgeable about these legislative requirements.

Table 4.5 shows that overall there was a statistically significant association between the health care profession and the reading of the Mediclinic Corporate Policy on prescriptions from medical practitioners. At individual hospital level, the association was significant at Mediclinic Brits (p=0.001) and at Mediclinic Muelmed (p=0.002). The significant association could have been influenced by the small sample size of medical practitioners and pharmacists. It was evident though that 10 (62.5%) of the participating medical practitioners indicated that they have not read the policy.

4.5.1.2. Understanding of expectations

Participants were asked whether they, as health care professionals, understood what was expected of them, as stipulated in the Mediclinic Corporate Policy on prescriptions from medical practitioners.

Table 4.6 shows a summary of participants’ understanding of expectations in terms of the Mediclinic Corporate Policy on prescription writing, grouped by profession and per hospital. The majority (88.8%) of health care professionals in this study indicated that they know and understand what is expected of them. Considering the different professionals, it must be noted that nearly half (7; 44%) of the 16 medical practitioners who are admitting patients to a Mediclinic hospital, were not sure what is expected of them in terms of Mediclinic policies, procedures and guidelines.

At Mediclinic Brits, five of the seven medical practitioners indicated that they do not understand what is expected of them as prescribing medical practitioners and at Mediclinic Muelmed two of the five participating medical practitioners indicated they do not understand what is expected of them. On the other hand, all four of the medical practitioners at Mediclinic Legae indicated that they understood and knew what is expected of them as
prescribing medical practitioners in accordance with the Mediclinic Corporate Policy on medical practitioner prescription writing.

Overall, the Fisher’s Exact test revealed a significant association (p=0.001) between health care professions and understanding the expectations on the Mediclinic Corporate Policy on prescriptions from medical practitioners which could have been as a result of the sample distribution. It must be noted though that seven of the ten participants who indicated that they did not understand the expectations of the policy, were medical practitioners.

Table 4.6: Health care professionals and understanding of expectations

<table>
<thead>
<tr>
<th>Hospital</th>
<th>Profession</th>
<th>Do not understand expectations</th>
<th>Understand expectation</th>
<th>Total n (%)</th>
<th>P*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Medical Practitioner</td>
<td>5</td>
<td>2</td>
<td>7 (25.0%)</td>
<td>0.001</td>
</tr>
<tr>
<td>Mediclinic Brits</td>
<td>Professional Nurse</td>
<td>1</td>
<td>17</td>
<td>18 (64.3%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pharmacist</td>
<td>0</td>
<td>3</td>
<td>3 (10.7%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sub-total</td>
<td>6 (21.5%)</td>
<td>22 (78.6%)</td>
<td>28 (100%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Medical Practitioner</td>
<td>0</td>
<td>4</td>
<td>4 (14.8%)</td>
<td>1.000</td>
</tr>
<tr>
<td>Mediclinic Legae</td>
<td>Professional Nurse</td>
<td>1</td>
<td>20</td>
<td>21 (77.8%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pharmacist</td>
<td>0</td>
<td>2</td>
<td>2 (7.4%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sub-total</td>
<td>1 (3.7%)</td>
<td>26 (96.3%)</td>
<td>27 (100%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Medical Practitioner</td>
<td>2</td>
<td>3</td>
<td>5 (14.7%)</td>
<td>0.066</td>
</tr>
<tr>
<td>Mediclinic Muelmed</td>
<td>Professional Nurse</td>
<td>1</td>
<td>22</td>
<td>23 (67.6%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pharmacist</td>
<td>0</td>
<td>6</td>
<td>6 (17.6%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sub-total</td>
<td>3 (8.8%)</td>
<td>31 (91.2%)</td>
<td>34 (100%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Medical Practitioner</td>
<td>7</td>
<td>9</td>
<td>16 (18.0%)</td>
<td>0.001</td>
</tr>
<tr>
<td>Total</td>
<td>Professional Nurse</td>
<td>3</td>
<td>59</td>
<td>62 (69.7%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pharmacist</td>
<td>0</td>
<td>11</td>
<td>11 (12.4%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>10 (11.2%)</td>
<td>79 (88.8%)</td>
<td>89 (100%)</td>
<td></td>
</tr>
</tbody>
</table>

*Fisher’s exact test
4.5.2 Medicines and Related Substances Control Act (Act 101 of 1965)

The particulars that should appear on a prescription in South Africa are stipulated by the Medicines and Related Substances Control Act (Act 101 of 1965). Health care professionals were asked whether they are familiar with the Medicines and Related Substances Control Act (Act 101 of 1965). Three quarters (74.2%) of all participants indicated positively on their familiarity with the contents.

Table 4.7: Health care professionals and familiarity with the Medicines and Related Substance Control Act (Act 101 of 1965)

<table>
<thead>
<tr>
<th>Hospital</th>
<th>Profession</th>
<th>Unfamiliar</th>
<th>Familiar</th>
<th>Total n (%)</th>
<th>P*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mediclinic Brits</strong></td>
<td><strong>Medical Practitioner</strong></td>
<td>2</td>
<td>5</td>
<td>7 (25.0%)</td>
<td>0.631</td>
</tr>
<tr>
<td></td>
<td><strong>Professional Nurse</strong></td>
<td>8</td>
<td>10</td>
<td>18 (64.3%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Pharmacist</strong></td>
<td>0</td>
<td>3</td>
<td>3 (10.7%)</td>
<td></td>
</tr>
<tr>
<td><strong>Sub-total</strong></td>
<td></td>
<td>10 (35.7%)</td>
<td>18 (64.3%)</td>
<td>28 (100%)</td>
<td></td>
</tr>
<tr>
<td><strong>Mediclinic Legae</strong></td>
<td><strong>Medical Practitioner</strong></td>
<td>1</td>
<td>3</td>
<td>4 (14.8%)</td>
<td>0.659</td>
</tr>
<tr>
<td></td>
<td><strong>Professional Nurse</strong></td>
<td>3</td>
<td>18</td>
<td>21 (77.8%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Pharmacist</strong></td>
<td>0</td>
<td>2</td>
<td>2 (8.7%)</td>
<td></td>
</tr>
<tr>
<td><strong>Sub-total</strong></td>
<td></td>
<td>4 (14.8%)</td>
<td>23 (85.2%)</td>
<td>27 (100%)</td>
<td></td>
</tr>
<tr>
<td><strong>Mediclinic Muelmed</strong></td>
<td><strong>Medical Practitioner</strong></td>
<td>1</td>
<td>4</td>
<td>5 (14.7%)</td>
<td>0.313</td>
</tr>
<tr>
<td></td>
<td><strong>Professional Nurse</strong></td>
<td>8</td>
<td>15</td>
<td>23 (67.6%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Pharmacist</strong></td>
<td>0</td>
<td>6</td>
<td>6 (17.6%)</td>
<td></td>
</tr>
<tr>
<td><strong>Sub-total</strong></td>
<td></td>
<td>9 (25.5%)</td>
<td>25 (73.5%)</td>
<td>34 (100%)</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>Medical Practitioner</strong></td>
<td>4</td>
<td>12</td>
<td>16 (18.0%)</td>
<td>0.281</td>
</tr>
<tr>
<td></td>
<td><strong>Professional Nurse</strong></td>
<td>19</td>
<td>43</td>
<td>62 (69.7%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Pharmacist</strong></td>
<td>0</td>
<td>11</td>
<td>11 (12.4%)</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>23 (25.8%)</td>
<td>66 (74.2%)</td>
<td>89 (100%)</td>
<td></td>
</tr>
</tbody>
</table>

*Fisher’s exact test
The results obtained from the Fisher’s exact test revealed that there was no association between the health care profession and their familiarity with the Medicines and Related Substances Control Act (Act 101 of 1965) for the overall sample (p=0.281) as well as at all three of the participating hospitals.

4.6 AWARENESS REGARDING COMPLIANCE WITH LEGAL REQUIREMENTS FOR PRESCRIBING

The information required on a legal prescription from a medical practitioner was grouped into a number of categories: prescription information, patient information, medication information, prescription attributes, prescription revision and telephonic prescription. Awareness of health care professionals with the measures within each of these categories were determined and are discussed in the subsequent sub-sections.

4.6.1 Prescriber’s information

The Pharmacy Council of South Africa (SAPC, 2010) states that the objective of a pharmacist in practice should be to monitor prescriptions to ensure that both prescribing practice and administration of medicine are monitored. The Medicines and Related Substances Control Act (Act 101 of 1965) defines the particulars that should appear on a prescription in South Africa. Prescriptions not complying with any of the five aspects on patient information would be seen as an error of omission. In a study done by Gal (2014), 89% of errors were errors of omission.

The awareness of the health care professionals about the information of the medical practitioner writing the prescription on the prescription charge sheet, as per legal requirements, was evaluated based on four criteria as shown in Table 4.8.

The Medicine and Related Substances Control Act (Act 101 of 1965) and the Mediclinic Corporate Policy on prescriptions from medical practitioners were used as legal criteria for determining awareness.
Table 4.8: Awareness of legal requirements for prescribing in terms of the prescriber’s information

<table>
<thead>
<tr>
<th>Prescriber’s information</th>
<th>Number (%) awareness</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Medical Practitioner (n=16)</td>
<td>Professional nurse (n=62)</td>
</tr>
<tr>
<td>MP contact number</td>
<td>13 (81.3%)</td>
<td>14 (22.6%)</td>
</tr>
<tr>
<td>Prescription date</td>
<td>15 (93.8%)</td>
<td>60 (96.8%)</td>
</tr>
<tr>
<td>MP details &amp; qualifications</td>
<td>15 (93.8%)</td>
<td>62 (100.0%)</td>
</tr>
<tr>
<td>MP signature</td>
<td>15 (93.8%)</td>
<td>60 (96.8%)</td>
</tr>
</tbody>
</table>

MP=medical practitioner
Shaded areas: Significant differences (p≤0.05; Fisher’s exact test)

Table 4.8 shows that not all participants were aware that the medical practitioners contact number must appear on the prescription with a statistical significant difference (p=0.001) between the professions. Evaluating each profession it was clear that the professional nurse scored the lowest in terms of this criteria, with only 22.6% of professional nurses being aware that the medical practitioners’ contact number must be on the prescription. Awareness about the prescription date, the medical practitioner details, qualification and signature was very high amongst all three professions.

A study conducted by Gal in 2014, stated that prescription errors can cause failure in treating a patient. According to the study conducted by Ni et al. (2002), in an Outpatient Pharmacy Department at a major teaching hospital, 97% of all prescriptions screened retrospectively, at least one of the legal or procedural requirements for a prescription was not followed.

4.6.2 Patient information

Patient information that must appear on a legal prescription assists the dispenser to interpret and evaluate the prescription. The identification of the patient and ensuring the legality and authenticity of the prescription form a vital part of Phase 1 of the dispensing cycle (SAPC, 2010).

