Knowledge, Attitudes, Perceptions and Readiness of Community Pharmacists practising in the Province of KwaZulu-Natal to the National Health Insurance in South Africa

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Submitted in fulfilment of the requirements for the degree of Master of Pharmacy, in the Discipline of Pharmaceutical Sciences, School of Health Sciences, University of KwaZulu-Natal.

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PREFACE

The National Health Insurance programme is set to transform the South African healthcare environment. The white paper was released on 10 December 2015 with the vision of achieving universal health coverage for the South African population. This study was conducted to establish the knowledge, prevailing attitudes and perceptions of community pharmacists practising in the province of KwaZulu-Natal, South Africa, in an attempt to investigate their readiness towards the NHI programme to ensure its successful implementation in the community pharmacy sector.

DECLARATION

I, Mrs Yanasundri Govender, declare that:

1) The work described in this thesis has not been submitted to UKZN or any other tertiary institution for the purposes of obtaining an academic qualification, whether by myself or any other party.
2) My contribution to the project was as follows:
   With the help of my supervisor, I decided on the topic, developed the protocol and submitted the ethics application. With the guidance and support of my supervisor, I constructed the survey questionnaire, conducted the survey and captured the data by myself. With the assistance of the statistician and my supervisor, I completed the analysis of the data. The research report is my original work unless otherwise indicated.
3) With the guidance of my supervisor I constructed the article and submitted it to the journal. I completed the dissertation with the guidance and support of my supervisor.
4) This dissertation does not contain any other person's data, tables or graphs unless otherwise acknowledged as such.

Signed: _____ Date: 28 November 2016

Name: Mrs Y. Govender

Name of Supervisor:

Dr P. Naidoo

DEDICATION

This work is dedicated to my dad, husband, daughter and my late mum……..

In appreciation of their patience, support and motivation.

ACKNOWLEDGEMENTS

This study would not have been possible without the valuable contribution of the following people:

Dr P. Naidoo: For her continuous support and guidance and the opportunity to learn from her vast experience and expertise.

Cathy Connolly: For her valuable assistance with the statistics and data analysis

Deon Naidoo: For his assistance with conducting the surveys

Kogi Govindsamy: For her assistance with the construction of graphs and tables

All the community pharmacists that participated in this study

Thank you for your dedication and commitment.

&

College of Health Science: For funding this study

LIST OF ACRONYMS

AIDS: Acquired Immune Deficiency Syndrome

DOH: Department of Health

FIP: International Pharmaceutical Federation

FFS: Fee for Service

HIV: Human Immunodeficiency Virus

ICPA: Independent Community Pharmacists' Association

IT: Information Technology

NHI: National Health Insurance

NHS: National Health Service

PSSA: Pharmaceutical Society of South Africa

TB: Tuberculosis

UK: United Kingdom

UKZN: University of KwaZulu-Natal

USA: United States of America

WHO: World Health Organisation

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ABSTRACT

Background

Changes in the South African healthcare environment are well under way in preparation for the proposed National Health Insurance (NHI) scheme. The successful implementation of the NHI will result in universal health coverage for the population and requires collaboration of all healthcare providers, including private sector community pharmacists.

Objectives

To determine the knowledge, attitudes, perceptions and readiness of community pharmacists practising in the province of KwaZulu-Natal, towards the proposed National Health Insurance programme in South Africa.

Methods

A descriptive cross sectional study was conducted by the administration of closed-ended anonymous questionnaires to 310 community pharmacists practising in the province of KwaZulu-Natal. Data were analysed using Stata version13.1.

Results

The majority were male participants with more than 50% in the age range of 30 to 50 years, having more than 16 years of experience. Whilst 94,08% of respondents were aware of the NHI more than 41% of respondents indicated poor or no knowledge of the NHI, with 64,47% not aware of the health minister's 10-point plan of action to implement the NHI programme. Television, radio, websites and newspapers in order of preference were found to be the most effective means of communication to disseminate information regarding the NHI. The general attitude of respondents towards the NHI was positive and they perceived its expected transitions as favourable but cited that the shortage of drugs, overcrowding and improving the quality of healthcare as major challenges that could be encountered. Over 76% of the respondents indicated that they possessed the required skills to engage in the NHI programme and almost 70% indicated that they were ready for the NHI with regards to IT support but limited human resources, inadequate infrastructure and the lack of waiting room space may pose barriers to their readiness.

Conclusions and Recommendations:

Although awareness of the NHI among community pharmacists is high, educational efforts need to be exerted to increase the knowledge and understanding of the proposed NHI programme in order to ensure successful implementation in the pharmacy sector. Pharmacists displayed a positive attitude towards NHI and believe that they are ready for the NHI with regards to skills and IT support but the necessary infrastructure, human resources and waiting room space is lacking.

CHAPTER 1

1.1 Introduction

1.1.1 Background and Context of the study

The dual healthcare system that currently prevails in South Africa is often described as two-tiered as it consists of a public sector and a private sector. The public sector services a greater percentage of the population (84%) and the private sector services 16% of South Africa's population of 48.9 million.[1,2] The public sector is evidently strained, lacks financial and human resources and buckles under the "quadruple burden of disease" which has been identified as:

1. HIV/AIDS and TB
2. Maternal and child Mortality
3. Non-communicable diseases
4. Violence and Injuries.[3]

The private sector health cover is provided by medical aid schemes that services those citizens that are employed and are able to contribute towards a medical aid or make out-of-pocket payments.[3]The private sector is said to be unsustainable, very costly and highly curative.[3]This dual healthcare system that services people based on their ability to pay is in direct contrast with the universally acceptable principle of social solidarity and equity as promoted by the World Health Organisation(WHO).[3]Every citizen should have access to appropriate, efficient and quality health services regardless of their socio-economic status.[3]

On 12 August 2011 the department of health launched the Green Paper on the National Health Insurance that will be rolled out in South Africa over a period of 14 years. The successful implementation will ensure universal coverage for all South Africans, minimizing out-of-pocket payment. The Green Paper sets out a 10-point plan that requires a total overhaul of the existing healthcare system, to strengthen management systems and completely transform healthcare delivery and revitalize infrastructure.[3]It also stresses the dire need for increased human resources and will focus on preventative health at the primary health care level.

The first five-year phase of the NHI will focus on strengthening of the healthcare system and creating pilot sites. In 2012 eleven districts were chosen for piloting the NHI. (Table 1)

Table 1: NHI Pilot Districts[4]

DISTRICT	POPULATION	PROVINCE
1. OR TAMBO	1 754 499	EASTERN CAPE
2.THABO MOFUTSANYANE	771 610	FREE STATE
3. CITY OF TSHWANE	2 520 435	GAUTENG
4. AMAJUBA	517 279	KWA-ZULU-NATAL
5. UMGUNGUNDLOVU	1 071 606	KWA-ZULU-NATAL
6. UMZINYATHI	517 806	KWA-ZULU-NATAL
7. VHEMBA	1 312 197	LIMPOPO
8. GERT SIBANDE	846 719	MPUMALANGA
9. PIXLEY KA SEME	192 572	NORTHERN CAPE
10.DR KENNETH KAUNDA	905 675	NORTH WEST
11.EDEN	567 993	WESTERN CAPE

It is evident that the community pharmacist possesses the skills necessary to contribute extensively to the objectives of the NHI. [5,6,7] Private community pharmacies possess a vital characteristic of being accessible to the community. Consequently, they are very often the first point of contact for people that require medical attention and advice. Thus, the community pharmacist is in the ideal position to be utilized as a provider of a defined package of primary health care services.[6]In our changing healthcare environment, this requires a role expansion of the pharmacist as a primary health care provider.[7] Most community pharmacies already deliver primary health care services and screening for non-communicable diseases e.g. diabetes and hypertension. In addition, the following services are also offered:

1. Chronic disease management
2. Health education and promotion
3. Maternal and child care/immunizations
4. Some corporate pharmacies are in partnership with the provincial health department to provide free family planning and childhood vaccination services.[6,7]

The National Department of Health (NDoH) has embarked on a programme that is aimed at improving access to chronic medication and relieving the burden at public healthcare facilities.[7a] There are two components to this initiative. The Central Chronic Medicine Dispensing and Distribution (CCMDD) programme involves the dispensing of each patient's chronic medication from a central point and distribution to a service delivery point. The second component is the Pick up

Points (PUP), which involves the collection of pre-dispensed medication by patients from Pick up Points like private pharmacies.[7a] These programmes that aim to establish strategic public-private partnerships, are initiated in preparation for the NHI.

In South Africa, two thirds of all registered pharmacies are private community pharmacies. The balance of one third makes up private institutional, manufacturing, wholesale and consultant pharmacies.[6] Therefore, to engage with pharmacies in the private sector would increase points of access of primary health care for the population. It has been statistically proven that contracting with private facilities would result in greater equity in facility distribution between rural and urban provinces.[6]It will also impact on early diagnosis and prevention of illness and diseases and will assist in relieving pressure on the overloaded public sector facilities.[5]

The green paper proposed that a District Health Authority (DHA) be established which will be responsible for contracting of the NHI with accredited providers.[8]The mechanism for re-imbursement must be determined. Whether the re-imbursement model will be based on a risk-adjusted capitation system or a fee for service mechanism is yet to be determined. In a risk adjusted capitation model of payment, a set amount is paid to the healthcare provider for each patient assigned to them, for a period of time, irrespective of whether the patient seeks treatment or not. The fee for service model pays a fee to the healthcare provider for each service rendered. There are numerous factors that must be taken into account when exploring the payment mechanisms. The NHI experience in other countries has shown that the methods of re-imbursement to medical service providers influence the volume and price of services delivered. Here, bundled capitation payments instead of fee for services provided by primary health care providers will contain costs more effectively.[9]

The community pharmacist has a pivotal role to play in the transition of South Africa's health environment into a high quality affordable and accessible health system that maintains equity.[5]The knowledge and awareness of the community pharmacist to the NHI will shape their attitudes and perceptions that they will adopt to this transition. Therefore, understanding and analysing these elements will enable effective implementation of policies and provide insight as to how a successful integration between government and community pharmacies can be attained.

1.2. Research Question

What is the knowledge and awareness of the National Health Insurance by community pharmacists and how does their level of understanding about this issue shape the attitudes and perceptions adopted by them? Consequently, are community pharmacists ready for the implementation of the National Health Insurance? What methods of reimbursement are preferred by community pharmacists for services provided under the NHI?