Table 4.9 shows a summary of awareness of health care professionals about the patient information which is legally required to appear on a prescription. In all five aspects pharmacists’ awareness was high (more than 90%). The criteria for which awareness was scored the lowest by the medical practitioners, were the patient’s physical address (37.5%) and possible allergies (68.8%). Less than half of the professional nurses (46.8%) were aware that the patients’ physical address should appear on the prescription chart.
Table 4.9: Awareness of legal requirements for prescribing in terms of the patient’s information

<table>
<thead>
<tr>
<th>Patient’s information</th>
<th>Number (%) awareness</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Medical Practitioner (n=16)</td>
<td>Professional nurse (n=62)</td>
</tr>
<tr>
<td>Patient physical address</td>
<td>5 (37.5%)</td>
<td>29 (46.8%)</td>
</tr>
<tr>
<td>Patient details</td>
<td>16 (100.0%)</td>
<td>60 (96.8%)</td>
</tr>
<tr>
<td>Patient nickname</td>
<td>14 (93.8%)</td>
<td>54 (87.1%)</td>
</tr>
<tr>
<td>Patient possible allergies</td>
<td>11 (68.8%)</td>
<td>61 (98.4%)</td>
</tr>
<tr>
<td>Patient discharge date</td>
<td>12 (81.3%)</td>
<td>53 (85.5%)</td>
</tr>
</tbody>
</table>

Shaded areas: Significant differences (p≤0.05; Fisher’s exact test)

The results obtained from the Fisher’s exact test revealed that there were statistical significant differences between the health care professional groups in terms of awareness that the patient’s physical address (p=0.004) and possible allergies (p=0.001) should be indicated on the patient prescription chart.

4.6.3 Medication information

Medication safety is considered as a top priority for the patients' healthcare (Ansari & Neupane, 2009). Medication information on the prescription that is written incorrect represents a great threat to the patients' health. If the strength of the drug required is incorrect and this error is not identified and rectified, it may lead to serious consequences for the patients’ health (Ansari & Neupane, 2009).

Table 4.10: Awareness of legal requirements for prescribing in terms of the medication information

<table>
<thead>
<tr>
<th>Medication information</th>
<th>Number (%) awareness</th>
<th>P*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Medical Practitioner (n=16)</td>
<td>Professional nurse (n=62)</td>
</tr>
<tr>
<td>Medication approved name</td>
<td>15 (83.8%)</td>
<td>59 (95.2%)</td>
</tr>
<tr>
<td>Medication quantity to supply</td>
<td>15 (93.8%)</td>
<td>58 (93.5%)</td>
</tr>
<tr>
<td>Medication dosage form</td>
<td>15 (93.8%)</td>
<td>56 (90.3%)</td>
</tr>
<tr>
<td>Medication strength of dose</td>
<td>16 (100.0%)</td>
<td>59 (95.2%)</td>
</tr>
</tbody>
</table>

*Fisher’s exact test
All medication information written on a medical practitioners’ prescription for a specific patient’s treatment regime is very important. If the incorrect name, dosage form or strength is written or the handwriting is illegible it may lead to incorrect dispensing and a dispensing error will occur (ASHP, 1993). It is evident from Table 4.10 that awareness of all health care professionals regarding medication information which should appear on a prescription, especially the pharmacists, was good. Awareness scores ranged from 83.8% to 100.0%. The pharmacists were aware of all medication information that should appear on a prescription. Some uncertainty was shown by the professional nurses on compliance with medication information, with specific reference to the medication dosage form, for which awareness was 90.3%. The lowest awareness score was amongst the medical practitioners (83.8%) regarding the medication approved name which should appear on the prescription.

4.6.4 Physical attributes on legal written prescription

4.6.4.1. Discontinuation of medication on a patient prescription chart in a hospital

The physical attributes refers to what a prescription should look like when certain actions take place during a patient’s treatment regime. In the case where medication is discontinued on an inpatient prescription chart, specific guidelines are set to be followed. The Mediclinic Corporate Policy on prescriptions from medical practitioners states that the medical practitioner must discontinue medication by following the guidelines:

1. Draw two transverse lines after the last administration
2. Signature, date and time must be written between the lines
3. No deleting or overwriting on previous prescription is allowed. Any change in orders is to be done by means of a new prescription.

In Table 4.11 awareness of legal requirements for when a medication is discontinued on the patient prescription chart is shown. Discontinuation of medication prescribed previously to a patient by a medical practitioner and the specific guidelines in the Mediclinic Corporate Policy on prescriptions from medical practitioners should be followed seriatim and must be viewed as a top priority in the process of medication and patient safety.
Table 4.11: Awareness of legal requirements for the discontinuation of medication on a patient prescription chart

<table>
<thead>
<tr>
<th>Discontinuation of medication on a patient prescription chart</th>
<th>Number (%) awareness</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Medical Practitioner (n=16)</td>
<td>Professional nurse (n=62)</td>
<td>Pharmacist (n=11)</td>
</tr>
<tr>
<td>Transverse lines</td>
<td>14 (87.5%)</td>
<td>57 (91.9%)</td>
<td>11 (100.0%)</td>
</tr>
<tr>
<td>Write between lines</td>
<td>14 (87.5%)</td>
<td>50 (80.6%)</td>
<td>10 (90.9%)</td>
</tr>
<tr>
<td>Verbal instructions</td>
<td>10 (62.5%)</td>
<td>40 (64.5%)</td>
<td>9 (81.8%)</td>
</tr>
<tr>
<td>New medication in same space</td>
<td>14 (87.5%)</td>
<td>56 (90.3%)</td>
<td>11 (100.0%)</td>
</tr>
</tbody>
</table>

*Fisher’s exact test

A third (33.3%) of the health care professionals, mostly medical practitioners and professional nurses were of the opinion that a verbal instruction is sufficient when medication is discontinued. Non-awareness of the legal requirements in terms of the discontinuation of medication on a patient prescription chart indicates a large window for medication errors and a possible lack in patient safety. Awareness of 100% would be expected to not have any misunderstanding that might lead to medication errors.

In a research study by Wakefield & Wakefield (2009) at the University of Missouri Centre for Health Care Quality, the questions were discussed if verbal orders are a threat to patient safety. They previously identified verbal orders as a potential contributor to poor quality and less safe care to patients. The study confirmed that verbal orders from medical practitioners represent a commonly used practice and was indeed perceived as a potential threat to patient safety.

4.6.4.2. Revision of inpatient prescriptions

Awareness about the revision timeline of a prescription written by a medical practitioner was determined for all health care professionals. The results illustrated that only half (51.7%) of the participants were aware that all Mediclinic prescriptions must be reviewed every seven days as per Mediclinic Corporate Policy on a prescription from a medical practitioner.
Table 4.12: Awareness of legal requirements for the revision of inpatient prescriptions

<table>
<thead>
<tr>
<th>Revision of inpatient prescriptions</th>
<th>Number (%) awareness</th>
<th>P*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Medical Practitioner (n=16)</td>
<td>Professional nurse (n=62)</td>
</tr>
<tr>
<td>Revise routine medication every 7 days</td>
<td>7 (43.8%)</td>
<td>29 (46.8%)</td>
</tr>
</tbody>
</table>

*Fisher’s exact test

From Table 4.12 it is evident that awareness amongst pharmacists (90.9%) was much higher, compared to medical practitioners (43.8%) and professional nurses (46.8%). The difference was not statistically significant (p=0.084) though. This again, may contribute to poor patient safety in a hospital environment.

4.6.4.3. **Telephonic prescriptions**

When a prescription is dictated telephonically to a professional nurse and/or a pharmacist by a medical practitioner, there are regulations that need to be followed (Medicines and Related Substances Control Act (Act 101 of 1965)). Two important points on the regulation was tested. A telephonic prescription up to Schedule 5 must be signed by the medical practitioner within 24 hours and if the medication is Schedule 6 the medical practitioner must rewrite the prescription and his/her signature must be given with qualifications.

Table 4.13: Awareness of legal requirements for telephonic Schedule 5 and Schedule 6 medication prescriptions

<table>
<thead>
<tr>
<th>Telephonic Schedule 5 and Schedule 6 prescriptions</th>
<th>Number (%) awareness</th>
<th>P*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Medical Practitioner (n=16)</td>
<td>Professional nurse (n=62)</td>
</tr>
<tr>
<td>Up to Schedule 5 signed within 24 hours</td>
<td>14 (87.5%)</td>
<td>57 (91.9%)</td>
</tr>
<tr>
<td>Schedule 6 medication must be rewritten and signed within 24 hours</td>
<td>16 (100.0%)</td>
<td>55 (88.7%)</td>
</tr>
</tbody>
</table>

*Fisher’s exact test

Table 4.13 shows that an overall awareness with reference to Schedule 5 and Schedule 6 medication prescription writing was more than 85% within all three groups of health care professionals.
The differences in compliance measured amongst health care professionals about medication information, prescription reviews and telephonic prescriptions were not significant and independent of any association to the health care professional group.

### 4.6.4.4. Responsibility on patient’s own chronic medication on admission

Patients who are admitted to a hospital often have their own chronic medication that must be taken continuously. The responsibility surrounding the prescribing of chronic medication onto an inpatient prescription chart is that of the treating medical practitioner. Table 4.14 shows participants awareness about this aspect.

#### Table 4.14: Awareness of legal requirements for prescribing of chronic medication on admission

<table>
<thead>
<tr>
<th>Prescribing of chronic medication on admission</th>
<th>Number (%) awareness</th>
<th>P*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Medical Practitioner (n=16)</td>
<td>Professional nurse (n=62)</td>
</tr>
<tr>
<td>Responsibility of admitting medical practitioner to prescribe chronic medication</td>
<td>15 (93.8%)</td>
<td>57 (91.9%)</td>
</tr>
</tbody>
</table>

*Fisher’s exact test

From the results as seen in Table 4.14 it is evident that most of the participants were aware that all medication brought into the hospital by a patient is the responsibility of the treating medical practitioner to prescribe and sign onto the patient hospital chart. The overall awareness was 91% for all participating health care professionals with no statistically significant difference (p=0.120) between the different professions. Pharmacists (81.8%) were the least knowledgeable on the responsibility of the admitting medical practitioner towards the patient’s own chronic medication on admission.

### 4.6.4.5. Indication of an allergy sticker on a prescription

The awareness of all participants about the dispensing pharmacist’s responsibility towards dispensing a prescription that has no allergy sticker on the prescription chart was determined. Table 4.15 shows that 12.4% of all participants were not aware that a prescription sent to pharmacy to fill, may not be dispensed when it has no allergy sticker on the prescription chart to indicate the patients status on allergic reactions.
Table 4.15: Awareness of legal requirements for the indication of an allergy sticker on a prescription

<table>
<thead>
<tr>
<th>Policy on allergy sticker</th>
<th>Number (%) awareness</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Medical Practitioner (n=16)</td>
<td>Professional nurse (n=62)</td>
<td>Pharmacist (n=11)</td>
<td>Total (n=89)</td>
<td>P*</td>
</tr>
<tr>
<td>Dispensing not allowed if allergy sticker is not visible on patient prescription chart</td>
<td>10 (62.5%)</td>
<td>57 (91.9%)</td>
<td>11 (100.0%)</td>
<td>78 (87.6%)</td>
<td>0.009</td>
</tr>
</tbody>
</table>

*Fisher’s exact test

Only the 11 pharmacists were all aware of the allergy sticker procedure and was 100% compliant. Awareness amongst professional nurses was 91.9% while awareness of medical practitioners was much lower (62.5%). Differences amongst the three groups of health care professionals was statistically significant (p=0.009).

4.7 COMPLIANCE OF PRESCRIPTIONS WITH MEDICLINIC POLICIES FOR LEGAL PRESCRIBING

A review of prescriptions was done to determine compliance of prescriptions with Mediclinic policies for legal prescribing. The measurement parameters for each aspect controlled on every prescription reviewed are shown in the following tables and figures. Compliance was measured and marked on a prescription review tool.

Table 4.16 indicates that compliance in terms of the medical practitioner’s signature (79%) and qualifications (25%) was below 80% compliance. Indication of the correct route of administration of the medication which should be given was 64%. It was evident that Mediclinic Brits did not comply well with the Mediclinic Corporate Policy on the transcribing of prescriptions from medical practitioners, as 61% of their prescriptions were transcribed.
Table 4.16: Prescription compliance with parameters for legal prescribing at Mediclinic Brits

<table>
<thead>
<tr>
<th>Measurement parameters</th>
<th>Number compliant</th>
<th>Percentage compliant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of Rx issue</td>
<td>68</td>
<td>91%</td>
</tr>
<tr>
<td>MP signature</td>
<td>59</td>
<td>79%</td>
</tr>
<tr>
<td>MP qualification</td>
<td>19</td>
<td>25%</td>
</tr>
<tr>
<td>Diagnosis</td>
<td>70</td>
<td>93%</td>
</tr>
<tr>
<td>Legibility</td>
<td>71</td>
<td>95%</td>
</tr>
<tr>
<td>Drug name</td>
<td>75</td>
<td>100%</td>
</tr>
<tr>
<td>Correct dose</td>
<td>74</td>
<td>99%</td>
</tr>
<tr>
<td>Correct route</td>
<td>48</td>
<td>64%</td>
</tr>
<tr>
<td>Allergy indicated</td>
<td>73</td>
<td>97%</td>
</tr>
<tr>
<td>Rx not transcribed</td>
<td>29</td>
<td>39%</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td><strong>58.6</strong></td>
<td><strong>78.1%</strong></td>
</tr>
</tbody>
</table>

Rx=prescription; MP=medical practitioner

Table 4.17: Prescription compliance with parameters for legal prescribing at Mediclinic Legae

<table>
<thead>
<tr>
<th>Measurement parameters</th>
<th>Number compliant</th>
<th>Percentage compliant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of Rx issue</td>
<td>123</td>
<td>97%</td>
</tr>
<tr>
<td>MP signature</td>
<td>105</td>
<td>83%</td>
</tr>
<tr>
<td>MP qualification</td>
<td>33</td>
<td>26%</td>
</tr>
<tr>
<td>Diagnosis</td>
<td>95</td>
<td>75%</td>
</tr>
<tr>
<td>Legibility</td>
<td>104</td>
<td>82%</td>
</tr>
<tr>
<td>Drug name</td>
<td>126</td>
<td>99%</td>
</tr>
<tr>
<td>Correct dose</td>
<td>119</td>
<td>94%</td>
</tr>
<tr>
<td>Correct route</td>
<td>115</td>
<td>91%</td>
</tr>
<tr>
<td>Allergy indicated</td>
<td>116</td>
<td>91%</td>
</tr>
<tr>
<td>Rx not transcribed</td>
<td>80</td>
<td>63%</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td><strong>101.6</strong></td>
<td><strong>80.1%</strong></td>
</tr>
</tbody>
</table>

Rx=prescription; MP=medical practitioner

Table 4.17 shows that the medical practitioners qualifications appeared on only 26% of the prescriptions, 75% of prescriptions indicated the diagnosis of the patient and 37% of
prescriptions reviewed the prescriptions was transcribed. The overall average compliance with all 10 criteria of measurement parameters at Mediclinic Legae was 80.1%.

### Table 4.18: Prescription compliance with parameters for legal prescribing at Mediclinic Muelmed

<table>
<thead>
<tr>
<th>Measurement parameters</th>
<th>Number compliant</th>
<th>Percentage compliant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of Rx issue</td>
<td>225</td>
<td>94%</td>
</tr>
<tr>
<td>MP signature</td>
<td>207</td>
<td>87%</td>
</tr>
<tr>
<td>MP qualification</td>
<td>74</td>
<td>31%</td>
</tr>
<tr>
<td>Diagnosis</td>
<td>159</td>
<td>67%</td>
</tr>
<tr>
<td>Legibility</td>
<td>199</td>
<td>83%</td>
</tr>
<tr>
<td>Drug name</td>
<td>230</td>
<td>96%</td>
</tr>
<tr>
<td>Correct dose</td>
<td>215</td>
<td>90%</td>
</tr>
<tr>
<td>Correct route</td>
<td>202</td>
<td>85%</td>
</tr>
<tr>
<td>Allergy indicated</td>
<td>209</td>
<td>87%</td>
</tr>
<tr>
<td>Rx not transcribed</td>
<td>158</td>
<td>66%</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td><strong>187.8</strong></td>
<td><strong>78.6%</strong></td>
</tr>
</tbody>
</table>

Rx=prescription; MP=medical practitioner

From Table 4.18 it is evident that as for the other two hospitals, Mediclinic Muelmed also did not comply with the Mediclinic Corporate Policy on prescriptions from medical prescribers in the following aspects: medical practitioner qualification on prescriptions reviewed (31%) compliant, diagnosis of the patient indicated by the medical practitioner on the prescription chart (67%) and transcribing done of medication by the nursing personnel (34%). The average compliance at Mediclinic Muelmed was 78.6%, which was less than the overall average of 80.1% reached by Mediclinic Legae.

A visual summary of the percentage compliance with Mediclinic policies for legal prescribing is shown in Figure 4.4 for the three participating hospitals. The three aspects of concern, as discussed above, are clearly illustrated. For the three hospitals to achieve 100% compliance with all measurement parameters a workable solution to common aspects in the Mediclinic Tshwane Region for legal prescribing should be investigated.
In the literature review errors of omission and errors of commission were discussed (See Section 2.4.2, Chapter 2). According to a study by Gal in 2014, it was evident that errors of omission may waste the time of the pharmacist, for example if the route of administration is not mentioned, or the dose and frequency is not mentioned. Errors of commission may then lead to a harmful situation for the patient. These errors are drug-related and consist of wrong drug, dose, route, strength and drug-drug interactions. Legibility also plays an important role when dispensing errors are discussed. Whether a prescription is legible or not, also depends on the assessor’s familiarity with the handwriting of the prescriber as well as the information provided in the prescription. A prescription however should be easily read by anyone involved in dispensing activities (Ni et al., 2002).

A safety issue in the dispensing procedures might occur when one of the aspects of the measured parameters is not met. The GPP (2010) states that in case of uncertainty, the pharmacist must make every effort to contact the prescriber. If it is impossible to contact the prescriber, the pharmacist must use his/her professional judgement and decide, in all circumstances, what course of action would be in the best interest of the patient.
Non-compliance with any of the parameters for legal prescribing could potentially either waste dispensing time and/or be harmful to the patient.

![Figure 4.5: Average percentage compliance with legal prescribing parameters for Mediclinic Brits, Legae and Muelmed hospital](image)

Each hospital measurement parameters were calculated as an average percentage compliance. The overall average compliance for the three participating hospitals was 78.9%. All parameters below 79% were identified using the overall average as the median and are illustrated for the three participating hospital in Figure 4.6.

![Figure 4.6: Measurement parameters for each participating hospital that is equal to or below the average percentage compliance](image)
Chapter 4: Results and Discussion

4.8 CHALLENGES IN TERMS OF COMPLIANCE WITH THE LEGAL PRESCRIBING REQUIREMENTS

The last section of the health professionals’ questionnaire gave the participants the opportunity to describe the aspects of legal prescribing procedure, which they are required to adhere to, that hinder them in their task as health care workers. Thirteen of participants reported that they have no hindering aspects to report. Sixty percent of participants did feel that there are aspects that hinder them to comply with all legal aspects of prescriptions and policies and procedures on legal prescribing.

Table 4.19 shows a summary of the ten reasons mostly indicated by participants as reasons why compliance with legal requirements on prescribing as per Mediclinic Corporate Policy on prescriptions from a medical practitioner, is a challenge for them.

Most of the participants that volunteered hindering aspects, 34% (17) professional nurses reported that a medical practitioner would give a verbal order telephonically, it might be the end of the professional nurse work week and she/he will not have had time to follow-up with medical practitioner to sign off on the verbal prescription within 24 hours as the medical practitioner has not visited the patient yet. The practice of a medical practitioner writing an incomplete signature with no qualification after each item prescribed was reported by 28% (14) of the professional nurses. The fact reported by professional nurses that the medical practitioner expected the professional nurse to transcribe medication onto a patient prescription chart and then not re-writing the transcribed medication or even not signing off on the transcribing with signature and qualification was reported by 20% (10) of all participants.

Other hindering aspects mentioned were prescription reviews not done within 7 days by the medical practitioner, Illegible handwriting, the time an antibiotic was prescribed not written on prescription chart, patient’s own medication brought into the hospital not prescribed by admitting medical practitioner, no details about medication prescribed, medical practitioners not adhering to policies and prescribing of Schedule 6 medication without any indication of quantity to be issued or the dose frequency. Only 3 medical practitioners (6%) reported that no policies or procedures were provided to them, when they started to work at a facility.
Table 4.19: Hindering aspects to legal prescribing as per Mediclinic policies

<table>
<thead>
<tr>
<th>Hindering aspects to legal prescribing</th>
<th>Health care professionals</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
</tr>
<tr>
<td>Telephonic prescription not signed within 24h shift and sister off unable to follow Rx</td>
<td>17</td>
</tr>
<tr>
<td>Incomplete signature and no qualification - professional nurse must use stamp</td>
<td>14</td>
</tr>
<tr>
<td>Doctor expected professional nurse to transcribe, but still doctor does not sign</td>
<td>10</td>
</tr>
<tr>
<td>Prescription not checked and reviewed as per policy</td>
<td>7</td>
</tr>
<tr>
<td>Illegible handwriting</td>
<td>5</td>
</tr>
<tr>
<td>Antibiotic time of prescribing not written and also duration time not written</td>
<td>5</td>
</tr>
<tr>
<td>Treating doctor not taking responsibility for patient own medication</td>
<td>3</td>
</tr>
<tr>
<td>No detail about medication</td>
<td>3</td>
</tr>
<tr>
<td>Policies not provided to medical practitioner</td>
<td>3</td>
</tr>
<tr>
<td>Doctor not adhering to policies and specifications</td>
<td>3</td>
</tr>
<tr>
<td>S6 prescriptions without quantities or doses</td>
<td>3</td>
</tr>
</tbody>
</table>

In adverse events causing patients harm, Baker reported communication is commonly the contributing factor (cited by Koczmara, Jelincic, Perri, 2006). Telephonic prescription orders (verbal orders received via the telephone) can be more prone to misunderstanding and errors than writing a prescription on a patient prescription sheet due to the introduction of a number of variables not present when orders are written directly by the medical practitioner. There is the potential to misinterpret spoken language as a result of accent or pronunciation (Koczmara et al., 2006). Phonetic components of medication names when verbalised can increase the potential for error with sound-alike drug names. In a busy environment background noise and disruptions can add further complexity during receipt of telephonic prescriptions. Confusion with patients having the same or similar names can occur from both the prescriber’s and the order receiver’s end and, in some cases, the prescriber or the receiver (e.g. professional nurse other than the one assigned to care for the patient) may not be fully familiar with the patient (Koczmara et al., 2006).
Khoog (2014) reports that medical practitioners are no different from their non-compliant patients. Medical practitioners have their own form of non-compliance, which is referred to as guideline non-adherence. The article showed that despite many guidelines that were created after systematic reviews and meta-analysis, medical practitioners’ remain non-adherent. Many studies and interventions to improve guideline adherence has shown that the rate of adherence is dismally low (Khoog, 2014).