1.2.1 Aims and Objectives

Aim

To explore and assess the knowledge, attitudes, perceptions and readiness of the private sector community pharmacists in the province of KwaZulu-Natal to the National Health Insurance in South Africa

Objectives

1) To ascertain the demographic profile of the community pharmacists practising in the province of KwaZulu-Natal

2) To assess the knowledge and awareness of the community pharmacists in KwaZulu-Natal to the National Health Insurance Programme

3) To explore the attitudes and perceptions of the community pharmacists in KwaZulu-Natal to the National Health Insurance Programme

4) To assess the readiness of the community pharmacists in KwaZulu-Natal to the implementation of the National Health Insurance

5) To determine the preferred methods of reimbursement of the community pharmacists in KwaZulu-Natal for services rendered to patients

6) To disseminate the findings via publications in peer reviewed journals

1.3 Literature Review

The National Health Insurance is one of four basic models of health care systems that some countries throughout the world have adopted. In 2009, T.R. Reid, an American author and well-known journalist, identified four basic models of healthcare systems as follows:[10,10a,10b]

1. The Beveridge Model:[10,10a,10b]

   In this model healthcare is provided and financed by the government through tax contributions. Most of the hospitals and clinics are owned by the government. There are a few private doctors but the government controls what they do and how much they charge. This model describes the British National Health Services (NHS), the first country to offer free medical care to the entire population in1948. Other countries that use this model or variations thereof are Spain, Scandinavia (Norway, Denmark, Sweden), New Zealand, Hong Kong, Cuba and Italy.

2. The Bismarck Model: [10,10a,10b]

   This model uses insurance systems called “sickness funds”. It is jointly financed by employers and employees through payroll deductions. The insurance system has to cover everybody and does not make a profit. Doctors and hospitals are mostly private in these countries. This multi-payer model is tightly controlled by the government with regards to cost and regulations. Countries that follow this model are Germany (its place of origin), France, Belgium, Netherlands, Japan and Switzerland.

3. The National Health Insurance Model:[10,10a,10b]

   This system has elements of both the Beveridge and Bismarck models. Public and private sector providers are used and are reimbursed by a government run insurance fund that every citizen pays into. This model limits medical services that are covered in order to control costs and patients also have to wait to be treated. Canada is a classic example of this model. Canada has achieved comprehensive, universal coverage for all health services. All citizens have reasonable access to health services that are publically administered. Other countries that follow this model are China, Taiwan, South Korea and Ghana.

4. The Out of Pocket Model:

   Only 40 of the approximately 200 countries throughout the world have established health care systems.[10]The rest are too disorganized or poor to form any sort of health system. The citizens have to pay their medical bills out of their pocket at the time of treatment. This model follows a market driven process of health care delivery. The countries that lack a health system include rural India, Cambodia and Burkina Faso. The USA has a combination of all four models and is the only developed country where healthcare has to be purchased as a market commodity and citizens do not have access to basic health care as a fundamental right.

Each country will adopt it own health care system that has been moulded by its own unique history, societal expectations, culture and economy.[12]The National Health Insurance model has been chosen for South Africa as it best suits the country's needs.

The South African history has its roots deeply embedded in racial and gender discrimination.[12]Oppression of the non-white population groups led to gross inequalities in favour of the white minority. The political, economic and social inequalities had a profound effect on the health of the Black population.[12]In the 20th century and the latter part of the 19th century, poor wages, overcrowding, lack of sanitation, malnutrition, extreme poverty and stress led to poor health conditions of the Black population, which, in turn, increased poverty related diseases.

In the 20thcentury the accelerated growth of the mining industry transformed the economy from agricultural to industrial. Male labourers migrated to urban areas leaving behind the women, children and elderly. Consequently, the rural black population became poverty-stricken. Racial segregation and lack of housing for the urban black labourers created overcrowding and ideal conditions for tuberculosis to thrive and spread.[12] Hence, the apartheid era left behind a worsening burden of disease and a gradient of inequalities.

Despite the democratic constitution's vision of the population's right to health, after the Apartheid system in South Africa ended in 1994, inequalities in health persist. Infant mortality rates recorded in

2005 varied from 18/1000 live births among the white population to 74/1000 among the black population. There was an increase in total maternal mortality from150/100 000 pregnancies in 1998 to 650/100 000 in 2007.[2]In addition, 17% of the world's total AIDS population comes from South Africa. In KwaZulu-Natal, the prevalence of HIV infection among the population over nineteen years of age, is 38,7%.[2]

Contributing further to these disparities within the South African population, are dramatic inequalities in wealth and income. The national Gini coefficient, that measures the extent of inequality of income distribution among households within a country, is the second highest in the world.[13]

In an attempt to reform the healthcare industry in the United States of America (USA), the Affordable Care Act (also called ObamaCare) was introduced in 2010.[13a] This health care reform focused on the provision of affordable, quality healthcare to curb existing disparities that prevailed in the USA. The Obama Health Care Reform Bill has expanded medical insurance to provide affordable insurance to low-to-middle income Americans.[13a] As the Affordable Care act in the USA improved access to affordable, better quality healthcare to millions of previously disadvantaged Americans, the introduction of the NHI in South Africa attempts to address similar disparities.

The political and socio-economic disparities in South Africa led to the creation of the two-tiered healthcare system that presently exists.[14]The poor, who largely earn an income by informal means, and are living in rural areas, continue having limited access to healthcare while the financially stable who are employed in the formal market sector in the urban areas have greater access to high quality healthcare based on their ability to pay.[14]If successfully implemented, the National Health Insurance (NHI) will provide universal coverage of high quality healthcare to every South African citizen and achieve social solidarity. It may be the solution to South Africa's fragmented, disproportionate healthcare delivery.[2]

Successful implementation requires various stakeholders' participation such as doctors, pharmacists and other healthcare professionals in the private healthcare sector, who play an important role in the delivery of healthcare. The proposed National Health Insurance system will involve the integration and co-existence of various stakeholders to ensure its survival and consequently its success. Therefore, the views and perceptions of the different stakeholders, which include the general public and the private healthcare industry, need to be obtained.

A national study performed by the Health Economics unit at the University of Cape Town determined the attitudes of the general public to the concept of the National Health Insurance and their readiness towards the change in the health system that is forthcoming.[15]The outcome of this survey was that the general public does not have a positive perception of the current health services that they encounter and they are ready and accepting of the changes that are envisaged. They also indicated concerns

about the private sector and that they would consider alternatives to the current medical aid system. The study concluded that public acceptance of the NHI depended largely on their knowledge about it. Consequently, it was suggested that there is a need to educate the public about the rationale behind the development of the NHI and the fundamental principles behind the universal pre-payment system.[15]This study found that certain important prerequisites for the NHI were not acknowledged. Among other factors, mention was made of the need to construct effective contracting arrangements with public and private providers and effective management of the phasing in process of the transformation to ensure successful implementation of the NHI.[15]

Another study surveyed the knowledge, perceptions and readiness of private sector doctors to the implementation of the NHI.[16] No study surveyed the knowledge, attitudes, perceptions and readiness of community pharmacists to the implementation of the NHI in the eThekwini Metro of KwaZulu-Natal. Understanding and analysing these elements will enlighten policy makers on how to structure the integration of the NHI programme with the private sector community pharmacies in a way that would encourage a positive response from pharmacists and ensure its success in the pharmacy sector. Ultimately, this will contribute to attaining the goals of universal coverage and equity in healthcare delivery for every South African citizen regardless of their socio-economic status.

1.4 Methodology

1.4.1 Study design and Setting

A cross-sectional descriptive study was conducted amongst selected community pharmacists practising in the province of KwaZulu-Natal, which is the third smallest of South Africa's nine provinces. It is home to 10,3 million people, making it the province with the second largest population in South Africa.[16a]

1.4.2 Sample selection

A list of all 497 community pharmacies situated in the province of KwaZulu-Natal was obtained from the South African Pharmacy Council and utilised for the sample selection. An acceptable sample size was determined to be 217, using an applicable grid provided by the statistician. The desired confidence level was 95%. To accommodate for a non-response rate of 30%, the number of participants was 310. The participants were randomly selected. The following inclusion and exclusion criteria were used to guide sample selection:

1.4.2.1 Inclusion Criteria

- Pharmacist must be practising in a community pharmacy.
- Pharmacies located in KwaZulu-Natal only will be surveyed.
- The pharmacist must consent to participation.

1.4.2.2 Exclusion Criteria

- All pharmacies located outside the study site.

- All pharmacists employed in public and private sector institutional facilities
- All pharmacists in academic institutions
- All pharmacists in wholesale and manufacturing sectors
- Refusal of community pharmacist to participate

1.4.3. Sampling Method

The participants were randomly selected from the sampling frame of 497 pharmacists.

1.4.4 Instrument

The survey instrument was a closed-ended anonymous coded questionnaire. A questionnaire was chosen as the survey instrument as it has the following advantages:

- It is practical
- It allows for large amounts of data to be collected from a large population over a short period of time
- It is cost effective
- The researcher or anybody else can conduct the survey with minimum effect on validity and reliability
- It allows for quick and easy analysis by use of a software package
- Analysis can be scientifically and objectively carried out compared to other forms of research
- Results may be used to compare and contrast against other research and change may be measured.
- Quantitative data may be used to generate new theories

The questionnaire contained closed-ended questions to which appropriate response choices were provided and the respondent was requested to select an answer.

The instrument was categorised according to the following themes:

- Demographic profile
- Patient information
- Knowledge and awareness of the pharmacist to the NHI
- Attitudes and perceptions of the pharmacist of the NHI
- Readiness of the community pharmacists towards the NHI
- Preferred remuneration models

When addressing the theme of attitudes and perceptions on the questionnaire, participants were asked to choose a position on a response scale. To avoid or minimise agreement bias both positive and negative questions were equally framed ensuring that the respondents will evaluate each question rather than just choosing to agree or disagree to all of the options provided.

In developing the questionnaire, reliability and validity was taken into consideration. Reliability, which is an indicator of internal consistency, was measured by calculating Cronbach's co-efficient

alpha during data analysis. This value gave an indication of how well the different items on a scale measure the same variable. The desired alpha value ranges between 0,7 and 0,9. This ensured that the process of measurement is consistent and reproducible. Equally important in assessing quality of the survey instrument is validity. Content validity was used to determine whether the questions addressed the topic adequately. The survey instrument was pretested by conducting a pilot study amongst five community pharmacists who were not participants in the study. The pilot study was used to determine the time it will take to complete the questionnaire, assess clarity of the questions, clear ambiguities and other potential problems with the questionnaire. The questionnaire was thereafter amended accordingly.

1.4.5 Administration of questionnaire and data collection process

The first step in administering the questionnaire was to seek informed consent from the potential participant. A detailed information sheet containing all the specified requirements was thereafter handed to the pharmacist. Participants were requested to sign a consent form after they agreed to participate. The questionnaire was then either emailed, faxed or hand delivered depending on the method preferred by the pharmacist. The pharmacists were given 2 weeks to complete the questionnaire. Thereafter, the researcher contacted the pharmacist to collect the completed questionnaire. A further week was allowed if questionnaires were not completed.

1.4.6 Data Capture and Analysis

Every returned survey was given an identification number which linked the document to the database entry. The questionnaire was assessed for completeness. Thereafter, responses were coded and the data were captured. The columns represented the different variables and the rows represented the different respondents. After entering 10% of the data, entries were assessed for accuracy. After capturing all data onto the database, data were cleaned and edited. Frequency tables were generated for each variable and the rare encounter of inappropriate or missing responses were identified and handled in an appropriate manner. Since few missing responses were encountered, these responses were utilised in the survey, indicating the missing responses as such during data capturing. Data were analysed using Stata version 13.1.

Data were summarised and organised so that they could be described and analysed easily. Variables were compared and relationships or differences between variables were identified. The results for the different variables in the data set were tabulated to produce a frequency distribution. The tabular representation of data helped to determine the spread of responses received the quantity in each category and if data were entered correctly.

Descriptive statistical techniques were applied to certain variables thereafter. The following statistical measurements were calculated where applicable:

- Mean: Average of scores for a variable
- Mode: The most frequently occurring value for a variable
- Median: The numerical midpoint score between the lowest and highest value
- Range: Span of values over which the data set occurs
- Standard Deviation: On average, how much each measurement deviates from the mean.

The results were then presented using visual aids like tables, pie graphs and bar graphs. Further exploration was done by disaggregating the data across the different variables. This allowed for an in-depth analysis of the sub-categories of the variables.

Correlation statistics were also determined. These are measures of relationships between variables. Correlation however, will not explain causation. Analysis of variance (ANOVA), was used to determine if differences in the mean value between two variables were statistically significant. Regression analysis was used to determine if one variable was a statistically significant predictor of another variable.

Inferential statistics were used to compare groups and to make inferences from the sample to the population. Statistical significance was measured by calculating the p-value. Differences were considered statistically significant if the p value was $< 0,05$ with a corresponding confidence interval of 95%. The outcomes of the research were linked to the objectives.

1.4.7 Ethical Considerations

Ethical approval for this study was obtained from the UKZN Biomedical Research Ethics Committee with approval number BE 318/15. Hard copies of the completed questionnaires were stored in a locked cupboard after completion of data capture. The key will be in the possession of the researcher at all times. Data were captured onto a computer that was password protected. Confidentiality of data was maintained at all times and only the researcher had access to the information. Respondents always remained anonymous. All data will be stored for a period of five years after which, all hard copies of questionnaires and all other documents will be destroyed by shredding and all data entered onto the computer will be deleted.

1.4.8 Dissertation Structure

The layout of this dissertation is as follows:

Chapter One:

The first chapter describes the background and context of the study and the development of the research question. Reference is made to other relevant published studies to explain the rationale behind conducting the study and introduction to the topic. The aims and objectives are presented in this chapter followed by a detailed description of the methodology employed.

Chapter Two

Presentation of manuscript entitled: "Knowledge, Attitudes, Perceptions and Readiness of Community Pharmacists to the National Health Insurance in South Africa", submitted to South African Medical Journal (SAMJ), which is currently under review.

Chapter Three:

This chapter contains the synthesis and discussion of the findings of the study in relation to other published studies. Limitations of the study are presented and recommendations for further studies are suggested followed by the conclusion.

South African Medical Journal

Knowledge, Attitudes, Perceptions and Readiness of Community Pharmacists to the National Health Insurance in South Africa

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Abstract:	Background Changes in the South African healthcare environment are well under way in preparation for the proposed National Health Insurance (NHI) scheme. The successful implementation of the NHI will result in universal health coverage for the population and requires collaboration of all healthcare providers, including private sector community pharmacists. Objectives To determine the knowledge, attitudes, perceptions and readiness of community pharmacists towards the proposed National Health Insurance programme in South Africa. Methods A descriptive cross sectional study was conducted by the administration of close ended anonymous questionnaires to 310 community pharmacists practising in the province of KwaZulu-Natal. Data was analysed using Stata version13.1. Results The majority were male participants with more than 50% in the age range of 30 to 50 years, having more than 16 years of experience. Whilst 94,08% of respondents were aware of the NHI more than 41% of respondents indicated poor or no knowledge of the NHI, with 64,47% not aware of the health minister's 10 point plan of action to implement the NHI programme. Television, radio, websites and newspapers in order of preference were found to be the most effective means of communication to disseminate information regarding the NHI.The general attitude of respondents towards the NHI was positive and they perceived its expected transitions as favourable but cited that the shortage of drugs, overcrowding and improving the quality of healthcare as major challenges that could be encountered. Over 76% of the respondents indicated that they possessed the required skills to engage in the NHI programme and almost 70% indicated that they were ready for the NHI with regards to IT support but limited human resources, inadequate infrastructure and the lack of waiting room space may pose barriers to their readiness. Conclusions and Recommendations: Although awareness of the NHI among community pharmacists is high, educational efforts need to be exerted to increase the knowledge and understanding of the proposed NHI programme in order to ensure successful implementation in the pharmacy sector. Pharmacists displayed a positive attitude towards NHI and believe that they are ready for the NHI with regards to skills and IT support but the necessary infrastructure, human resources and waiting room space is lacking.

Knowledge, Attitudes, Perceptions and Readiness of Community Pharmacists practising in the Province of KwaZulu-Natal to the National Health Insurance in South Africa.

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ABSTRACT

Background

Changes in the South African healthcare environment are well under way in preparation for the proposed National Health Insurance (NHI) scheme. The successful implementation of the NHI will result in universal health coverage for the population and requires collaboration of all healthcare providers, including private sector community pharmacists.

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A descriptive cross sectional study was conducted by the administration of closed-ended anonymous questionnaires to 310 community pharmacists practising in the province of KwaZulu-Natal. Data were analysed using Stata version13.1.

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Keywords: Awareness, knowledge, attitudes, perceptions, community pharmacists, National Health Insurance, South Africa.

INTRODUCTION

The South African health system is often described as two-tiered as it consists of a public sector and a private sector that co-exist in the healthcare environment. A greater percentage of the population (84%) rely on the public sector for its health requirements whilst the private sector services 16% of South Africa's population of 48.9 million. [1,2] The 8,3% of South Africa's GDP that is spent on the health sector exceeds the 5% recommended by the World Health Organisation(WHO).[1,3]Although health expenditure is higher than other comparable middle-income countries, health outcomes remain poor[3]

The public sector is evidently strained, lacks financial and human resources and buckles under the 'quadruple burden of disease' which has been identified as HIV/AIDS and TB, maternal and child mortality, non-communicable diseases and violence/injuries.[1,3,4]The quality of healthcare in many of the public hospitals are in a critical state due to deteriorating infrastructure, underfunding, mismanagement and neglect.[5] The private sector health cover is provided by medical aid schemes that services those citizens that are employed and are able to contribute towards a medical aid and/or make out-of-pocket payments.[1]Health costs in the private sector have spiralled out of control and the private sector is regarded as being unsustainable in the future.[4]This dual healthcare system that services people based on their ability to pay is in direct contrast with the universally acceptable principle of social solidarity and equity as promoted by the World Health Organisation[1]

On 12 August 2011 the department of health launched the Green Paper on the National Health Insurance that will be rolled out in South Africa over a period of 14 years. The White paper followed 4 years later being released in December 2015.The successful implementation of the NHI will ensure universal health coverage for all South Africans, minimizing out-of-pocket payments. It is envisaged that the NHI will eliminate the gradient of inequalities that currently exists between the public and private healthcare sectors. The Green Paper sets out a 10-point plan that requires a total overhaul of the existing healthcare system, to strengthen management systems and completely transform healthcare delivery and revitalize infrastructure.[1]It also stresses the dire need for increased human resources and will focus on preventative health at the primary health care level.

With regards to the private sector, it is evident that the community pharmacist possesses the skills necessary to contribute extensively to the objectives of the NHI.[7,8,9]Engaging with pharmacies in the private sector would increase points of access of primary health care for the population. Consequently, contracting with private facilities would result in greater equity in facility distribution between rural and urban provinces.[8] It will also impact on early diagnosis and prevention of illness and diseases and will assist in relieving pressure on the overloaded public sector facilities.[9]Successful implementation requires various stakeholders' participation such as doctors, pharmacists and other health professionals who play an important role in the delivery of healthcare in the private sector. The proposed National Health Insurance system will involve the integration and collaboration among various stakeholders to ensure its survival and pathway to success. Therefore, the views and perceptions of the different stakeholders, which include the general public and the private healthcare industry, need to be obtained.

The community pharmacist has a pivotal role to play in the transition of South Africa's health environment into a high quality, affordable and accessible health system with the aim of achieving equity. [7] The knowledge and awareness of the community pharmacist to the NHI will shape their attitudes and perceptions that they will adopt towards this transition. Therefore, understanding and analysing these elements will enable effective implementation of policies and provide insight as to how successful integration between government and community pharmacies can be attained. With this aim a research study was conducted titled: "The Knowledge, Attitudes, Perceptions and Readiness of Community Pharmacists practising in the province of KwaZulu-Natal to the National Health Insurance in South Africa."

METHODOLOGY

Study design and setting

A cross-sectional descriptive study was conducted amongst selected community pharmacists practicing in the province of KwaZulu-Natal.