4.9 SUMMARY

This chapter presented the results and the discussion thereof which aimed to investigate the health care professionals’ awareness regarding legal requirements for prescriptions written by a medical practitioner as well as a dual compliance of prescriptions with legal requirements according to Mediclinic policies. The results of the self-administered questionnaire and the retrospective prescription review were presented.

Firstly, the study sites were presented and discussed followed by the study sample. Participation of medical practitioners was much lower than what was anticipated. The majority of participants were nurses, while medical practitioners and pharmacist made up 30% of the final sample.

Results on the knowledge and awareness of health care professionals about the Mediclinic Corporate Policy on prescriptions from medical practitioners and the Medicines and Related Substances Control Act (Act 101 of 1965) were presented. Eighteen (20.2%) of the 89 participants had failed to read the Mediclinic Corporate Policy on prescriptions from medical practitioners, but the majority (88.8%) of health care professionals indicated that they know and understand what is expected of them. Three quarters (74.2%) of all participants indicated that they were familiar with the contents of the Medicines and Related Substances Control Act (Act 101 of 1965).

Awareness regarding compliance of prescriptions with the legal requirements in terms of prescriber information, patient information, medication information, prescription attributes, prescription revision and telephonic prescriptions were presented. The results showed that there were four aspects which require attention. The prescription information and patient information non-adherence may lead to errors of omission related to the medical practitioner. These errors may waste the time of the pharmacist as well as the patient. Non-adherence by not using the correct procedure to identify a patient with or without an allergy, was the only
error of commission that was identified. This error is drug related and may be harmful to the patient.

Compliance of reviewed prescriptions with Mediclinic Corporate Policy on prescriptions from medical practitioners were presented and discussed for the three participating hospitals. Mediclinic Brits achieved an overall compliance of 78%. Areas of non-compliance were 21% of prescriptions did not have a medical practitioners signature and 75% of prescriptions did not have the medical practitioners qualifications on the prescription chart. In 36% of the reviewed prescriptions no- or the incorrect route of medication administration was indicated for the prescribed medication and transcribing took place in 61% of prescriptions reviewed at Mediclinic Brits.

Results from Mediclinic Legae revealed an overall compliance of 80%. Aspects of non-compliance which may indicate concern were the following: 17% of prescriptions did not have a medical practitioners signature on the prescription chart; 74% of prescription showed no medical qualification for the medical practitioner prescribing.; for 25% of prescriptions no diagnosis was indicated; 18% if the prescriptions was illegible; and transcribing of prescriptions were shown in 37% of prescriptions reviewed.

Mediclinic Muelmed showed a total compliance of 79% with all aspects evaluated. Areas of non-compliance were the following: 13% of reviewed prescriptions had no medical practitioners signature on the prescription chart; 69% of prescriptions had no medical qualifications of the medical practitioner writing the prescription; 33% of prescriptions did not indicate any diagnosis; 17% of prescriptions were illegible; 15% had no- or the incorrect route of medication administration indicated for the prescribed medication; no allergy sticker was indicated on 13% of prescriptions reviewed; and in 67% of prescriptions transcribing was done.

The majority of non-compliance at the three hospitals may lead to errors of omission. These errors are time consuming to investigate and may waste the time of the pharmacist and the patient. Errors of commission may lead to harmful situations. Errors of commission identified were wrong or no medication route indicated on the prescription and transcribing that may lead to incorrect medication, dose, strength and dosage form that might be dispensed.

A summary of the results, limitations of the study, recommendations and conclusions are offered in the next chapter.
In this chapter, a summary of the study is presented. The limitations of the study are recognised, followed by recommendations for practice and further research. The chapter ends with the conclusion, presented according to the three objectives that were formulated at the outset of the study.

After identifying a lack of compliance regarding legality of prescriptions at Mediclinic hospitals, the following question arose: Are health care professionals aware of, and do they comply with policies regarding legal prescribing of medication?

The hospital pharmacist is in a privileged situation being at the centre of distributing of medication to a patient in a hospital environment. The dispensing procedure consists of the three phases: interpretation, preparation and provision (SAPC, 2010). The pharmacist witnesses both the medical practitioner and the professional nurses’ awareness and compliance with legal requirements. The duty of a pharmacist is to interpret a prescription and to ensure legality and authenticity of the prescription (SAPC, 2010).

The study was conducted at three private hospitals in the Mediclinic group of hospitals situated in the Tshwane region in Mediclinic Southern Africa. It was decided to select small, medium and large hospitals, based on the number of licensed beds in these hospitals at the time of the study. Part 1 of the study was a retrospective prescription review and Part 2 was a self-administered semi-structured questionnaire directed at health care professionals.

All data were collected over a six week period, from September 2014 to November 2014. The data were then analysed and summarised.
5.2.1  Study sample

5.2.1.1. Prescription review

A retrospective review of prescriptions was done for the four week period prior to data collection, to determine the compliance with policies and legal requirements. The final sample consisted of 447 prescriptions that were reviewed and audited. There were 239 prescriptions reviewed at the large private hospital (Mediclinic Muelmed), 132 prescriptions reviewed at the medium private hospital (Mediclinic Legae) and 76 prescriptions reviewed at the small private hospital (Mediclinic Brits).

Each prescription was reviewed against ten set parameters as per the GPP, the Medicines and Related Substances Control Act (Act 101 of 1965) and the Mediclinic Corporate Policies on prescriptions from a medical practitioner.

5.2.1.2. Participating health care professionals

All medical practitioners, professional nurses and pharmacists who were present on the day of data collection at the selected Mediclinic hospitals, were invited to participate in the study and complete the self-administered questionnaire. This was done to acquire maximum exposure to all the participants.

The total number of participants in Part 2 of the study, completing the self-administered questionnaire was 89. The sample included 16 medical practitioners, 62 professional nurses and 11 pharmacists.

5.2.2  Professional characteristics of participants

5.2.2.1. Professional experience of health care professionals

The distribution of the participants completing the questionnaires were set out per selected Mediclinic hospital.

At Mediclinic Brits the total participants were 28 and 71% of participants had more than 16 years of experience. The 0-7 years and 8-15 years of experience were divided equally. Mediclinic Legae had 27 participants, of whom 41% of them had 0-7 years of experience, 19% had 8-15 years’ experience and 41% had more than 16 years of experience. At Mediclinic Muelmed there were 34 participants in total. Twenty four percent of participants
had 0-7 years of experience, 29% had 8-15 years of experience and 47% of participants at Mediclinic Muelmed had more than 16 years of experience.

Analysing these participants at each of the selected hospitals, to identify if these health care professionals specialised by further studies in any particular field pertaining to their profession, it was found that 69% of the medical practitioners had specialised, 21% of the professional nurses specialised and 18% of the participating pharmacist furthered their studies by specialising in any field pertaining to the profession.

5.2.3 Awareness of applicable legislation in terms of legal prescribing

Three aspects directed at the health care professionals were questioned to determine their awareness of current legislation.

5.2.3.1. Mediclinic Corporate Policy on prescriptions

The data revealed that 20% of participating health care professionals did not read the Mediclinic Corporate Policy on prescriptions from medical practitioners. The Mediclinic Corporate Policy on prescriptions from medical practitioners provides the health care professional with guidelines according to the Medicine and Related Substances Act (Act 101 of 1965) as well as the Pharmacy Act (Act 53 of 1974).

A further question revealed that 89% of all health care professionals who participated understood and knew what is expected of them in accordance with the Mediclinic Corporate Policy on prescriptions from medical practitioners. The data revealed that only 56% of medical practitioners understood what is expected of them regarding prescription writing to comply with the Mediclinic Corporate Policy on prescriptions by medical practitioner, while 95% of the professional nurses and 100% of the pharmacists understood what is expected of them.

5.2.3.2. Medicines and Related Substance Control Act (Act 101 of 1965)

The particulars that should appear on a prescription in South Africa are stipulated by the Medicines and Related Substances Control Act (Act 101 of 1965). Nearly three quarters (74%) of participants indicated that they are familiar and know the contents of the Medicines and Related Substances Control Act (Act 101 of 1965).
5.2.4 Awareness regarding compliance with legal requirements for prescribing

5.2.4.1. Information on a legal prescription from a medical practitioner

Four aspects regarding the awareness of legal requirements in terms of the *prescribers information* were evaluated, as per legal requirements in terms of the Medicine and Related Substances Control Act (Act 101 of 1965) and Mediclinic Corporate Policy on prescriptions by medical practitioners.

Participants scored 97% on prescription date, 99% on the MP details and qualification and 97% on the MP signature, but only 40% of health care professionals were aware that the MP contact number must appear on a prescription.

The awareness on legal requirements regarding *patient information* that must appear on a prescription chart from a medical practitioner was evaluated. The five aspects that were evaluated included the patient’s physical address, patient’s details, patient’s name, patient’s possible allergies and the patient’s planned discharged date.

In all five aspects the pharmacists complied 100%, the medical practitioners complied 33% and the professional nurses 47%. The total percentage compliance for all health care professionals in the patient’s physical address was 51%, the patient’s details 91%, patient’s nickname 90%, patient’s possible allergies 93% and the patient’s discharge date 86%.

The Pharmacy Council of South Africa (SAPC, 2010) states the objective of a pharmacist in practice should be to monitor prescriptions to ensure that both prescribing practice and administration of medicine are monitored.

All *medication information* written on a medical practitioners’ prescription chart for a specific patient as the treatment regime, is very important. The four aspects measured on awareness of medication information were medication approved name on prescription, medication quantity to supply, dosage form and strength of the dose.

The general awareness of all participating health care professionals were 95% for medication approved name, 94% for medication quantity to supply, 92% for medication dosage form and 97% for the medication strength of dose. From the data it was evident that the pharmacists’ awareness regarding the information that should appear on a
prescription from a medical practitioner was 100%. The awareness regarding medication dosage form was answered poorly with only 92% compliance.

In the section about medication discontinuation on an inpatient prescription chart, specific guidelines are set to be followed. The Mediclinic Corporate Policy on prescriptions from medical practitioners states that the medical practitioner must discontinue medication by following these guidelines:

1) Draw two transverse lines after the last administration
2) Signature, date and time must be written between the lines
3) No deleting or overwriting on previous prescription is allowed. Any change in orders is to be done by means of a new prescription.

The average awareness for each health care profession was calculated at 76% for medical practitioners, 80% for professional nurses and 91% for pharmacists. The average portion of health care professionals unaware about the discontinuation of medication on a patient prescription chart was calculated at 18% across all four aspects included in the questionnaire.

The revision of a prescription on an inpatient prescription chart by the prescribing/treating medical practitioner, as per guidelines are a valuable control method for the medical practitioner regarding the patient’s medication plan. Fifty percent of the participating health care professionals were aware of the revision of prescriptions. Analysing this as per category of health care professional, showed that 40% of medical practitioners and 45% of professional nurses were aware that all routine medication for a patient needs to be reviewed, as per Mediclinic Corporate Policy on prescriptions by a medical practitioner.

The awareness regarding verbal telephonic, Schedule 5 and 6 medication, in terms of legal requirements, was measured. An awareness of more than 90% were determined within all three groups of health care professionals participating. Total awareness of the medical practitioners on both aspects was 93%, the professional nurses 91% and 96% for the pharmacists.