Sample selection and sampling method

A list of all 497 community pharmacies situated in the province was obtained from the SA Pharmacy Council and utilised for the sample selection. An acceptable sample size was determined to be 217 using an applicable grid provided by the statistician. The desired confidence level was 95%. To accommodate a non-response rate of 30% the number of questionnaires distributed was 310 which was randomly selected.
The following exclusion criteria were applicable:
All pharmacies located outside the study site.
All pharmacists employed in public and private sector institutional facilities
All pharmacists in academic institutions
All pharmacists in wholesale and manufacturing sectors
Refusal of community pharmacist to participate

Instrument:

The survey instrument was a closed-ended anonymous coded questionnaire. The instrument was categorised with the following variables.
Demographic profile of patients
Patient information
Knowledge and awareness of the pharmacist to the NHI
Attitudes and perceptions of the pharmacist of the NHI
Readiness of the community pharmacists towards the NHI
Preferred remuneration models
A p value $< 0,05$ was considered to be statistically significant. Content validity was used to determine whether the questions addressed the topic adequately.

Administration of questionnaire and data collection process:

The questionnaire was either emailed, faxed or hand delivered depending on the method preferred by the pharmacist after obtaining their consent. The pharmacists were given 2 weeks to complete the questionnaire after which, the pharmacists were contacted to check if the questionnaires were completed for collection. A further week was allowed if questionnaires were not completed.

Data capture and analysis

The responses were coded and the data were captured. After capturing all data onto the database, data was cleaned and edited. Frequency tables were generated for each variable and inappropriate responses were identified. Data were analysed using Stata version 13.1.
The results were presented using visual aids like tables and bar graphs. Regression analysis was used to determine if one variable is a statistically significant predictor of another variable.

Inferential statistics were used to compare groups and to make inferences from the sample to the population. Statistical significance was measured by calculating the p-value. Differences were considered statistically significant if the p value was < 0,05 with a corresponding confidence interval of 95%. Inferential analysis of parameters was used to make inferences about the population and correlations between variables were analysed. The outcomes of the research were then linked to the objectives. Confidentiality of data was maintained at all times and only the researcher had access to the information. Respondents remained anonymous at all times.

Ethical Considerations

Ethical approval was obtained from the UKZN Biomedical Research Ethics Committee with approval number BE 318/15.

RESULTS

152 pharmacists returned completed questionnaires giving a response rate of 49%.

Demographics of respondents

Almost 60% of respondents were males. More than 50% of respondents were between the ages of 30 and 50 years old. More than half the respondents had more than 16 years of experience in pharmacy. There were more independently owned pharmacies than corporate owned pharmacies.

Table 2: Knowledge of the Community Pharmacists to the NHI.

CATEGORY		N (%)
KNOWLEDGE OF GOVERNMENT'S 10 POINT PLAN	Yes	54(35.5)
	No	98(64.5)
RESPONDENT'S SELF-RATING OF NHI KNOWLEDGE	Excellent	4(2.6)
	Very Good	8(5.3)
	Good	28(18.4)
	Satisfactory	49(32.2)
	Poor	58(38.2)
	No Knowledge	5 (3.3)

Eighty-nine respondents rated their knowledge on the NHI between satisfactory and excellent with just over a third of pharmacists being aware of government's 10-point plan of action to implement the NHI in South Africa.

Respondents preferred the television, newspapers, websites and the radio as communication media that should be utilised to increase pharmacists' knowledge of the NHI.

Awareness of the community pharmacists of the NHI

94,08 % of respondents were aware of the NHI programme.

Table 3: Attitudes of the Community Pharmacists towards the NHI.

CATEGORY		N (%)
SUPPORT OF UNIVERSAL HEALTH COVERAGE	Yes	120 (79.0)
	No	21 (13.8)
	No Knowledge	11(7.2)
SUPPORT OF INFORMATION CAMPAIGNS	Yes	138 (90.8)
	No	14 (9.2)
SUPPORT OF HEALTH CARE TRANSFORMATION VIA NHI	Yes	96 (63.2)
	No	18 (11.8)
	No Knowledge	38 (25)
COMMUNITY PHARMACY PARTICIPATION CRUCIAL FOR NHI SUCCESS	Yes	146 (96)
	No	6 (4)

The general attitude of the community pharmacists towards the NHI was positive. Over 50% of respondents felt that the quality of healthcare will improve under the NHI and that it would achieve equity in healthcare, eliminating barriers and inequalities. Close to 70% of respondents felt that successful implementation of the NHI will increase life expectancy in South Africa and will ensure a healthier workforce and consequently result in improved employment and economic growth.

Table 4: Perceptions of the Community Pharmacists towards the NHI.

FACTORS TO BE CONSIDERED IN THE IMPLEMENTATION OF THE NHI	Agree N (%)	Neutral N (%)	Disagree N (%)
1. Government-Private community pharmacy partnership would be mutually beneficial.	116(76.3)	24(15.8)	12(7.9)
2. There are adequate private pharmacies to handle the patient load of the NHI.	77(50.6)	34(22.4)	41(27.0)
3. Private community pharmacies are ready for the NHI.	58(38.1)	39(25.7)	55(36.2)
4. The NHI will increase the population's access to healthcare.	117(77.0)	24(15.8)	11(7.2)

Over 76% of respondents indicated that a partnership between government and private community pharmacies will be mutually beneficial, with 77% of respondents stating that the NHI will improve the population's access to healthcare. Respondents indicated that the shortage of skilled healthcare workers posed the greatest challenge to the implementation of the NHI (82,9%). Shortage of drugs, overcrowding and improving the quality of healthcare were perceived as major challenges that would be encountered.

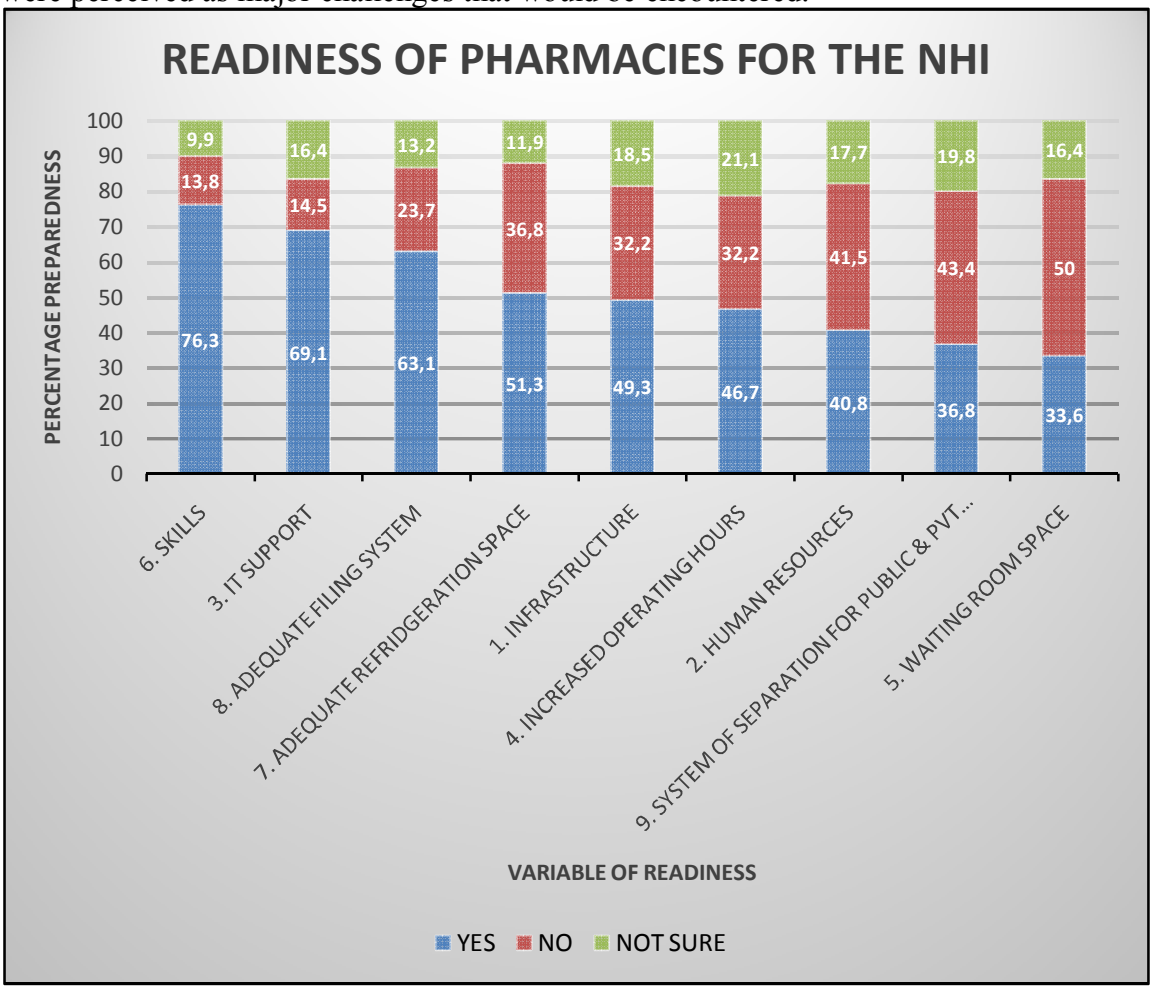

Figure 1: Readiness of the Community Pharmacies for the NHI.

Over 60% indicated that they were ready for the NHI implementation in terms of their skills, IT support and filing system but 50% felt inadequate about waiting room space for patients on the NHI system.

In terms of IT support, there was a significant association between the number of years of existence of the pharmacy (p=0,04), years of experience of the pharmacists (p=0,008), category of pharmacy (p=0,008) and readiness towards the NHI programme.

Readiness in terms of IT support increases with years of existence up to 15 years after which it decreases. In terms of pharmacist's experience, the more experienced the pharmacist is, the greater is their readiness with regards to IT support up to 15 years, after which it decreases and increases again after 20 years of experience. The category of pharmacy that displayed the highest degree of readiness with respect to IT support was the independent pharmacies.

Statistically significant associations were found to exist between infrastructure,(p=0,04) adequate refrigeration space (p=0,005) and an effective method of separation of public and private patients (p=0,001) when correlated with category of pharmacy. Only the independently owned pharmacies were confident of readiness in terms of these aspects, as compared to ≤ 50% of the other sectors. It was found that all sectors indicated a lack of waiting room space and the independent pharmacies were the only sector where more than 40% indicated readiness in this area.

DISCUSSION

Less than 60% of the respondents rated their knowledge as satisfactory to excellent on the proposed NHI, whilst over a third rated it as poor with a small percentage stating no knowledge at all of the NHI. Further, just over a third of the respondents were knowledgeable about the Minister of Health's 10-point plan of action, which included the NHI. This is of concern as the respondents are cited to be playing a critical role in the NHI, and their practice would be affected directly with the introduction of the NHI in SA. [10] Further, the NHI white paper has been published widely yet there is little evidence about their commitment to the NHI as seen by over 40% of the respondents whose knowledge was very poor, although close to 95% of the respondents stated that they were aware of the NHI.

This finding is similar to a study done in Nigeria where it was found that one third of the community pharmacists had satisfactory knowledge on public health programmes. [11]The study gathered that although community pharmacists had a positive attitude towards public health programmes, their knowledge and involvement was poor. The results of this study reinforced the need for educational interventions aimed at community pharmacists with the intention of increasing their level of knowledge on public health issues. The PSSA(Pharmaceutical Society of South Africa) has the vision that community pharmacists will play an important role in the provision of primary health care and preventative healthcare in the NHI environment.[12]Improved knowledge of the NHI will elevate the level of participation by community pharmacists and consequently enhance its success. Therefore, government initiated educational interventions is essential to secure successful participation by community pharmacists.

This study revealed that community pharmacists in KwaZulu-Natal have generally adopted a positive attitude towards the proposed NHI programme. More than 75% of respondents support the concept of universal health coverage and also believe that the NHI will improve the population's access to healthcare. Consequently, it can be deduced that community pharmacists do possess the desire to improve equity in healthcare delivery to the population and this mirrors the key findings of an investigation conducted by the Pharmacy School at the University of Nottingham that explored pharmacists' perceptions about their contribution to improving public health.[13]In this study, Anderson et al. reported that pharmacists perceived the activities that improve the population's health to be of a high level of importance. It was concluded that the pharmacists' perceptions and attitudes influence their behaviour in conducting these activities. [13]

Valuable lessons can be learned from other countries that have successfully achieved universal health coverage. One such country is Turkey where a Health Transformation Programme was introduced in 2003 and universal health coverage was achieved in 10 years.[14]Numerous favourable factors were reported to have contributed to the creation of a

healthcare environment that facilitated the accelerated pace at which health reform was achieved. One of the major factors acknowledged was that Turkey's population showed positive acceptance of the health reform policies and the health professionals' foreseen resistance was thus appropriately managed. [14]Therefore policymakers need to involve the pharmacy sector (together with other stakeholders) in the implementation process of the NHI with the intention of creating an environment that makes the health sector receptive to the forthcoming transitions that is anticipated of the NHI. Meaningful collaboration with healthcare professionals including community pharmacists will achieve commitment and support from this sector.

Over 95% of respondents indicated that community pharmacists' participation is crucial for the success of the NHI. The envisaged role of the community pharmacists in the NHI programme is aptly outlined in a paper presented to the DOH by the Independent Community Pharmacist's Association (ICPA). [15] Community pharmacists state that they will play a vital role in public health education, primary health care and health promotion and prevention in addition to their traditional role as a pharmaceutical dispenser in the NHI environment. Many studies from different countries echo similar beliefs. [16]

Although more than 75% of respondents indicated that a partnership between government and private community pharmacists would be mutually beneficial, less than 40% do not believe that community pharmacists are ready for the NHI with regards to infrastructure, resources and time. This finding is consistent with a Canadian study that reported similar barriers to participation in public health services by community pharmacists. [17]Over 75% of community pharmacists indicated that they are ready for the NHI with regards to skills that they possess. This is similar to a study conducted in Jos, Nigeria where it was found that participants believed that they possessed adequate knowledge, skills and training to participate in the provision of public health promotion services. [18]Community pharmacists that participated in a Canadian study also believed that they possess adequate training and skills to engage in public primary health care programmes. [19]

Inadequate infrastructure, limited human resources and lack of waiting room space will be significant barriers to community pharmacists' participation in the NHI programme. These barriers are not unique to South Africa only. Other countries have also reported similar findings. [11,17] It was found that all categories of community pharmacies in KwaZulu-Natal were not ready for the NHI with regards to waiting room space. This can be expected because retail space in the private community pharmacies is costly. Consequently, most community pharmacies are generally not bigger than necessary to accommodate moderate private patient loads.

Considering the diminishing remuneration to community pharmacists from dispensing medicines, pharmacists must adopt a model that embraces a combination of dispensing and the provision of patient orientated pharmaceutical services that would increase remuneration. Pharmacists have voiced their opinion that they consider current remuneration as inadequate, when time spent on the provided services are considered. [20] Therefore, as the role of community pharmacists around the world is expanding and revenue from dispensing is rapidly diminishing, it is anticipated that patient-orientated services will play a significant role in community pharmacy models in the future. Pharmacists must consequently be adequately reimbursed for their time and expertise.

CONCLUSION AND RECOMMENDATIONS

Although awareness of the NHI among community pharmacists is high, educational efforts need to be exerted to increase the knowledge and understanding of the proposed NHI programme in order to ensure successful implementation in the pharmacy sector. Pharmacists displayed a positive attitude towards the NHI programme and believe that they are ready for the NHI with regards to skills and IT support, but the necessary infrastructure, human resources and waiting room space is lacking. The television, newspaper, websites and radio have been cited as preferred means of communications.

It is recommended that this study be extended to other healthcare providers and also be carried out in other provinces to enable a better understanding of the expected response of healthcare professionals to the NHI programme in order to facilitate successful implementation.

Limitations

The results of this study may not be applicable to all community pharmacists practicing in South Africa, since the sample size was relatively small and confined to the province of KwaZulu-Natal. In addition, this was a self-reported study, so the reliability of self-reporting is difficult to substantiate as information was collected and analysed based on what the participants reported. Finally, as a cross-sectional study, the direction of the association may not be causal.

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CHAPTER 3

3.1 Synthesis and Discussion

3.1.1 Demographics of the Community Pharmacists

In this study where 152 private sector community pharmacists responded, there were more male than female participants with about 53% having more than 16 years of experience in the field of pharmacy. Most of the participants were from independently owned pharmacies than from corporate pharmacies.

3.1.2 Knowledge and awareness of the community pharmacists to the NHI

Less than 60% of the respondents rated their knowledge as satisfactory to excellent on the proposed NHI, whilst over a third rated it as poor with a small percentage stating no knowledge at all of the NHI. Further, just over a third of the respondents were knowledgeable about the Minister of Health's 10-point plan of action, which included the NHI. This is of concern as the respondents are cited to be playing a critical role in the NHI, and their practice would be affected directly with the introduction of the NHI in SA.[17] Further, the NHI white paper has been published widely, yet there is little evidence about their commitment to the NHI as seen by over 40% of the respondents whose knowledge was very poor, although close to 95% of the respondents stated that they were aware of the NHI.

This finding is similar to a study done in Nigeria where it was found that one third of the community pharmacists had satisfactory knowledge on the public health programme (similar to the proposed NHI).[18] In this Nigerian study it was also found that qualification, years of practice and experience had no impact on the knowledge of community pharmacists, which was also demonstrated in this study. The study also found that although community pharmacists had a positive attitude towards public health programmes, their knowledge and involvement was poor. Hence it was stated in the study that the lack of knowledge on public health programme issues resulted in poor participation by community pharmacists.[18]The results of this study reinforced the need for educational interventions aimed at community pharmacists with the intention of increasing their level of knowledge on public health issues.

In South Africa, the success of the implementation of the NHI will depend on the effective integration of all healthcare sectors. Community pharmacists have a crucial role to play in transforming the prevailing healthcare structure. The PSSA (Pharmaceutical Society of South Africa) has the vision that community pharmacists will play an important role in the provision of primary health care and preventative healthcare in the NHI environment.[19]Improved knowledge of the NHI will elevate the level of participation by community pharmacists and consequently enhance its success. Therefore, government initiated educational interventions are essential to achieve participation by community pharmacists.

Almost 95% of respondents indicated awareness of the NHI. This result is slightly lower than a similar Nigerian study which revealed that 99% of respondents were aware of the NHIS and that participation by health professionals in the programme was 90%.[20] More than two thirds of respondents indicated that they were informed about the NHI scheme via the television and radio.[20] Hence the effectiveness of these media presentations is clearly established. This finding supports the respondents' choice of the television as the most preferred medium in this study to create awareness of the NHI.

In a similar study that explored public awareness and knowledge of the NHI in South Africa, Setswe et al. reported a lower level of awareness of the NHI at 80,3%.[21]It was also stated that 44,6% of respondents had poor knowledge of the NHI, which is similar to the findings of this study. Another study done in Uganda revealed that only 40,7% of respondents were aware of the Social Health Insurance scheme[21], which was considerably lower than the level of awareness of the NHI in this study.

3.1.3 Attitudes and perceptions of the community pharmacists towards the NHI

Community pharmacists have generally adopted a positive attitude towards the proposed NHI programme. This is clearly evident in the high percentage of affirmative responses to questions that support universal health coverage and the positive changes in the healthcare environment that the NHI is expected to nurture. More than 75% of respondents support the concept of universal health coverage .Consequently, it can be deduced that community pharmacists do possess the desire to improve equity in healthcare delivery to the population and this mirrors the key findings of an investigation conducted by the Pharmacy School at the University of Nottingham that explored pharmacists' perceptions about their contribution to improving public health.[22] In this study, Anderson et al. reported that pharmacists perceived the activities that improve the population's health to be of a high level of importance. It was concluded that the pharmacists' perceptions and attitudes influence their behaviour in conducting these activities.[22]

Valuable lessons can be learned from other countries that have successfully achieved universal health coverage. One such country is Turkey where a Health Transformation Programme was introduced in 2003 and universal health coverage was achieved in 10 years.[23]Numerous favourable factors were reported to have contributed to the creation of a healthcare environment that facilitated the accelerated pace at which health reform was achieved. One of the major factors acknowledged was that Turkey's population showed positive acceptance of the health reform policies and the health professionals' foreseen resistance was thus appropriately managed.[23]Therefore policymakers need to involve the pharmacy sector(together with other stakeholders) in the implementation process of the NHI with the intention of creating an environment that makes the health sector receptive to the forthcoming

transitions that is anticipated of the NHI. Meaningful collaboration with healthcare professionals including community pharmacists will achieve commitment and support from this sector