Awareness about the responsibility for a patient’s own chronic medication, brought to the hospital on admission, was evaluated. The prescribing of chronic medication onto an inpatient prescription chart is done by the treating medical practitioner. Awareness about
this was determined and a total awareness of 90% was achieved for all participating health care professionals. The medical practitioners were 88% compliant, professional nurses were 92% compliant and the pharmacist compliance regarding awareness was 82%.

The awareness about allergy indication by attaching the appropriate alert sticker on a patient prescription chart was determined. According to the Mediclinic Policy no prescription may be dispensed when an allergy sticker indicating a specific allergy or non-allergy is not present on the prescription chart. Compliance data analysis indicated that 56% of medical practitioners, 92% of professional nurses and 100% of pharmacists were aware of the policy.

5.2.5 Compliance of prescriptions with Mediclinic policies for legal prescribing based on the prescription review

The ten measurement parameters for each aspect controlled on every prescription was calculated, compliance was then measured and indicated on the prescription review tool.

Mediclinic Brits achieved an overall average of 78% compliance on all ten aspects. Areas that stood out as concerns were that 75% of the reviewed prescriptions did not have the medical practitioners qualification on the written prescription and 21% had no medical practitioners signature on the prescription. Of these prescriptions 64% did comply with the correct route of administration of the medication and only 91% of the reviewed prescriptions had the date the prescription was written, on the prescription chart. A great concern was that 60% of the 75 prescriptions reviewed at Mediclinic Brits were transcribed.

Mediclinic Legae had 127 prescriptions that were reviewed and an overall average of 80% compliance on all ten aspects were achieved. Prescriptions reviewed about doctors qualification on the prescription showed that only 26% complied and 17% prescriptions had no medical practitioner signature on the prescription. Patient diagnoses were indicated on 75% of the prescriptions reviewed, 18% of prescriptions were illegible and 44% of prescriptions were transcribed.

Mediclinic Muelmed achieved an overall average compliance of 79% on all ten aspects reviewed. At Mediclinic Muelmed 239 prescriptions were reviewed for the purpose of the study. Prescriptions reviewed about the doctors qualification on the prescription were 31% compliant and 13% prescriptions had no medical practitioner signature on the prescription.
chart. Patient diagnoses were indicated on 67% of the prescriptions reviewed, 17% of prescriptions were illegible, 85% prescriptions complied by having the correct route of medication administration indicated on the prescription, 13% of prescriptions did not indicate allergies by means of an allergy sticker and 34% of all prescriptions reviewed at Mediclinic Muelmed were transcribed.

5.2.6 Challenges in terms of compliance with the legal prescribing requirements

Reasons for non-compliance with legal prescribing were requested from the participants and an opportunity to give feedback on the questionnaire was given. Not all participants completed this section by reporting hindering aspects, thirteen of them had nothing to report, while 60% of participants did feel that there were aspects that hindered them to comply with all legal aspects of prescriptions, policies and procedures regarding legal prescribing.

The three most important hindering aspects that were reported by 60% of participants were firstly that medical practitioners would not sign a telephonic prescription within the 24 hour time frame and as the nurses worked a 12 hour shift, they could not always follow-up on the prescription compliance to this aspect. Furthermore, the incomplete signature and no qualification of the medical practitioner on the prescription chart was reported. This made it necessary for the professional nurses to put a stamp of the doctor’s qualifications on every patient prescription chart to legalise the prescription for dispensing. This put an extra burden on the nursing staff. Another concern was that the medical practitioner expected the professional nurse to transcribe a prescription onto a patient prescription chart and then they would not sign and add their qualifications on the prescription, to confirm the legality of the prescription.

5.3 LIMITATIONS OF THE STUDY

The study had some notable limitations in terms of sample size, which included the following:

- The sample size of the study was limited by the number of participants present on the day of data collection.
• Not all participants were full-time employees of Mediclinic South Africa which made it difficult to recruit participants, especially medical practitioners, who only made use of the facility for their practices.

• The study was conducted at only three hospitals in one region. The results can therefore not be generalised for all the Mediclinic hospitals in South Africa.

5.4 RECOMMENDATIONS

The following recommendations are made based on the results of the study:

• As a follow-up, further studies should be conducted and include hospitals from different provinces in South Africa.

• Future studies of this kind must include the private sector, as well as the participation of the public sector hospitals, which would be valuable and provide an overview of legal prescribing in all sectors of practice.

• A training intervention should take place to address the problem areas identified in this study. Monitoring and evaluation should be implemented with the training interventions to control the outcome thereof.

• E-prescribing may add value to safe patient care, but must be evaluated and all legal implications understood before medical practitioners, professional nurses and pharmacists may achieve 100% compliance.

5.5 CONCLUSIONS

The three objectives of the study were thoroughly analysed and it may be concluded that 80% of all health care professionals were aware of legislation, policies and procedures of their place of work, as well as the country they practice in. Even though 44% of medical practitioners stated that they do not know what is expected of them in terms of policies and procedures at the specific facility they work at, 74.2% indicated that they are familiar with the contents of the Medicines and Related Substances Control Act (Act 101 of 1965).

The prescriber information, patient information, medication information and prescription attributes required of legal prescribing were all evaluated in terms of the awareness of the health care professionals. Specific areas where knowledge were lacking, may be seen as areas for learning opportunities and interventions to take place. The prescription reviews
indicated that where 100% compliance should be reached, compliance were not achieved. All health care professionals have legislation pertaining to the practice of their specific profession, thus total compliance with legal requirements may be expected. The study showed that at the three Mediclinic hospitals on average 21% non-compliance with legal prescription writing, prescription dispensing and prescription issuing is taking place by medical practitioners, pharmacists and professional nurses.

The challenges experienced by health care professionals in order for medical practitioners, pharmacists and professional nurses to comply with all legal requirements for prescribing must be seen as an area for further investigation. These challenges included workplace attitude and training needs.

5.6 CLOSURE

Overall, this study indicated that the health care professionals awareness and compliance with legal prescribing requirements at selected Mediclinic hospitals in the Tshwane region of Mediclinic South Africa is not adequate, nor compliant.

Future studies should be undertaken to investigate the issues that arose regarding the challenges experienced by health care professionals to comply with all legal requirements for prescriptions. Training interventions should take place as part of the hospital’s learning and development programme for all employees and it should include an orientation process for medical practitioners only using the hospital facility because they are part of the clinical team. The need to offer health care students opportunities to learn and work together throughout their studies and careers, will encourage the on-going development of positive professional working relations in the clinical team at hospital level. The need to write electronic prescriptions should be investigated, as well as the legal aspects surrounding legislation about the medical practitioners original signature and qualification on a prescription.

The need to investigate the current legal aspects of prescription writing is evident from this study. The ever increasing patient focus and administrative duties as well as moving to a paperless environment call for change in legislative routines dating back to 1965.
REFERENCES


Mediclinic website: www.mediclinic.co.za [Accessed continuously from 2011].


APPENDICES

Appendix 1: Mediclinic Corporate Policy on prescriptions

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CORPORATE POLICY

PRESCRIPTIONS FROM MEDICAL PRACTITIONERS

Purpose

The purpose of this policy is to provide health care practitioners with guidelines according to Act 101 of 1965 (amended), regarding written and telephonic prescriptions in the Nursing Units in Mediclinic Hospitals.

This policy includes:

- Legal requirements of prescriptions
- Mediclinic guidelines

Scope

This policy is applicable to all health care practitioners in Mediclinic Hospitals:

- Medical Practitioners who admit patients to Mediclinic Hospitals
- Nurse Practitioners
- Pharmacists and Pharmacist Assistants

Policy statement

No nurse practitioner will administer medication without a legal, legible prescription from a registered medical practitioner except in an emergency. An exception is made in the instance of Standing Prescriptions, provided such prescriptions comply with the SANC’s Practice Policies and Guidelines for Standing Prescriptions.

Responsibilities Person Responsibilities

Medical Practitioner

Prescribe medication according to legal requirements

Pharmacist and Pharmacist assistant

Dispense medication on legal prescriptions

Nursing Practitioner

Administer medication prescriptions from registered practitioners in a legal and legible prescription

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Routine Medication

The following legible information should appear with every routine prescription on the Mediclinic Prescription Chart:

1. Date of prescription
2. Name of medication (generic/trade)
3. Dose
4. Frequency
5. Route of administration
6. Time that medication is to be taken (if applicable)
7. Signature of medical practitioner, initials, surname and qualifications (printed)
8. N.B. No open lines are allowed between prescriptions.

STAT Prescriptions
The following legible information should appear with every stat prescription on the Mediclinic Prescription Chart:
1. Date and time of prescription
2. Name of medication, dose, and route of administration
3. Signature of medical practitioner, initials, surname and qualifications (printed)

Discontinuation of Medication
The medical practitioner must discontinue medication as follows:
1. Draw two (2) transverse lines after the last administration
2. Signature, date and time between the lines
3. N.B. No deleting or overwriting on the previous prescription is allowed! Any change in orders is to be by means of a new prescription

Revision and Transcription of Prescriptions
1. Mediclinic requires that the medical practitioner revise all routine medication at least every 7 (seven) days.
2. Medication to be continued should be rewritten and signed by the medical practitioner as a new prescription
3. No nurse practitioner or pharmacist may transcribe a prescription

Telephonic Prescriptions
1. The medical practitioner gives a telephonic prescription to a professional nurse practitioner only. The professional nurse practitioner must verify the authenticity of the medical practitioner
2. The professional nurse repeats the prescription to the medical practitioner in the presence of a second nurse
3. The professional nurse writes the telephonic prescription (date, time, type of medication, dose frequency and route) on the prescription chart and both sign the prescription

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4. In the case of the pharmacist receiving the telephonic prescription, he/she must also verify the authenticity of the prescriber. A permanent record of the telephonic prescription must be made and retained
5. The prescriber must supply the pharmacist with the original signed prescription within 7 (seven) days

Signing of Telephonic Prescriptions
1. The medical practitioner must sign a telephonic prescription (up to schedule 5 five) within 24 hours

2. The medical practitioner must rewrite and sign a schedule 6 (six) telephonic prescription within 24 hours

Standing Prescriptions

Standing prescriptions do not comply with the requirements of a legally valid medical prescription. However, the South-African Nursing Council recognizes that due to the pressures in the health care situation standing prescriptions are in use. These cover the administration of certain medications in specific non-emergency patient care situations and will only be allowed if it complies with the following guidelines of the South-African Nursing Council (See annexure 1).

It is essential that the nurse or midwife uses his/her professional judgement prior to administering prescribed medication or treatment, and consults the prescribing doctor should a decision have been made not to implement a prescription.

1. Each standing prescription should be an individualised, legally valid prescription

2. Identify the copy of the standing prescription with an identification sticker of the specific patient

3. Attach the copy securely to the patient’s prescription chart

4. The nurse should transfer the Standing prescription to the Mediclinic Prescriptions chart in order to record the administration.

5. The prescribing medical practitioner shall sign and date the standing prescription on the Mediclinic Prescription chart at the earliest opportunity

6. The nurse or midwife may contact the prescribing medical practitioner at any stage to confirm a prescription or if changes in the patient’s condition indicate that treatment should be re-evaluated.

Prescription of Schedule 5 & 6 Medication in Operating Theatres

The medical practitioner is required to write the Schedule 5 and 6 medication that were administered during anaesthesia on the Mediclinic Prescription Chart.