Community pharmacy in New Zealand is also being steered by policy changes in the health sector towards a transformation termed "re-professionalisation" of community pharmacy.[24]Community pharmacists in New Zealand have generally adopted a positive attitude towards new service approaches to healthcare that need collaboration. However, inadequate remuneration for enhanced services provided by community pharmacists in New Zealand remains an unresolved issue.[24]

Over 95% of respondents believe that community pharmacists' participation is crucial for the success of the NHI. The envisaged role of the community pharmacists in the NHI programme is aptly outlined in a paper presented to the DOH by the Independent Community Pharmacists' Association (ICPA).[25] Community pharmacists state that they will play a vital role in public health education, primary health care and health promotion and prevention in addition to their traditional role as a pharmaceutical dispenser in the NHI environment. Many studies from different countries echo similar beliefs. Research into health policies in various countries revealed that 79% of respondents in a survey undertaken in Scotland agreed that public health was seen as being highly important in their practice and 56% viewed themselves as "health practitioners".[26]A Nigerian study also reported that over 93% of respondents supported the involvement of pharmacists in public services that promote health.[26]Pharmacists in Sweden also embraced the community pharmacists' role as a health promoter.[26]However, another study done amongst pharmacists in Moldova showed that participants chose to adopt a completely different stance on this issue and did not welcome the transition in their role as health promoters. This was due to many barriers to the practice of public health that they encountered. The barriers encountered were limited private counselling areas, lack of availability of time, high demands by customers and lack of reimbursement for provision of services.[26]

Although more than 75% of respondents believe that a partnership between government and private community pharmacists would be mutually beneficial, less than 40% do not believe that community pharmacists are ready for the NHI with regards to infrastructure, resources, time and skills.

A study conducted in Canada which explored the perceptions of community pharmacists towards their ideal and actual participation in the provision of health promotion and prevention displayed similar results.[27]Majority of respondents in this study believed that community pharmacists should actively participate in public health promotion and prevention. However, participation of community pharmacists in the provision of these services was limited by barriers such as limited availability of time, ineffective collaboration with other healthcare professionals, lack of staff and other resources, inadequate reimbursement and lack of clinical tools.[27] Further, the study showed that community pharmacists accepted the change in their role as merely dispensers of medication to increased participation in public health services. It was suggested that further public health programmes utilise

the expertise of the community pharmacists and should be well integrated within the public health system in such a way that their contribution is optimised.[27] Similarly, the majority of community pharmacists that participated in this study perceive the NHI programme to be a favourable transition that will benefit from the active participation by community pharmacists who can contribute extensively to the objectives of the NHI if the envisaged barriers can be successfully eliminated.

Respondents perceived the greatest challenges in implementing the NHI to be the shortage of skilled healthcare workers, shortage of drugs, difficulty in elevating the quality of healthcare by the underperforming public sector and overcrowding at hospitals due to the worsening burden of disease. However, only a quarter of respondents felt that the NHI will result in the flight of pharmacists out of the country. This perspective can be linked to the fact that over 80% of respondents believe that the quality of healthcare will increase in the NHI environment and over two thirds believe that life expectancy will increase and the creation of a healthier workforce will favour economic growth in South Africa. It is therefore evident that community pharmacists perceive this health reform in a favourable light as they believe that it will steer the country towards universal health coverage and result in improved quality of life for the South African population.

3.1.4 Readiness of the community pharmacists towards the NHI

Over 75% of community pharmacists believe that they are ready for the NHI with regards to skills that they possess. This finding is consistent with a study conducted in Jos, Nigeria where it was found that participants believed that they possessed adequate knowledge, skills and training to participate in the provision of public health promotion services.[28]Another study that was conducted in Canada to investigate the willingness of community pharmacists to engage in increased participation in the provision of primary health care, revealed that community pharmacists in Canada also believed that they possess adequate training and skills to engage in public primary health care programmes.[29]

Almost 70% of respondents indicated that they were ready for the NHI with regards to IT support which is seen as a critical component for successful implementation of the NHI in South Africa. Significant correlations were established between independent category of pharmacies and readiness with regards to IT support and infrastructure. Over 60% of the independent pharmacy sector indicated that they have the required infrastructure in place whilst the other pharmacy categories indicated that they were not ready for the NHI with regards to infrastructure. Chain, corporate and independent-chain pharmacies indicated that they were ready with regards to IT support with 80% of the independent category of pharmacy indicating readiness. Currently equipped with the experience of the demands of information technology, and working with software programmes has enabled community pharmacists to have the confidence to take on the eHealth strategy that the white paper outlines.[30]This electronic health information system is regarded as critical in the rolling out of the NHI programme. The white paper outlines the eHealth strategy that will be implemented simultaneously with the NHI

to achieve an efficient patient-centred electronic national health information system.[30]A Canadian study on the use of provincial digital health systems established that 65% of community pharmacists in Canada are using provincial drug information systems to access patient medication profiles and have consequently experienced increased productivity and quality of care with apparent clinical benefits.[31]Community pharmacists also reported benefits in pharmacist prescribing activities, medication reviews and continuity of patient care. The study concluded that transitions in pharmacy practice are reflected in the evolution of digital health benefits. It was stated that digital health information systems can support health care transformation when policy changes are instituted simultaneously.[31]Consequently, readiness of community pharmacists with respect to information technology support is an important factor to consider and it is significant to note that majority of community pharmacists are ready for this transition.

Inadequate infrastructure, limited human resources and lack of waiting room space will be significant barriers to community pharmacists' participation in the NHI programme. These barriers are not unique to South Africa only. Other countries have also reported similar findings. A Nigerian study that investigated community pharmacists in public health programmes listed lack of space and inadequate staff as factors that limit participation by community pharmacists in public health.[18] Another study conducted in Montreal, Canada also revealed that a lack of staff and a lack of space resulted in limited participation by community pharmacists in health promotion and prevention programmes.[27]In this study it was found that all categories of pharmacy were not ready with regards to waiting room space. This can be expected because retail space in the private community pharmacies is costly. Consequently, most community pharmacies are generally not bigger than necessary to accommodate moderate private patient loads.

3.1.5 Preferred models of remuneration for services rendered by community pharmacists

More than 50% of respondents indicated that their first choice was the "fee for service" model. The least preferred model was the risk adjusted capitation model. The International Pharmaceutical Federation (FIP), in collaboration with the World Health Organisation (WHO), endeavoured to set standards for the provision of pharmaceutical services around the world. This investigation also addressed the remuneration of pharmaceutical services. The report presented by the FIP stated that pharmaceutical services, remuneration and quality assurance differed significantly between countries together with their remuneration models.[32]It was also stated that numerous multinational studies found that pharmaceutical services and remuneration models varied considerably between countries, making comparisons between them extremely difficult.[32]

In the Netherlands, pharmacists are reimbursed by a flat-fee payment model that is intended to cover all services that may be needed.[33] Consequently, pharmacists receive no added benefit or reimbursement for the provision of enhanced pharmaceutical services that they may provide. Hence it

seems that this model of reimbursement influences the pharmaceutical services that the community pharmacists provide.[33]

The white paper has already made reference to the risk adjusted capitation model as the preferred model of remuneration incorporating a performance based incentive for services provided under the NHI. [30]It is stated in the white paper that public and private providers will be evaluated according to clinical care, health outcomes and clinical governance and not merely on quality of service. The white paper presents many reasons for not considering the Fee for Service (FFS) model of remuneration. The main reason listed was that this method pays providers higher revenues for larger numbers of patients that are treated, thus encouraging them to render more services than may be necessary.[30] Providers may carry out extra procedures and tests that might not be clinically justified, thus driving healthcare costs higher. It is also viewed that this method does not encourage providers to spend more time with patients. Payment is also made to providers without evaluating effectiveness of treatment provided. Hence, it is stated that with the FFS model, outcomes are not evaluated.[30]

The community pharmacists in this study area probably chose the fee for service model as they understand this method to be the best and they want to be adequately compensated for the services that they may be called upon to provide. Currently, as they have not been exposed to the risk adjusted capitation model of reimbursement, their choice is understandable. Educational efforts with regards to the capitation model of reimbursement must be exerted to potential providers under the NHI in order to enable a sound understanding of this payment mechanism and eventual acceptance of this model by providers.

Respondents felt that many factors should be considered in deciding on an appropriate model of remuneration for community pharmacists that participate in the NHI programme. More than 95% of respondents felt that an efficient electronic payment system is essential to ensure prompt payment of claims under the NHI. Pharmacists in the UK revealed that low reimbursement rates and cumbersome billing procedures were specific barriers that limit and restrict community pharmacists with regards to services provided.[34]It was suggested that the payer should take into account insufficient remuneration to community pharmacists and complicated claim procedures when designing health programmes. The study suggested further that pharmacists must be requested to attend discussions to enable identification and resolving of administrative issues.[34] The need for an efficient electronic payment mechanism for the success of the NHI programme is hence reinforced together with the need to include pharmacists' input in related discussions.

Almost 80% of respondents felt that pharmacists should be adequately reimbursed for services provided. A study of North America, Europe, Australia and New Zealand found that pharmacists were reimbursed for the following pharmaceutical services: medication reviews, chronic disease management, prescription adaptations, emergency contraception counselling, smoking cessation

counselling and minor ailment programmes.[34] Some areas in the United States also recognised the need to reimburse pharmacists for contacting prescribers to resolve issues with drug therapy or for approval of substitution or more cost effective alternatives.[34]

Considering the diminishing remuneration to community pharmacists from dispensing medicines, pharmacists must adopt a model that embraces a combination of dispensing and the provision of patient orientated pharmaceutical services that would increase remuneration. Pharmacists have voiced their opinion that they consider current remuneration as inadequate, when time spent on the provided services are considered.[34] Therefore, as the role of community pharmacists around the world is expanding and revenue from dispensing is rapidly diminishing, it is anticipated that patient-orientated services will play a significant role in community pharmacy models in the future. Pharmacists must consequently be adequately reimbursed for their time and expertise.

3.2 Limitations

Although a concerted effort was made to make questions as clear and unambiguous as possible, the way in which different people interpret a question may vary considerably. As a result, the way in which the questions are answered may not be consistent. It is also acknowledged that knowledge, attitudes and perceptions of a population are dynamic elements and changes are inevitable. Therefore, the results may not be entirely generalizable.The results of this study may not be applicable to all community pharmacists practicing in South Africa, since the sample size was relatively small and confined to the province of KwaZulu-Natal. In addition, this was a self-reported study, so the reliability of self-reporting is difficult to substantiate as information was collected and analysed based on what the participants reported. Finally, as a cross-sectional study, the direction of the association may not be causal.

3.3 Conclusion

Although awareness of the NHI among community pharmacists is high, educational efforts need to be exerted to increase the knowledge and understanding of the proposed NHI programme in order to ensure successful implementation in the pharmacy sector. Pharmacists displayed a positive attitude towards NHI and believe that they are ready for the NHI with regards to skills and IT support but the necessary infrastructure, human resources and waiting room space is lacking. The television, newspaper, websites and radio have been cited as preferred means of communications. Community pharmacists also perceive the expected transition in the healthcare environment in a favourable light as they believe that it will steer the country towards universal health coverage and result in improved quality of life for the South African population. It can therefore be expected that community pharmacists will readily engage in the NHI programme provided that they are adequately remunerated and their perceived barriers are eliminated.

3.4 Recommendations

This study was only conducted in KwaZulu-Natal. It is recommended that similar studies be extended to the other provinces in South Africa to obtain a better understanding of the community pharmacists' perceptions towards the NHI in these provinces. The study could also be extended to include other health professionals in similar studies to facilitate successful implementation of the NHI in all healthcare sectors.

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APPENDICES

APPENDIX A: INFORMATION SHEET

INFORMATION SHEET

14 June 2015

Dear Pharmacist,
My name is Yanas Govender and I am currently enrolled at the University of KwaZulu-Natal to pursue my Masters in Pharmacy. You are being invited to consider participating in a study that requires you to answer a survey questionnaire. The aim and purpose of this research is to ascertain the knowledge, attitudes, perceptions and readiness of the community pharmacists to the proposed National Health Insurance (NHI) programme that will be implemented in South Africa in the near future. This study is expected to enrol 217 participants in KwaZulu-Natal who will be required to answer a questionnaire. This study is funded by the College of Health Sciences of UKZN.
Your input is vitally important for the implementation of the NHI and the success of this study. We hope to make important recommendations on how integration of the NHI with private community pharmacies can best be achieved. Collected data will be analysed and used to make important inferences on key issues regarding the NHI that will benefit community pharmacists in South Africa.

Please be assured that the information that you provide will be strictly confidential and you will remain anonymous throughout the study. You will not be required to disclose your identity or any personal information on the questionnaire. All questionnaires will be coded and only the researcher will have access to all collected data. Further, data will be captured onto a computer that is password protected and all hard copies will be stored in a locked cupboard and the keys will always be in the possession of the researcher. All data will be stored for five years after which hard copies will be destroyed by shredding and data captured onto the computer will be deleted.

Participation in this research is voluntary and participants may withdraw from the study at any point without suffering any prejudice. The participant is requested to inform the researcher of his intention to withdraw from the study without providing a reason for withdrawal.

The collected data will be collectively analysed and the results will be used to make important recommendations regarding the integration of the NHI with private community pharmacies. It is envisaged that the contributions made by the study will enable a better understanding of the perceptions and readiness of the community pharmacists to the NHI programme.

If you are willing to participate in this study, please complete the consent form and the questionnaire will be handed to you thereafter.

This study has been ethically reviewed and approved by the UKZN Biomedical Research Ethics Committee (Approval number BE 318/15). In the event of any problems or concerns/questions that you may have regarding the study, you may contact the researcher at the following numbers:

Telephone no:	031-7006414
	031-7009484
Cell:	0828745906
Email:	pineridgepharm@telkomsa.net

Or UKZN Biomedical Research Ethics Committee, contact details are as follows:

BIOMEDICAL RESEARCH ETHICS ADMINISTRATION

Research Office, Westville Campus

GovanMbekiBuilding

Private Bag X 54001

Durban

4000

KwaZulu-Natal, SOUTH AFRICA

Tel: 27 31 2604769 - Fax: 27 31 2604609

Email: BREC@ukzn.ac.za

Thank You

Mrs Y. Govender

(Pharmacist)

Supervisor: Dr P. Naidoo

B. Pharm, M. Med Sc. (Pharmacology)

PhD (Public Health)

Academic Leader (Head)

Tel. no: 031-2607487

Cell no: 0839645429

Email: naidoopj@ukzn.ac.za

APPENDIX B: CONSENT FORM

CONSENT FORM

I _____, have been informed about the study entitled "The Knowledge, Attitudes, Perceptions and Readiness of the community pharmacist to the National Health Insurance in South Africa" by Yanas Govender.

I understand the purpose and procedures of the study.

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

I declare that my participation in this study is entirely voluntary and that I may withdraw at any time without any prejudice.

If I have any further questions/concerns or queries related to the study, I understand that the researchers contact details are as follows

Work telephone no:	031-7009484/7006414
Cell number:	0828745906
Email address:	pineridgepharm@telkomsa.net

If I have any questions or concerns about my rights as a study participant, or if I am concerned about an aspect of the study or the researchers then I may contact:

BIOMEDICAL RESEARCH ETHICS ADMINISTRATION

Research Office, Westville Campus

GovanMbekiBuilding

Private Bag X 54001

Durban

4000

KwaZulu-Natal, SOUTH AFRICA

Tel: 27 31 2604769 - Fax: 27 31 2604609

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OR

Supervisor: Dr P. Naidoo

B. Pharm, M. Med Sc. (Pharmacology)

PhD (Public Health)

Academic Leader (Head)

Tel. no: 031-2607487

Cell no: 0839645429

Signature of Participant: _____ Date:_____

Signature of Witness: _____ Date: _____

OR

PLEASE CROSS BOX TO CONSENT TO ☐ **PARTICIPATION**

APPENDIX C: SURVEY QUESTIONNAIRE

SURVEY QUESTIONNAIRE

Dear Pharmacist

Thank you for consenting to participate in this study. The purpose of this questionnaire is to establish:

1) Your demographic profile

2) Your Knowledge, Attitudes and Perceptions of the proposed National Health Insurance in South Africa

3) The readiness of the community pharmacist to the implementation of the National Health Insurance

However, if you wish to terminate your participation in this study, you are free to do so without suffering any prejudice.

Please complete the questionnaire that follows. Thank you.

SECTION 1:

In this section your demographic profile will be established.

In the following questions please indicate your response with an X.

1. For how long has your pharmacy been in existence?

0 – 5 years	6 -10 years	11 -15 years	16 -20 years	>20 years

2. For how many years have you been practising as a qualified pharmacist?

0 -5 years	6-10 years	11 – 15 years	16 -20 years	>20 years

3. Gender

Male	Female

4. Age in years

<30	30 – 40	41 - 50	51 - 60	61 – 70	>70

5. Marital Status:

Married	Unmarried

6. Which category does your pharmacy fall into?

Independent	
Chain	
Corporate	
Independent-chain	
Other: Please specify	

7. Are you self-employed or do you work for a pharmacist/ non pharmacist owner?

Employee		Self Employed	
Pharmacist owner	Non-Pharmacist Owner	Sole owner	Partnership owner

8. Do you have any postgraduate qualifications?

Yes	No

9. If yes, indicate the type of qualification

PHD	
Masters	
PCDT	
Other (Please specify)	

10. Please supply the following details regarding your undergraduate degree/diploma.

University attended	Name of degree/diploma	Year obtained

11. Please state how many years of experience you have in the following areas (include Internship and CSP).

Pharmacy Sector	Years of experience	Not worked in sector
Hospital Pharmacy		
Community Pharmacy		
Academia		
Manufacturing Pharmacy		
Other (Please list)		

12. Which of the following services does your community pharmacy offer?

Blood pressure monitoring	
Blood sugar testing	
Cholesterol testing	
Family planning	
Pregnancy testing	
HIV testing and counseling	
Immunisations and vaccines	
Baby clinic	
Other (please specify)	

13. Please indicate the location of your pharmacy.(Tick more than 1)

Medical centre	
Next to doctors surgery	
Stand Alone pharmacy	
Shopping complex	
Residential area	
Urban area	
Rural area	
Other-please specify	

PATIENT INFORMATION

1. What percentage of your patients are from the following areas?(Estimate is good enough)

Urban	Peri-urban	Rural	Township	Don't know

2. Please indicate the percentage of patients that fall into the following category. (Estimation)

Medical Aid [%]	Cash [%]	Do not know

3. Please indicate the percentage of chronic and acute prescriptions seen. (Estimation)

Acute [%]	Chronic [%]	Do not Know

4. What is the approximate percentage of patients that you see per day for the following services?(Estimation is good enough)

Pharmacist initiated therapy		
Doctor's prescriptions		
Repeat prescriptions		
Primary healthcare excluding Family Planning		
Primary Healthcare—Family Planning		

SECTION 2:

In this section your knowledge and awareness of the NHI will be assessed.

1. Please mark the appropriate column with an X.

	Yes	No
1.1 Are you aware of the National Health Insurance (NHI)? Programme that the government intends to implement in South Africa in the near future?		
1.2 Are you aware of government's "10 point plan of action" to reform healthcare in South Africa?		

2. How would you rate your knowledge on the NHI?

Excellent	Very Good	Good	Satisfactory	Poor	No Knowledge

3. Do you support the concept of universal health coverage in South Africa?

Yes	No	No knowledge

4. Do you think that government initiated information campaigns about the NHI would increase awareness among healthcare workers?

Yes	No

5. Which of the following media presentations do you prefer to enlighten persons on the NHI?

Road shows	
T.V Broadcasts	
Radio	
Newspapers	
Bill Boards	
Websites	
Newsletter	
Other {Please Specify}	

6. The National Health Insurance, if successfully implemented, will ensure universal health coverage for all South Africans regardless of their socio-economic status. The green paper was launched in August 2011 and the programme will be phased in over a period of 14 years and will completely transform healthcare in South Africa. Do you support the transformation of healthcare via the NHI?

Yes	No	No/Insufficient knowledge

7. Mark the appropriate column with an X.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
a) A partnership between government and private community pharmacies would be mutually beneficial.					
b) There are an adequate number of private community pharmacies to handle the patient load of the NHI population.					

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
c) Private sector community pharmacies are ready for the NHI with regards to infrastructure, resources, time and skills.					
d) The NHI will improve the general population's access to healthcare.					
e) The quality of healthcare will improve under the NHI.					
f) The NHI will achieve equity in healthcare, thus eliminating barriers and inequalities.					
g) The NHI will cope with the financial costs of HIV/AIDS in South Africa.					
h) Successful implementation of the NHI will increase life expectancy in South Africa.					
j) The successful implementation of the NHI will ensure a healthier workforce resulting in improved employment and growth in the economy.					