Prescriptions per Fax, E-mail or Medical Prescription Pad

1. Attach the prescription received via fax, e-mail or medical prescription pad to the Mediclinic Prescription Chart

2. Ensure that these prescriptions clearly identify the patient and adhere to all the above-mentioned requirements

3. The medical practitioner must rewrite the prescription on the Mediclinic Prescription Chart within 24 hours

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4. In the case of the pharmacist receiving the faxed, e-mailed or electronic prescription, he/she must also verify the authenticity of the prescriber. A permanent record of the prescription to be made and retained

5. The prescriber must supply the pharmacist with the original signed prescription within 48 hours

Prescriptions for Home Medication brought to Hospital

The medical practitioner is responsible for the prescribing of home medication to be used in the hospital.

1. All home medication should be handed to the nursing staff upon admission

2. A patient should be advised that they are not to take any medication that is not prescribed

3. Nursing staff should keep record of patient home medication quantities receipt and quantities
4. Medication that is not indicated for the specific hospitalisation should be sealed and returned to the patient. This medication should be send home.

5. All medication should be clearly identified. This might include contacting the prescribing practitioner or dispensing pharmacy.

6. The medical practitioner prescribe the patients home medication on the Mediclinic prescription chart and indicate it as home medication

7. A patient should not receive any medication that is not prescribed

8. When a patient requires a chronic prescription refill the patient should be consulted that his family could provide the medication or if possible the prescription could be issued via the retail pharmacy

Definitions

Term Definition

Prescription
An instruction, written by a medical practitioner, who prescribes medication or treatment to be administered to a patient.

Associated documents and records

Title Number Location

Practice Guidelines of SANC
Intranet

Prescription Chart A
N1002
Patient’s file

Prescription Chart B
N1003
Patient’s file

Appendix for Prescription Chart A
N1025
Patient’s file

Prescription Chart: Long Term (Muelmed)
Patient’s file

References

The Act on Medicine and Related Substances (as amended). No.101 of 1965
The Pharmacy Act (as amended). No. 53 of 1974
The Medical, Dental and Supplementary health Services Act (as amended). No. 65 of 1974
The Scope of Practice of Nurse Practitioners. Reg. 2598

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Annexure 1
THE SOUTH AFRICAN NURSING COUNCIL

PRACTICE POLICIES AND GUIDELINES

10. STANDING PRESCRIPTIONS

In this context, a prescription is an individualised, written prescription by a medical practitioner for medication or treatment.

Standing prescriptions are medical prescriptions issued and signed by a medical practitioner, where routine administration of certain medications is required in specific non-emergency patient care situations.

Standing prescriptions do not comply with the requirements of a legally valid medical prescription. However, Council recognises that due to the pressures in the health care situation use is being made of standing prescriptions. To eliminate risks and ensure that each standing prescription becomes an individualised, legally valid prescription, nurse practitioners and midwives may make use of multi-copies of standing prescriptions in the following way -

The patient's name and admission/hospital number shall be specified on a copy of the standing prescription;

the copy shall be attached securely to the patient's treatment record/prescription chart; and

the prescribing doctor shall sign and date the standing prescription at the earliest opportunity.

It is essential that the nurse or midwife exercises judgement as to whether it is appropriate in each particular case to administer the medication or treatment and to consult with the doctor in these instances where she has made a decision not to carry out the standing prescription.

In all cases, whether the prescription is carried out or not, the nurse or midwife must ensure that she records her actions in the patient's record.

Laws\policies\as

1998-03-09
### Appendix 2: Prescription Review Sheet

Health care workers’ awareness of and compliance with legal prescribing requirements in selected Mediclinic hospitals in the Tshwane region

All prescriptions audited must be documented.
Compliance must be marked with a tick and non-compliance must be indicated by a cross.

<table>
<thead>
<tr>
<th>Pat. No.</th>
<th>Date of issue prescription</th>
<th>Medical practitioners’ signature</th>
<th>Medical practitioners’ qualifications</th>
<th>Diagnosis noted</th>
<th>Handwriting legible</th>
<th>Drug name</th>
<th>Correct dosage</th>
<th>Correct route</th>
<th>Allergy information</th>
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</table>
Appendix 3: Questionnaire for Health Care Professionals

Health care workers’ awareness of and compliance with legal prescribing requirements in selected Mediclinic hospitals in the Tshwane region

Thank you for taking part in this study. Please tick appropriate box to indicate your profession and years of experience. Continue then by circling your preferred answer.

<table>
<thead>
<tr>
<th>Hospital:</th>
<th>Date:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Profession:</td>
<td>Years of experience:</td>
</tr>
<tr>
<td>Medical practitioner</td>
<td>0 - 7 years</td>
</tr>
<tr>
<td>Pharmacist</td>
<td>8 - 15 years</td>
</tr>
<tr>
<td>Professional nurse</td>
<td>More than 16 years</td>
</tr>
</tbody>
</table>

Have you specialised? yes no

If yes, please provide details:

| 1. Have you read the Mediclinic Corporate Policy on Prescriptions from Medical Practitioners? | Yes / No |
| 2. Do you understand what is expected from you, as health care worker, as prescribed in the Mediclinic Prescription policy? | Yes / No |
| 3. Are you familiar with the Medicines and Related Substance Act 101 of 1965? | Yes / No |
| 4. Identify which of the following information should appear on a legal prescription written by a medical practitioner: | Yes / No |
| Contact number of the physician | Yes / No |
| Today’s date | Yes / No |
| Detail of the prescriber as well as qualifications | Yes / No |
| The patients physical address | Yes / No |
| The prescribers signature | Yes / No |
| Patient detail | Yes / No |
| Approved name of medication | Yes / No |
| Quantity of medicine to be supplied | Yes / No |
| Note to pharmacist to add medication | Yes / No |
| Dosage form | Yes / No |
| Strength of dose form | Yes / No |
| Patients nick names | Yes / No |
| Possible allergies | Yes / No |
| When patient will be discharged | Yes / No |

5. If a medical practitioner wants to discontinue a patient’s medication he/she must do the following:
   a) draw 2 transverse lines after last administration
   b) signature, date and time between lines to be written
   c) verbal instruction to nurse practitioner to cancel medication
   d) write new medication in same space as to not confuse the staff

6. Mediclinic requires that the medical practitioner revise all routine medication at least every (how many days) days

7. Telephonic prescriptions up to schedule 5 must be signed by the Medical practitioner within (how many hours) hours

8. Telephonic prescriptions for schedule 6 medication must be rewritten by the medical practitioner within 24 hours

9. The medical practitioner is responsible for prescribing of home medication to be used in the hospital

10. If the allergic reaction green or red sticker is not on the Mediclinic prescription chart may the pharmacist dispense the prescription?

11. Which aspects of legal prescribing practices, which you are required to adhere to as stipulated in Mediclinic hospital policies, are hindering you in your tasks as a medical health care worker?

____________________________________________________________________________________________________________________________

____________________________________________________________________________________________________________________________

____________________________________________________________________________________________________________________________

____________________________________________________________________________________________________________________________

____________________________________________________________________________________________________________________________

Study No: _____
Appendices

Appendix 4: Consent form

UNIVERSITY OF LIMPOPO (Medunsa Campus) ENGLISH CONSENT FORM

Statement concerning participation in a Research Project

Name of Project: Health care workers’ awareness of and compliance with legal prescribing requirements in selected Mediclinic hospitals in the Tshwane region

I have heard the aims and objectives of the proposed study and was provided the opportunity to ask questions and given adequate time to rethink the issue. The aim and objectives of the project are sufficiently clear to me. I have not been pressurized to participate in any way.

I understand that participation in this research project is completely voluntary and that I may withdraw from it at any time and without supplying reasons. This will have no influence on my employment conditions with the hospital.

I know that this research project has been approved by the Medunsa Campus Research and Ethics (MCREC), University of Limpopo (Medunsa Campus). I am fully aware that the results of this research project will be used for scientific purposes and may be published. I agree to this, provided my privacy is guaranteed.

I hereby give consent to participate in this project

..........................................................
Name of participant ..................................

..........................................................
Signature

..........................................................
Place ..................................................

..........................................................
Date

Statement by the Researcher

I provided verbal and written information regarding this Project. I agree to answer any future questions concerning the Project as best as I am able. I will adhere to the approved protocol.

..........................................................
Name of Researcher ..................................

..........................................................
Signature ..................................

..........................................................
Date ..................................................

..........................................................
Place


Appendix 5: Study information leaflet

Dear Health Care Professional

Please read the information below. You may ask any questions about the study, before you decide whether you are willing to participate.

I am a pharmacist and part of the clinical team at Mediclinic Brits. As part of my master’s degree in pharmacy, I have to conduct a research project. Based on the shortcomings identified by the Council of Health Services Accreditations of South Africa with regards to prescribing according to protocol, as well as the findings of Mediclinic’s Clinical Committee in 2011 on the compliance levels of prescriptions, compelled me to ask the following question: Are health care workers in Mediclinic hospitals aware of and do they comply with policies for legal prescribing?

This study will be conducted at three selected hospitals in the Mediclinic Tshwane region. The study population will include medical practitioners, pharmacists and professional nurses.

A self-administered questionnaire will be completed by health care professionals who are willing to participate in the study. The questionnaire will be completed anonymously and no personal information will be requested or published at any time. The completion of the questionnaire will take approximately 10 minutes.

I am very thankful for your willingness to take part in this research project.

Kind regards

Yvette Joubert
Post-graduate student: MSc (Med) in Pharmacy
Appendices

Appendix 6: Letter requesting permission to conduct study

University of Limpopo
Department of Pharmacy
P.O. Box 218, Medunsa, 0204, South Africa
Tel: (012) 521 3699/4567, Fax: (012) 521 3992, Email: yjoubert85@gmail.com

General Manager Pharmacy Services

Dear Mr. Douglas Defty

RE: PERMISSION REQUESTED TO CONDUCT A STUDY AT SELECTED MEDICLINIC HOSPITALS IN THE MEDICLINIC TSHWANE REGION

I am a MSc(Med) student in the Department of Pharmacy, University of Limpopo, Medunsa Campus. The title of my study is “Health care workers’ awareness of and compliance with legal prescribing requirements in selected Mediclinic hospitals in the Tshwane region”.

I therefore kindly request your permission to conduct the study amongst staff in the Mediclinic Kloof (pilot study), Mediclinic Meulmed, Mediclinic Legae and Mediclinic Brits hospitals. Attached please find a copy of the protocol, which has been submitted to the Medunsa Campus Research and Ethics Committee for ethical approval.

I trust that you will find the above in order. Please feel free to contact me or my supervisors, should you require additional information.

Yours faithfully

____________________
Yvette Joubert
MSc(Med) student
18 April 2013

cc: Dr Hannelie Meyer (Study supervisor)
    Dr Natalie Schellack (Study co-supervisor)
Appendix 7: Letter for permission and access to the facility

University of Limpopo
Department of Pharmacy
P.O. Box 218, Medunsa, 0204, South Africa
Tel: (012) 521 3699/4567, Fax: (012) 521 3992, Email: yjoubert85@gmail.com

Hospital Manager
Mediclinic Hospital

Dear _______________________

RE: PERMISSION REQUESTED TO CONDUCT A STUDY AT YOUR FACILITY

I am a MSc(Med) student in the Department of Pharmacy, University of Limpopo, Medunsa Campus. The title of my study is “Health care workers’ awareness of and compliance with legal prescribing requirements in selected Mediclinic hospitals in the Tshwane region”.

I therefore kindly request your permission to conduct the study amongst staff (medical practitioners who admit patients to this Mediclinic hospital, professional nurses and pharmacists). I also will need to review randomly selected prescriptions to determine the percentage of compliant prescriptions as per Mediclinic Corporate Policy on Prescriptions. Attached please find a copy of the protocol, which has been approved by the Medunsa Campus Research and Ethics Committee (MREC/H/102/2013:PG.).

I trust that you will find the above in order. Please feel free to contact me or my supervisors, should you require additional information.

Yours faithfully

____________________
Yvette Joubert
MSc(Med) student

Date

cc: Dr Hannelie Meyer (Study supervisor)
Dr Natalie Schellack (Study co-supervisor)
Appendices

Appendix 8: Corporate Policy on retrieval of patient records

PATIENT ADMINISTRATION
CORPORATE POLICY
RETRIEVAL OF PATIENT RECORDS

This is to certify that the document listed above has been duly authorised for application within Mediclinic Southern Africa.
It is the responsibility of the user to verify that the latest version of the policy will be applied.

Approval

Muneer Omar
Manager: Patient Administration
Mediclinic Southern Africa

Revision History

<table>
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<th>Version</th>
<th>Description of Change</th>
<th>Author</th>
<th>Effective Date</th>
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<td>1</td>
<td>Initial release</td>
<td>Janine de Villiers</td>
<td>2008/04/01</td>
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<td>Janine de Villiers,</td>
<td>2011/01/27</td>
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<td></td>
<td>- Content and Format</td>
<td>Thys Hanekom,</td>
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<tr>
<td></td>
<td>- Logo and Branding</td>
<td>Diana Bruins</td>
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<td>- Content Revision</td>
<td>Joleen Cornelius</td>
<td>2013/04/22</td>
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<td>Joleen Cornelius</td>
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<td>Policy updated for new year</td>
<td>Muneer Omar</td>
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CORPORATE POLICY

RETRIEVAL OF PATIENT RECORDS

Purpose

The purpose of this policy is to provide guidelines regarding the requirements specific to the retrieval of patient records in Mediclinic Hospitals.

Scope

This policy applies to all Patient Administration functions.

Policy statement

To ensure the confidentiality and safe keeping of patient files.

Responsibilities

Person Responsibilities

Patient Administration Manager

To adhere to policy

Reception/Accounts Supervisor

To adhere to policy

Reception Administrators

To adhere to policy

Case Managers

To adhere to policy

Confirmation Clerks

To adhere to policy

Accounts/Credit Controllers

To adhere to policy

Debtors Clerks

To adhere to policy

Theatre Scheduling Clerks

To adhere to policy
Filing Clerks

To adhere to policy

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Procedure

1. Hospital Personnel:

1.1 A register needs to be maintained by the Filing Clerk in which all folders which have been removed from the Archives as well as the dates returned, are recorded.

1.2 All files which have been out of the Archives for a period of more than 7 days, must be followed up with the Requester.

1.3 No changes may be made to any documents in the file.

2 External Parties:

2.1 The request for a patient record must be made with the Nursing/Patient Administration Manager who will request that the file be retrieved.

2.2 The register needs to be maintained by the Filing Clerk in which all folders which have been removed from the Archives and the dates the folders are returned, are recorded.

2.3 All files which have been out of the Archives for a period of more than 7 days must be followed up with the Requester.

2.4 No changes may be made to any documents in the file.

3 Medico-Legal/Clinical Trial Files:

3.1 The Risk Co-ordinator/Nursing Manager must request any folder which is part of a Medico-Legal investigation, or forms part of a Clinical Trial.

3.2 These folders will no longer form part of the normal filing protocols.

3.3 The Risk Co-ordinator is responsible for ensuring that these files are stored as per protocols and that a register is maintained for these files.

4 After-Hours Retrieval:

4.1 Should a patient record be required out of office hours, the person-in-charge of the hospital is responsible for the retrieval of the folder and the completion of the register.

4.2 If the folder is not returned on the same shift, the person who retrieves the folder must inform the Filing Clerk the following working day, that the folder has been removed from the Archives.

4.3 The Filing Register is the responsibility of the Filing Clerk and must be audited by the Accounts Supervisor regularly.

5 Missing Files:
5.1 If the Filing Clerk is unable to locate a folder within 48 hours, the Patient Administration Manager must be informed and an Adverse Event report must be completed.

5.2 If the folder can still not be located after 1 week has lapsed, the missing file must be recorded in the File Register and reported to the Hospital Manager.

Definitions

Term | Definition
--- | ---
Risk Co-ordinator | a.k.a. Clinical Risk Manager/Risk Manager/Clinical Risk Co-ordinator

Associated documents and records

Title | Number | Location
--- | --- | ---
File Register | | 
Medico-Legal File Register | | 
Adverse Event Report | N2837 | 
Wards | | 

References

CURA Risk Management.

Acknowledgements

None.
Appendix 9: Corporate Policy Management of Schedule 5 & 6 substances

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CORPORATE POLICY

MANAGEMENT OF SCHEDULE 5 & 6 SUBSTANCES

Purpose

The purpose of this procedure is to provide all Pharmacists, Medical and Nursing Practitioners with the guidelines regarding Schedule 5 and 6 substances as described in this policy.

A copy of the policy will be available in the following areas:

- Pharmacy
- Nursing Units
- Hospital Master Policy File.

Scope

This procedure applies to all health care practitioners in Mediclinic Hospitals that manage schedule 5 and 6 substances.

- Medical Practitioners
- Nursing Practitioners
- Pharmacists

Policy statement

All personnel with the responsibilities attached who are handling Schedule 5 or 6 products must adhere to the policy as outlined below.

Responsibilities Person Responsibilities

Medical Practitioner

Ensures that prescription meets legal requirements

Professional Nurse Practitioner

Management of Schedule 5 & 6 substances in the nursing unit

Nursing Practitioner

Ensures that drug cupboard is locked and that only designated access:

- Administers Schedule 5 & 6 according to legal requirements
- Completes an Adverse Event Report, if any irregularities in

104
Term Responsibilities

Administration of Schedule 5 & 6 Substances

1. Issue a scheduled substance to a patient only on the legal written instruction of a Medical practitioner:

2. The written instruction of the medical practitioner must contain the following:

   - Date of prescription
   - Product
   - Strength of product
   - Dose
   - Frequency of administration
   - Quantity prescribed (or period)
   - Route of administration

Legible signature of medical practitioner and qualification

3. A stamp with the doctor’s name is recommended to verify the signatory.

4. At least one of the 2 (two) nurse practitioners checking the substance to be administered must be a Professional Nurse.

5. Check when last the prescribed medication was administered to the patient.
6. The patient must be identified and the prescription chart matched to the patient’s identification band, before the prescribed medication is administered.

- Check the following information on the prescription chart:
  - Name of patient
  - Name of substance
  - Route of administration
  - Time of last administration
  - Name of prescribing doctor
  - Date of prescription
  - Hospital number
  - Dosage to be administered
  - Frequency of administration
  - Number of doses or period

7. The 2 nurse practitioners check that the correct medications and dosage is removed from the cupboard.

8. Count the balance in stock and check against the balance recorded in the register.

9. Check that the ampoules are not broken, emptied or have been replaced with any other ampoule.

10. Place the ampoule in a receiver, with a swab, syringe and needle, as per prescribed procedure.

11. Place tablets in a medicine glass after the above checking procedure has been performed.

12. Place container with remaining tablets, ampoules back into correct cupboard and lock cupboard.

13. Record administration of medication immediately after administration, in patient’s progress record and the register, stating the following details:
Administration and Recording of Small Doses

1. When administrating small doses (e.g. Morphine for dilution), each item/ampoule used for the dilution must be entered in the Schedule 6 Register.

2. Add the words “For Titration” in brackets next to the patient’s name.

3. Record the administration of each small dose of the dilution on the “Titration/Bolus” document.

4. The following must be recorded on the Titration/Bolus document:

- Date
- Time of administration
- Dose administered
- Balance
- Signatures of Registered Nurse and Witness

5. Discard the remainder should the patient not receive the entire quantity and record this on the Titration/Bolus document with the signatures of the Professional Nurse and witness.

6. Mark the syringe containing the substance (e.g. Morphine) clearly with the following information:

- Patient’s name
- Substance name
- Dose per ml of substance
- Date
7. Keep the charged, labelled syringe, ready for use, in the schedule drug cupboard between administrations.

8. Discard the unused portion of the substance when day personnel hand over to night personnel or vice versa and commence a fresh ampoule.

9. When single doses of substance is drawn up in a syringe and only ½ administrated, discard the rest and enter in the register as “Wasted”.

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Checking of Schedule 5 & 6 Substances Frequency Requirements

Daily

Check done by the professional nurse practitioner and a second nurse practitioner during every shift change

Weekly

(Nursing Units & Theatres)

Check balance on hand against balance in register

Record and sign these checks in the register in red ink

Monthly

(Nursing Units & Theatres)

Register-check done by the Unit Manager

Record and date checks in red ink next to the last entry in the register

Quarterly

(Nursing Units & Theatres)
The Pharmacist and Nursing Manager/Deputy Nursing Manager/Unit Manager check balance and registers on the last day of March, June, September and December, or within two (2) weeks thereafter.

Record, date and sign checks in red ink by the above persons Quarterly

(Pharmacy)

The Pharmacist checks the balance and registers in the pharmacy on the last day of March, June, September and December, or within two (2) weeks thereafter.

The Pharmacist records, dates and signs checks in red ink

Daily Counting and Control between Shifts

1. A professional nurse practitioner from both day and night shift will together, at the beginning of each shift, count and record the amount of schedule 5 & 6 substances at hand

2. Record the amounts on the control document

3. Correlate the recorded amounts with the amounts noted from the previous count

4. Counter check any discrepancies with the appropriate scheduled drug register. These amounts should correspond with that of the most recent drug count.

5. Place a tick in the corner of the corresponding control block on the drug control register if the drug count corresponds

6. If the count varies, it is the responsibility of the retiring shift to rectify the discrepancy by either finding the missing drug or ensuring the appropriate entry is made in the drug register

7. Both parties sign the control document once the register and the control document correspond

8. Both parties submit event reports and report to their immediate supervisors should the
Drug Registers

Topic Requirements

Registers

Schedule drug registers must adhere to the following:

- Separate registers must be kept for Schedule 5 & 6
- These registers must be locked in the drug cupboard (where possible)
- The inside front cover of each register must reflect an index of substances
- A separate page must be opened for each different medication

Entries

Entries into the register must be made under the following circumstances:

- On receipt of stock
- Whenever a Schedule 5 or 6 substance is administered to patient from ward stock in any nursing unit
- Whenever errors, discarding, breakage or losses occur

New Page

Turning to a new page in register, complete page as follows:

- At bottom of full page on last line the balance is reflected in the left hand column of register
- Write “Balance transferred to page”
- Sign this entry with designation
- Write “Transferred from page” at top of page where the balance is being transferred to
- Carry forward the balance to the left hand column and sign
Register Full

When the register is full:

- Carry the balance forward to a new register in the presence of the Pharmacist (if possible)
- The Registered Nurse and Pharmacist verify the correct balance brought over to the new register and both sign
- The Pharmacist cancel all blank pages in the full register
- NB: The Pharmacy manager is responsible for safekeeping of all old registers for 5 years.