8. Please rate the following statements on a scale of 1 to 5 where:

1= strongly disagree 2= disagree

3= neutral4 = agree

5 = strongly agree

Statement	Rating
8.1The most significant challenges that could be encountered in implementing the NHI would be:	
a) Shortage of skilled healthcare workers	
b) Shortage of drugs in the public sector	
c) Overcrowding at hospitals due to the worsening burden of disease in South Africa	
8.2. The high level of unemployment in South Africa will affect the success of the NHI.	
8.3. The NHI will result in the flight of a large number of pharmacists out of the country.	
8.4. Excessively long waiting times will be experienced under the NHI.	
8.5. Attempts at improving the quality of healthcare services by the underperforming public sector may be a difficult task.	
8.6. South Africa's worsening burden of disease will make the goals of the NHI difficult to attain.	
8.7 The NHI will restrict South African citizens with regards to freedom of choice.	

9. There are many methods of funding the NHI. Please rate the following options according to your preference e.g. 1, 2 and 3:

Methods of funding the NHI	Rating
1. Increasing personal income taxes: The average rate would increase 1,1% from 21,8% to 22,9%	
2. Increasing value added tax: The rate would increase by 0,8% from 14% to 14,8%	
3. Increasing Sins tax: Tax on the products that are the unhealthiest would increase eg. Cigarettes, alcoholic drinks	

10. Do you think that private community pharmacy has a role to play in achieving the objectives of the NHI?

Yes	No

11. Do you support the accreditation of private community pharmacies by the District Health Authority before contracting with the NHI?

Yes	No

12. Which of the following models of remuneration for pharmacies do you support?

Please indicate in order of preference e.g. 1, 2 & 3

Remuneration model	Rating
12.1. Risk adjusted capitation model	
12.2. Fee for services provided	
12.3. Combination of the above two methods according to the level of services provided	

13. With regards to reimbursement of community pharmacies for services provided under the NHI, do you think the following factors should be taken into consideration:

	Yes	No	Not sure / No knowledge
a) The use of an efficient electronic payment system which is essential to ensure prompt payment of claims under the NHI.			
b) Reimbursement for professional pharmaceutical services provided and medication dispensed should be handled separately.			
c) The amount paid to the provider for medication supplied should take into account the exit price of the medication plus the cost of providing the medication e.g. Label and container costs etc.			
d) A preferred drug list should be compiled to guide pharmacists on reimbursement values for medication supplied.			

	Yes	No	Not sure/No knowledge
e) The government should supply medication to the community pharmacies and pay the pharmacist a professional fee for dispensing and the provision of other services.			
f) The first supply of medication for dispensing under the NHI should be provided by the government and thereafter the pharmacy will supply medication to the patient and claim from the NHI accordingly.			
g) The community pharmacy will order and supply medication to patients that are allocated to them by the NHI and claim from the fund accordingly.			

14. With regards to readiness of community pharmacy to the implementation of the NHI, please tick the appropriate column.

	Yes	No	Not sure	Poor/ No knowledge
Is your community pharmacy ready for the NHI with regards to the following?				
1) Infrastructure to accommodate increased patient loads				
2) Human resources				
3) IT support				
4) Time: Increased opening hours may be necessary				
5) Waiting room space				
6) Skills				
7) Adequate refrigeration space to accommodate thermo-labile pharmaceuticals				
8) An adequate filing system				
9) An effective system to separate private and public patients				

APPENDIX D: BIOMEDICAL RESEARCH ETHICS COMMITTEE APPROVAL LETTER

UNIVERSITY OF KWAZULU-NATAL
INYUVESI YAKWAZULU-NATALI

19 August 2015

Mrs Y Govender (8932840)
Discipline of Pharmaceutical Science
School of Health Sciences
pineridgepharm@telkomsa.net

Dear Mrs Govender

Protocol: The knowledge, attitudes and readiness of the community pharmacists to the National Health Insurance in South Africa.
Degree: MPharm
BREC reference number: BE318/15

EXPEDITED APPLICATION

A sub-committee of the Biomedical Research Ethics Committee has considered and noted your application received on 09 July 2015.

The conditions have been met and the study is given full ethics approval.

This approval is valid for one year from 19 August 2015. To ensure uninterrupted approval of this study beyond the approval expiry date, an application for recertification must be submitted to BREC on the appropriate BREC form 2-3 months before the expiry date.

Any amendments to this study, unless urgently required to ensure safety of participants, must be approved by BREC prior to implementation.

Your acceptance of this approval denotes your compliance with South African National Research Ethics Guidelines (2015), South African National Good Clinical Practice Guidelines (2006) (if applicable) and with UKZN BREC ethics requirements as contained in the UKZN BREC Terms of Reference and Standard Operating Procedures, all available at http://research.ukzn.ac.za/Research-Ethics/Biomedical-Research-Ethics.aspx.

BREC is registered with the South African National Health Research Ethics Council (REC-290408-009). BREC has US Office for Human Research Protections (OHRP) Federal-wide Assurance (FWA 678).

The sub-committee's decision will be RATIFIED by a full Committee at its meeting taking place on 08 September 2015

We wish you well with this study. We would appreciate receiving copies of all publications arising out of this study.

Yours sincerely

Professor J Tsoka-Gwegweni
Chair: Biomedical Research Ethics Committee

cc supervisor: naidooz1@ukzn.ac.za
cc postgrad: shuma.pt@gmail.ac.za

APPENDIX E: TREE CERTIFICATE

14 May 2015
04:07 PM

TRREE

Zertifikat
Certificat
Certificado
Certificate

Promouvoir les plus hauts standards éthiques dans la protection des participants à la recherche biomédicale
Promoting the highest ethical standards in the protection of biomedical research participants

Clinical Trials Centre
The University of Hong Kong

Certificat de formation - Training Certificate

Ce document atteste que - this document certifies that

Yanasundri Govindsamy

a complété avec succès - has successfully completed

Research Ethics Evaluation

du programme de formation TRREE en évaluation éthique de la recherche
of the TRREE training programme in research ethics evaluation

April 22, 2015

Professeur Dominique Sprumont
Coordinateur TRREE Coordinator

FMH

FPH

Ce programme est soutenu par - This program is supported by :

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Unfiled Notes Page 1

APPENDIX F: AUTHOR GUIDELINES FOR ARTICLE SUBMISSIONS TO SAMJ (SOUTH AFRICAN MEDICAL JOURNAL)

Research

Guideline word limit: 4 000 words

Research articles describe the background, methods, results and conclusions of an original research study. The article should contain the following sections: introduction, methods, results, discussion and conclusion, and should include a structured abstract (see below). The introduction should be concise – no more than three paragraphs – on the background to the research question, and must include references to other relevant published studies that clearly lay out the rationale for conducting the study. Some common reasons for conducting a study are: to fill a gap in the literature, a logical extension of previous work, or to answer an important clinical question. If other papers related to the same study have been published previously, please make sure to refer to them specifically. Describe the study methods in as much detail as possible so that others would be able to replicate the study should they need to. Results should describe the study sample as well as the findings from the study itself, but all interpretation of findings must be kept in the discussion section, which should consider primary outcomes first before any secondary or tertiary findings or post-hoc analyses. The conclusion should briefly summarise the main message of the paper and provide recommendations for further study.

Select figures and tables for your paper carefully and sparingly. Use only those figures that provided added value to the paper, over and above what is written in the text.

Do not replicate data in tables and in text .

Structured abstract

- This should be 250-400 words, with the following recommended headings:
  - **Background:** why the study is being done and how it relates to other published work.
  - **Objectives:** what the study intends to find out
  - **Methods:** must include study design, number of participants, description of the intervention, primary and secondary outcomes, any specific analyses that were done on the data.
  - **Results:** first sentence must be brief population and sample description; outline the results according to the methods described. Primary outcomes must be described first, even if they are not the most significant findings of the study.
  - **Conclusion:** must be supported by the data, include recommendations for further study/actions.
- Please ensure that the structured abstract is complete, accurate and clear and has been approved by all authors.
- Do not include any references in the abstracts.

Here is an example of a good abstract.

Main article

All articles are to include the following main sections: Introduction/Background, Methods, Results, Discussion, Conclusions.

The following are additional heading or section options that may appear within these:

- Objectives (within Introduction/Background): a clear statement of the main aim of the study and the major hypothesis tested or research question posed
- Design (within Methods): including factors such as prospective, randomisation, blinding, placebo control, case control, crossover, criterion standards for diagnostic tests, etc.

- Setting (within Methods): level of care, e.g. primary, secondary, number of participating centres.
- Participants (instead of patients or subjects; within Methods): numbers entering and completing the study, sex, age and any other biological, behavioural, social or cultural factors (e.g. smoking status, socioeconomic group, educational attainment, co-existing disease indicators, etc)that may have an impact on the study results. Clearly define how participants were enrolled, and describe selection and exclusion criteria.
- Interventions (within Methods): what, how, when and for how long. Typically for randomised controlled trials, crossover trials, and before and after studies.
- Main outcome measures (within Methods): those as planned in the protocol, and those ultimately measured. Explain differences, if any.

Results

- Start with description of the population and sample. Include key characteristics of comparison groups.
- Main results with (for quantitative studies) 95% confidence intervals and, where appropriate, the exact level of statistical significance and the number need to treat/harm. Whenever possible, state absolute rather than relative risks.
- Do not replicate data in tables and in text.
- If presenting mean and standard deviations, specify this clearly. Our house style is to present this as follows:
- E.g.: The mean (SD) birth weight was 2 500 (1 210) g. Do not use the ± symbol for mean (SD).
- Leave interpretation to the Discussion section. The Results section should just report the findings as per the Methods section.

Discussion

Please ensure that the discussion is concise and follows this overall structure – sub-headings are not needed:

- Statement of principal findings
- Strengths and weaknesses of the study
- Contribution to the body of knowledge
- Strengths and weaknesses in relation to other studies
- The meaning of the study – e.g. what this study means to clinicians and policymakers
- Unanswered questions and recommendations for future research

Conclusions

This may be the only section readers look at, therefore write it carefully. Include primary conclusions and their implications, suggesting areas for further research if appropriate. Do not go beyond the data in the article.