Errors

Record errors in the register as follows:

- Draw a continuous red line through the entire entry cancelling it, but leaving it legible
- NB: The entry is not to be erased or tippexed out!
- Record in red above the line “incorrect entry”
- Refer to the page with the correct entry, if applicable
- The correction must be signed and dated by the 2 (two) persons
- concerned with the administration and/or checking and their designations recorded

Small Doses

See “Small Doses” on page 3

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Drug Cupboards and Keys

1. Keep Schedule 5 & 6 cupboard keys on separate closed rings (together and separate from other keys).

2. Only a Pharmacist (for the pharmacy Schedule 6 cupboard) and Professional Nurse Practitioner (for the nursing unit/theatre cupboard) may keep the keys on his/her person.

N.B. There may not be spare keys kept in the nursing units. Spare keys are to be kept locked up, in a sealed envelope in the pharmacy/office of nursing manager. Signatures on the seal are to be of both nursing management and pharmacy.

Procedure: Lost Drug Cupboard Keys
1. Immediately ascertain who was in charge of the keys at the time.

2. Report this to the Nursing Manager and Pharmacy Manager.

3. Obtain statements from all involved person(s) as to the reason for the loss. Record as an Adverse Event.

4. The lock(s) to all missing key cupboards are to be changed immediately.

Should this be at night:

- Open the cupboards by means of the duplicate key obtained from the Nursing Manager
- Remove the contents from the cupboard
- Place the content into a container and seal
- Lock the sealed container in another schedule cupboard for safekeeping until the locks can be changed

5. Should the keys be found once the locks have been replaced, the keys are not to be reused due to risk of copies being made.

Medication Related Events

1. Report all events relating to schedule 5 & 6 medicines e.g. lost drugs, lost registers, broken products and non-compliance with the protocols/misuse of drugs first to the Unit Manager/Pharmacy Manager and Nursing Manager within 24 hours.

2. Outside entities/organisations (e.g. Pharmacy Council, Nursing Council, Dept. Health, SAPS, etc.) will be informed thereafter should it be necessary.

Broken Schedule 5 & 6 Substances in the Nursing Units

1. Inform the pharmacy immediately of such breakage (Unit Manager, Nursing Manager, Pharmacist or Night-Supervisor if after-hours)

2. Leave the “evidence” as is until the Pharmacist/Night Supervisor has verified it

3. Place this “evidence” into a Strip-form plastic with an adhesive label placed on packet, recording the contents, date, ward, etc. (i.e. summary of details)

4. Write an adverse event report/statement, N2837, (the nurse practitioner involved), together with any witnesses

5. Write the scheduled drug out of the nursing unit register as “Returned broken to Pharmacy”. This is to be signed by the Unit Manager, Pharmacist, Nursing Manager

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and Professional Nurse

6. Keep the statements with the broken product in the Pharmacy Schedule 6 cupboard for safekeeping

7. Entries in the Pharmacy Schedule 6 register are to be a receipt for the damaged substance (being recorded as received damaged) from the ward (i.e. both registers should balance as):

☐ Entry in nursing unit registers as issue to Pharmacy
☐ Entry in Pharmacy registers as received from the nursing unit
☐ Entry in Pharmacy registers as issue due to broken

A separate register for these expired/damaged products may be kept by Pharmacy

8. The Pharmacist is responsible for correct disposal of breakage.

9. The Pharmacy Manager Informs an Inspector for the Department of Health: Directorate Medicines Control of the incident so that he/she may write the product off following the correct policy.

Note: All statements, damaged products, syringes, etc. must be kept in case any further queries occur

Missing Schedule 5 & 6 Substances and/or Register

1. Conduct a thorough search, including the following:

☐ Check all prescription sheets and patient progress notes
☐ Check balance of substances on hand back to previous signed check
☐ Check ALL corners of appropriate schedule cupboard
☐ Check medicine cupboard/trolley
☐ Thoroughly check through entire nursing units

2. Inform the Unit Manager and if the matter is not resolved within 24 hours, inform the Nursing Manager and Pharmacy Manage.

3. Person discovering the discrepancy writes an Adverse Event Report (N2837).
4. Interview personnel concerned with last entry in substance register and get a statement written by them.

5. If after a thorough search and investigation, the substance/register remains missing, this must be reported to the Pharmacy Operations Manager for further action.

6. Consult the Pharmacy Manager in Hospital. All communication to go via the hospital Pharmacy and not the Department of Health. Regional Pharmacy Operations Managers will do this, once they are notified.

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Expired Schedule 5 & 6 Substances

1. Should the expired product be in a nursing unit:

- Notify the Pharmacy Manager of expired stock by sending in the requisition book
- The Pharmacist will fetch the expired stock from the nursing unit and complete the register
- The Pharmacist and Professional Nurse sign these entries in the Nursing Unit Schedule Register

2. Retain all expired stock in the Pharmacy Schedule 6 cupboard with the completed register

3. Write it off in accordance with the policy for “Expired Schedule 5 and 6 Drugs”, and make the necessary entry in the register

Handling of Home Medication

1. Obtain all home/chronic medication

2. Send home all medication the patient will not need during hospitalisation or lock away in medication trolley

3. Record the home medication on the medication chart and inform the doctor to prescribe these medications on the prescription chart

4. Only the prescribed home/chronic medication may be administered
5. Inform the pharmacist to counsel the patient when the doctor did not prescribe his/her chronic medication.

6. It is the responsibility of the doctor to inform the patient regarding the chronic/home medication to be continued at home.

7. Ensure that all home medication are counted and handed back to the patient when discharged.

Ordering and Receipt: Nursing Units and Theatres

1. The Professional Nurse completes the requisition for Schedule 5 and 6 substances by providing the following details:

- **Schedule**
- **Nursing Unit**
- **Date**
- **Name of substance**
- **Form of product**
- **Strength**
- **Quantity in numbers**
- **Quantity in words**
- **Signature of Professional Nurse (on first “ordered by” line)**
- **Signature of second nurse practitioner (on second “Ordered By” line)**

2. Send the requisition book to the pharmacy, who will issue the drugs against the requisition.

3. The Pharmacist takes the drugs and requisition book to the nursing unit.

4. The Pharmacist and Professional Nurse Practitioner check the physical balance in the nursing unit’s Schedule 6 cupboard against the nursing unit’s register.

5. Enter the new drugs as a receipt in the register if the balance on hand corresponds with...
the balance in the register

- Requisition number

- Balance updated and signed by both the Pharmacist and Professional Nurse

- Should the balance on hand not correspond with the balance as per the register, the matter is first to be investigated and resolved. (Refer to “Missing Substances”)

6. Sign the requisition as being received by the Professional Nurse

7. Return the top copy to the pharmacy for processing and filing

8. Keep the requisition books in schedule cupboards, if possible

9. When requisitions are not required or not supplied by pharmacy, cancel both copies of the order by drawing 2 lines diagonally across the page, marked cancelled and signed

10. by the Professional Nurse

Important

Under no circumstance are scheduled substances to be issued by pharmacy without checking the balance on hand in the department against the balance as per the nursing unit’s register.

Ordering and Receipt: Pharmacy

1. The pharmacist completes and signs the “Schedule 5 & 6 Order Form” and sends it to the supplier.

2. The pharmacist receives the scheduled drugs as follows:

   - Check the goods against the delivery note/invoice

   - Mark the invoice with a “6” in red, and make a photocopy

   - Retained this photocopy in pharmacy for future reference

   - Enter all receipts into the left hand side of the Schedule 6 Register reflecting:

     - Date of receipt

     - Supplier name

     - Address

     - Invoice number
Appendices

- Quantity received

- Keep these drugs in a locked Schedule 6 cupboard and the key on the person of
the pharmacist(s).

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Prescriptions of Medical Practitioners

Refer to the Corporate Policy on "Prescriptions of Medical Practitioners".

Prescription Requirements: Schedule 5 (Regulation 28 of Act 101)

- Requires a legal written prescription by a doctor

- May be repeated for a maximum of 6 months, provided the number of times and the intervals are stated

- Must be signed by the prescribing doctor

- The prescription must be retained by the last supplier for at least 5 years

Prescription Requirements: Schedule 6

- Requires a legal written prescription by a medical practitioner, which is valid for 30 days with NO repeats.

- Maximum treatment is for 30 days.

- Quantity must be stated in figures and words on the prescription.

- The exact quantity must be dispensed.

NB. Refer to the Policy on "Prescriptions from Medical Practitioners" for full details of prescription requirements.

Safekeeping and Storing: Nursing Unit

The provisions of Act 101 of 1965 (as amended) are as follows:

Step Action

1. Keep medication in separate locked cupboards, which must be attached to a permanent fixture.

2. Do not keep money, valuables or other medicines/items (except the relevant registers, where possible) in these cupboards.

3. Keep cupboards locked at all times
4. Keep Schedule 5 and 6 substances that have been dispensed by the pharmacy, directly for a patient, locked on the medicine trolley

Definitions

Term Definition

Schedule 5 Medication

Is potentially habit forming e.g. analgesics, anti-depressants, sedatives, hypnotic and tranquillisers

Schedule 6 Medication

Is potentially habit forming e.g. appetite suppressants and narcotic analgesics

Adverse Event

Any occurrence that has or may have a negative influence on patients, doctors, personnel, facilities or equipment

Adverse Drug Reaction

A response to a drug that is dangerous, unintended and which occurs at dosage for prophylaxis, diagnosis or treatment

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Associated documents and records Title Number Location

Prescription Chart A
N1002
Patient’s file

Appendix for Prescription Chart A
N1025
Patient’s file

Prescription Chart B
N1003
Patient’s file

Requisition for Schedule 5 & 6 Substances
Appendices

Drug Cupboard in Nursing Unit

Nursing Unit Drug Register for Schedule 6 Substances

0311

Drug Cupboard in Nursing Unit

Nursing Unit Drug Register for Schedule 5 Substances

0882

Drug Cupboard in Nursing Unit

Schedule Medication: Titration/Bolus Patient’s File

N1826

Patient’s file

Near Miss/Adverse Event Report

N2837

Intranet

Event Investigation

N2838

Intranet

Basic Nursing Procedure

TR1401

References

The Act on Medicine and Related Substances (as amended) No.101 of 1965

The Pharmacy Act (as amended) No. 53 of 1974

The Scope of Practice of Nursing Practitioners Reg. 2598
Appendix 10: Clearance certificate

MEDUNSA RESEARCH & ETHICS COMMITTEE

CLEARANCE CERTIFICATE

MEETING: 05/2013
PROJECT NUMBER: MREC/102/2013: PG

PROJECT:
Title: Health care workers’ awareness of and compliance with legal prescribing requirements in selected Mediclinic hospitals in the Tshwane region

Researcher: Mrs Y Joubert
Supervisor: Dr JC Meyer
Co-supervisor: Dr N Schellack
Hospital Superintendent: Mr Douglas Deby (Mediclinic)
Department: Pharmacy
School: Health Care Sciences
Degree: WSc (Med) in Pharmacy

DECISION OF THE COMMITTEE:
MREC approved the project

DATE: 06 June 2013

PROF GA OGUNBANJO
CHAIRPERSON MREC

Note:
1. Should any departure be contemplated from the research procedure as approved, the researcher(s) must re-submit the protocol to the committee.
2. The budget for the research will be considered separately from the protocol. PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES.