

# MMed(Family Medicine) 2010

## **Reasons for encounter and diagnoses of patients attending primary care clinics in the Saldanha Bay and Swartland rural sub districts, Western Cape Province: A prospective cross-sectional survey**

In partial fulfilment of the MMed in Family Medicine degree.

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Date: 31 August 2010

Declaration:

I, the undersigned hereby declare that the work contained in this assignment is my original work and that I have not previously submitted it, in its entirety or in part, at any university for a degree.

**Signature:**

**Date: 31 August 2010**

## Abstract

**Background:** The public health sector is the principal provider of healthcare to the majority of South Africans. The primary health care (PHC) system was designed to provide equitable and accessible healthcare to all, but the system remains plagued by many challenges. Key to overcoming these challenges is to have a better understanding of the reasons why patients access the service in the first instance and also of the case mix of diseases affecting the population. Studies outlining the reasons for patients' encounter and the diagnoses offered are scant.

**Objectives:** The aim of the study was to assess the main reasons for encounter (RFE) and the diagnoses made by the healthcare provider of patients attending primary health care clinics in the two rural sub districts of Saldanha Bay and Swartland in the Western Cape.

**Methods:** The prospective cross-sectional study involved 13 healthcare providers (mainly clinical nurse practitioners) working at 10 randomly selected primary healthcare facilities in the two sub districts. The participants were asked to record the RFE's and diagnoses of all the patients they consulted on a data collection sheet. Data was collected on six days over a 12 month period from August 2009 to June 2010. The International Classification of Primary Care, second edition (ICPC-2) system was used to code the RFE's and problems defined during all patient encounters.

**Results:** During 1277 patient encounters, 2091 RFE's were recorded and 1706 diagnoses were offered. The majority of complaints were respiratory (19.9%), digestive (11.2%), musculoskeletal (9.6%), cardiovascular (9.3%), skin (8.8%) and general and unspecified (7.6%). The majority of diagnoses offered by the providers were respiratory (21.4%), cardiovascular (14.2%), skin (9.1%) and digestive (8.6%). Hypertension (10.8%) was the commonest condition managed. Infectious diseases, TB and HIV, occurred at low prevalence (2.9% and 1.5% respectively) Gender did not influence the number of RFE's and diagnoses. There was a significant difference in the mean numbers of RFE's and diagnoses between the different age groups (p values 0.0237 and 0.0000 respectively). The majority of patients seen during all encounters were children under the age of 4 (17.3%), who presented mainly with symptoms of, and were diagnosed with respiratory disorders.

**Conclusion:** During the study we were able to ascertain the main reasons for encounters and the diagnoses made by the health care providers of patients attending public primary care facilities in the rural sub districts of Saldanha Bay and Swartland. The study has demonstrated that the concept of the RFE is useful to describe the content of primary care practice in this setting. It can also be concluded that the ICPC-2 as a coding system, is an excellent tool for the description of the RFE's, and can provide us with morbidity patterns in any setting.

## Introduction:

At the Alma Ata Conference in 1978, the World Health Organization (WHO) expressed its goal primary health care by promulgating the vision of “*health for all by the year 2000*”. They defined primary health care as “*essential health care based on practical, scientifically sound and socially acceptable methods and technology made universally accessible to individuals and families in the community through their full participation and at a cost that the community and country can afford and in the spirit of self-reliance and determination.*”<sup>1,2</sup> South Africa has made significant contributions in the development and conceptualization of the Primary Health Care approach, in an attempt to redress the inequalities in health care created through apartheid.<sup>3</sup> District health systems have been developed to serve as structures through which comprehensive, community-based health care can be made accessible to all citizens.<sup>3</sup>

Whilst there is a visible improvement in the access to health care for the majority of South Africans, the system is still plagued by its inability to provide equitable, quality and integrated primary health care services that encourage community participation.<sup>2,4</sup> The morbidity and mortality data reflects a society in which the more affluent sections of the population have completed the epidemiological transition, whilst the economically disadvantaged groups continue to suffer from pre-transitional diseases.<sup>5</sup> Public primary health care facilities are buckling under the pressure of a quadruple burden of communicable, non communicable, perinatal and maternal, and injury-related disorders. The situation is further compounded by the exigent shortages of skilled staff, lack of effective training programmes, and shortages of equipment and medicines.<sup>2,5</sup>

In order to be able to cope with this disease burden the situation requires a reassessment of health care priorities, which will enable the effective and efficient planning and administration of health care services, especially primary care.<sup>1</sup> This is only possible if the right information is available to health care planners. Morbidity and mortality data provide useful information on the burden of disease, but in addition, one which should have a sufficient understanding of the actual reason(s) for patients' health seeking behaviour (burden of care), in order to provide adequate care.<sup>6</sup> Studies exploring the burden of disease do not provide any information on how the different diseases present at the primary care level and how they are diagnosed. Therefore, studies focusing on the burden of care can be used to complement the work on burden of disease. In this way we will be able to extract more representative data on morbidity and disability, which can be used to monitor health services more efficiently in terms of quality, rather quantity, and also the impact the services has on the health of the population.

The concept of the reason for encounter or RFE is defined as a symptom disorder, a request or concern expressed by the patient when seeking care.<sup>7</sup> Its focus is the patient's perception of their problem and represents the actual reason(s) why the patient entered the healthcare system.<sup>8</sup> An appreciation of what the patient desires from the medical consultation is fundamental to understanding their customer role, and acknowledges the patient as an active participant in the consultation, rather than a passive recipient of care.<sup>9</sup> This patient-centred approach forms the basis of the consultation in family practice, one in which the responsibility of the doctor is to ensure that both the medical agenda, as well as the patient's agenda is pursued.<sup>6,8</sup>

By considering the RFE we will not only gain a better perspective of the patient's expectations, but will also gain a better picture of the kinds of problems that need to be dealt with in primary care or general practice.<sup>10</sup> Often patients do not only present with symptoms of an acute illness, but with other problems such as the need for advice on social problems, repeat of medication, filling of forms, a concern or fear of a chronic disease e.g. hypertension, diabetes.<sup>6</sup> The concept of the RFE encompasses all the afore-mentioned scenarios and can provide vital information to assess quality and continuity of care, and also importantly, identify gaps in provider education and allocation of resources.<sup>8,10</sup>

However, an adequate and comprehensive characterization of primary care requires information on three interrelated aspects of encounters: the RFE, the healthcare provider's interpretation of the problem (the diagnosis), and the intervention or treatment prescribed. The International Classification of Primary Care (ICPC) offers a simple and comprehensive classification system which allows for the coding of all three the aspects of care. <sup>6,11</sup>

The many challenges facing the South African healthcare system are by no means insurmountable, but will require us to intensify our efforts to develop new and innovative models and approaches to PHC delivery. In order to do so, it is important to know why people actually attend primary care facilities and what diagnoses the healthcare provider makes. There is presently very limited published data of studies detailing the reasons for encounter and diagnoses in South Africa. Such studies will undoubtedly assist with the planning of health services and the development of evidence-based protocols for the comprehensive assessment and management of patients accessing primary facilities. It will also assist District Health Service Managers in terms of the allocation of adequate human resources, infrastructure and the content of in-service training curricula. This study, although only being conducted in the rural area of one province in South Africa, is part of a multicentre, national study that will assist us in gaining more insight into the RFE and diagnoses of patients accessing primary care facilities.

## Literature review

The WHO Working Party on Classifications of Primary Care produced the Reasons for Encounter classifications (RFEC) to classify the reasons why people seek care at the primary care level. <sup>1,12,13</sup> Most conventional disease classifications are designed to allow the health care provider's interpretation of the patient's health problem to be coded in the form of an illness, disease or injury. In contrast, the RFEC focuses on data elements from the patient's perspective. It is thus patient-oriented rather than disease- or provider-oriented.<sup>13</sup>

To test the completeness and reliability of the RFEC for classifying primary care encounters, a pilot study was carried out in the Netherlands in 1980 by nine Family Physicians.<sup>1</sup> One of the most compelling conclusions drawn from this study was that the RFEC nomenclature can be used not only to clarify the patient's RFE, but it also allows for diagnosis at the highest level of specificity by the primary practitioner.

In 1983 further feasibility testing was conducted in 9 countries: Australia, Barbados, Brazil, Hungary, Malaysia, the Netherlands, the Philippines and the United States. The study resulted in the analysis of more than 90, 000 RFE's recorded during more than 75, 000 individual encounters.<sup>1,12,13</sup> The feasibility testing showed that the RFEC could easily be used to simultaneously classify the RFE and two other elements of problem- or patient-oriented care, viz

the process of care and the health problems diagnosed. This conceptual framework allowed for the evolution of the RFE into the International Classification of Primary Care (ICPC).<sup>1</sup>

The first version of ICPC was published by WONCA (World Organization of National Colleges, Academies, and Academic Associations of General Practitioners/Family Doctors) in 1987.<sup>12,13,14</sup> A revised version of ICPC (ICPC-2) was published in 1998, and was endorsed by WHO as a reason for encounter classification and for classification of primary care.<sup>13</sup> ICPC-2 classifies patient data and clinical activity in the domain of general practice and primary care, taking into consideration the frequency distribution of problems seen in these settings. It allows classification of the patient's RFE, the problem/diagnosis managed, interventions, and the ordering of these data in an episode of care structure.<sup>15</sup>

An episode of care is a health problem or disease from its first presentation to the health care provider to the last encounter for the same health problem.<sup>13,15</sup> It refers to all care provided for a patient with a discrete disease or health problem, including the contribution of specialists and hospital admissions. An episode of disease is a disease from its onset until its resolution or till the patient's death, whereas an episode of illness is the period that an individual suffers from symptoms or complaints related to the illness.<sup>15,16</sup>

The "SOAP" (Subjective, Objective, Assessment, and Plan) approach is a common and well established method for recording consultations in Family Practice and Primary care. ICPC was developed to simultaneously classify 3 of the 4 elements of this problem oriented construct; viz the RFE (subjective experience), the assessment or diagnostic interpretation of the patient's problem by the provider, and the process of care, which represents the diagnostic and therapeutic interventions.<sup>16</sup>

The reason for using this construct was to give a higher priority to the patient's viewpoint and move away from concentrating only on diagnosis as seen in the International Classification of Diseases (ICD) model, which was found to be an unreliable classification system for primary care.<sup>17</sup> In primary care, ICPC-2 has benefits over the ICD model for classifying problems that do not have a precise diagnosis, as well as administrative tasks and care processes such as referrals, tests and procedures. ICPC-2 provides a coding system that allows frontline health providers to record, organize and retrieve the process of care in the primary care setting. It provides a window for examining clinical epidemiology and clinical decision making in a real-world primary care context. Its linkage with ICD-10 makes it possible to generate good computer-based patient records, allowing for the exchange of patients data with other specialists and hospitals.<sup>18,19</sup>

ICPC-2 is a comprehensive, simple and practical classification that can be used in medical records and in different areas of primary care research. Since publication, it has been translated into at least 18 different languages, and has received increasing recognition as an appropriate classification for primary care, most notably in Europe and Australia.<sup>13,15</sup> It is a biaxial classification system based on chapters and components. The chapters consist of organs/organ systems along one axis, in addition to three chapters comprising General, Mental and Social problems. The other axis comprises seven components: RFE's (symptoms and complaints), diagnostics/prevention/screening, treatment/procedures, test results, administrative, other reasons, and diagnoses.<sup>15,19</sup> The coding system offers the health care provider with 400 diagnostic classes and over 300 patient's reasons for encounter.<sup>19</sup>

The usefulness of ICPC-2 as a classification system has been proven in numerous studies. In one such study, De Silva and Mendis used the ICPC as a coding system in a nationwide general practice morbidity survey in Sri Lanka in 1996. During 268 encounters, 3448 RFE's and 2087 problems were recorded and coded using ICPC-2. The survey provided valuable data for understanding the health needs of the population, health policy planning and design of the medical school curricula in Sri Lanka.<sup>20</sup>

Between 1995 and 2000, in a multinational comparative study involving 4 countries, viz the Netherlands, Poland, Japan and the USA, the ICPC was used as the coding system. The main aim of the study was to compare the content of family practice in different countries, focusing on RFE, diagnoses and interventions, i.e. the 3 elements of the ICPC. Similarities were found to be much higher in patients' RFE than in diagnosis. The study also found a substantial overlap in the top thirty RFE's and diagnoses per encounter, lending support to the notion of the RFE as a core element of the consultation with the family physician. It also demonstrated the potential of ICPC as a classification in such comparative studies.<sup>21</sup>

Okkes et al undertook a study to develop reliable data on the probability of specific diagnoses, *the pretest probability*, among patients presenting to family physicians with common symptoms and seen over a period of time. The pretest or prior probability refers to the likelihood of disease before tests are ordered, and lies at the heart of the clinical competence of the family physician. A group of 54 Family Physicians from the Netherlands recorded the RFE, diagnoses and interventions for all episodes of care between 1985 and 1995. All encounters were coded according to the ICPC. The study included 93 297 patient years, with 236 027 episodes of care and 267 897 direct patient encounters. Despite the fact that the study involved Dutch Family Physicians, the data has high face validity for other clinicians.<sup>22</sup>

Paulus et al undertook a cross-sectional study in France and Belgium in 2001, the aim of which was to analyse the RFE of teenagers in family practice, and to compare them with the reasons recorded by the family physician. Using the ICPC as the coding system, 103 RFE's were given by 457 teenagers, the majority of which were respiratory (26%), general health (18.5%), osteoarticular (15%), digestive (11%) and neurological (9.5%).<sup>23</sup>

The DUSOI/WONCA (Duke/WONCA Severity of Illness Checklist) system was developed by WONCA International Classification Committee (WICC) as an extension of the ICPC. The checklist uses generic parameters to be applied to any health problem, allowing the assessment of its severity. Okkes et al conducted a study in the Netherlands to assess the reliability of the ICPC and DUSOI/WONCA in determining the level of illness severity in episodes of care. In 2033 consultations, 2860 episodes of care were documented. Substantial agreement existed between the family physicians' and patients' assessment of severity, confirming the feasibility of using the combined ICPC and DUSOI/WONCA system to assess the severity of episodes of care.<sup>24</sup>

In one of the first studies conducted in a primary care in a sub Saharan African context, Kamadjeu et al assessed the use of an electronic health record (EHR) system as a tool to improve providers' performance, quality and continuity of care, and the availability of data in primary health care in Cameroon. A locally designed EHR system called MEDCAB was used. The latter is based on ICPC and was designed taking into consideration the primary health care environment in Cameroon. The authors found that most of the participants in the study showed

acceptance of the system. Given the highly selected group of participants, there is however concerns about the external validity of the study. Although there are potentially many barriers to the implementation of such a system at primary care clinics in resource limited settings, the EHR system could be a valuable source of information for healthcare delivery, public health and policy making in Cameroon, and probably elsewhere.<sup>8</sup>

But how accurately does the doctor code the patient's exact RFE, and not merely his/her interpretation? And how accurate are the doctors in coding with ICPC? The Dutch RFE study<sup>25</sup> found that patients recognized 84% of their doctors' RFE codes as an acceptable description of their reason to seek medical care. In post encounter interviews that were held regarding the patient's RFE's, 88% were completely identical to the doctors' coding of the RFE's.<sup>6</sup> An international comparative study<sup>26</sup> also found a high concordance between the patients' description of the RFE and the doctor's coding of the RFE(82%).<sup>6</sup>

Several morbidity studies were conducted to test the accuracy of ICPC coding.<sup>27,28</sup> In one such study Britt et al found that inter-coder reliability at ICPC chapter level was 91.7% and 81.8% at rubric level. Intra-coder reliability was 96.2% at chapter level and 90% at rubric level. The study also showed that only 1.8% of RFE's were either missing, incorrect or needed improvement.<sup>11</sup> ICPC is an excellent tool for the description of the patient's reason for encounter in different countries and professional contexts.<sup>6</sup> Unfortunately experience with the system is very scant in resource limited settings, save for the study in Cameroon, where the use of ICPC in an electronic health record system was found to be a challenge.<sup>9</sup> ICPC has however great flexibility and the ability to keep track of symptoms and diagnosis in an environment where, mainly due to limited resources to investigate the problem, the patient is labeled at a symptom level.<sup>1, 9, 11</sup>



## Aim

To determine the range and prevalence of reasons for encounter and diagnoses found among patients attending public primary care facilities in the rural sub districts of Saldanha Bay and Swartland, in the Western Cape.

## Objectives

### Primary objectives:

- To enumerate provider-reported reasons for encounter in patients seen at primary level facilities.
- To enumerate provider-reported diagnoses (pre-existing or new) of patients seen at primary level facilities

### Secondary objectives:

- To estimate the average number, median and range of reasons for encounter per patient
- To estimate the average number, median and range of provider-reported diagnoses per patient
- To describe the case mix of reasons for encounter and the diagnoses in relation to:
  - Age of clients
  - Sex of clients
  - Day of the week
  - Month of the year

## Methodology

The study was a prospective cross-sectional survey

### *Setting and study population*

The study was a sub-study of a multi-centre national survey, which was conducted in public primary care facilities in four provinces in South Africa, which included the Western Cape, North West Province, Limpopo and Northern Cape. Within each province, sub-districts were purposefully selected to include two urban and two rural sub-districts, and also that the areas are accessible and practical for data collection. In each of the selected sub-districts a number of primary care facilities were randomly selected.

The rural sub-districts of Saldanha Bay and Swartland were selected for this study. Both areas are approximately 120 kilometres along the west coast of the Western Cape. (see figure 1)

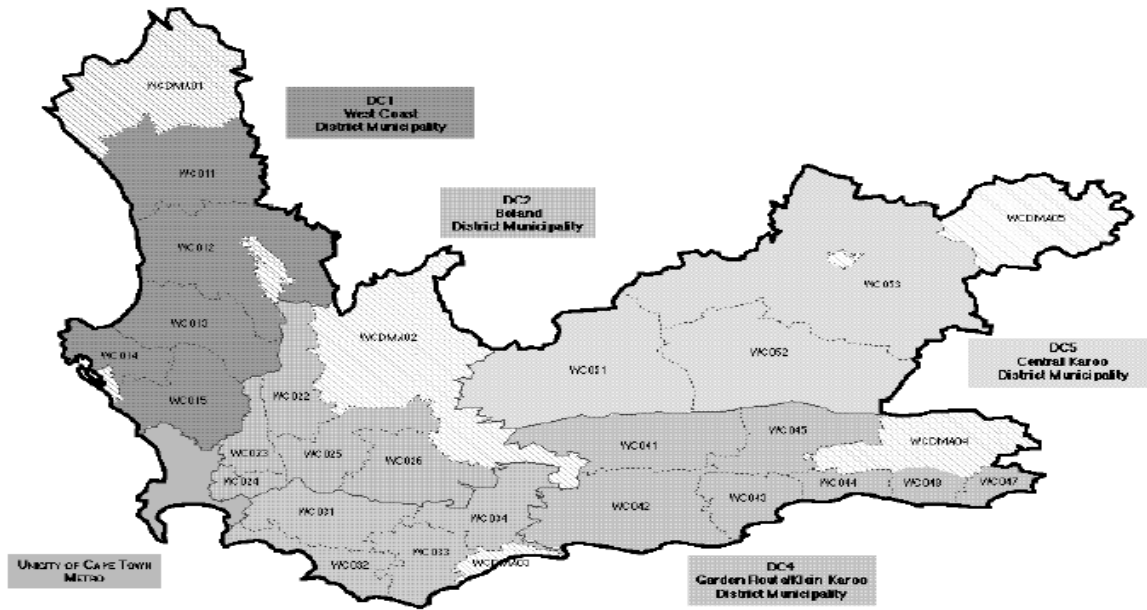


Figure 1: Map showing the different municipalities in the Western Cape: WC 014 – Saldanha Bay SD, WC 015 – Swartland SD<sup>29</sup>

Population estimates for 2010 available from the Western Cape Department of Health and Statistics South Africa, show that there are approximately 162 872 residents in the two sub districts; 86 771 in Saldanha Bay and 76 101 in Swartland SD. Figure 2 depicts the distribution of the population across the different age groups. Both sub districts have a relatively young population with only 3.1% older than 70.

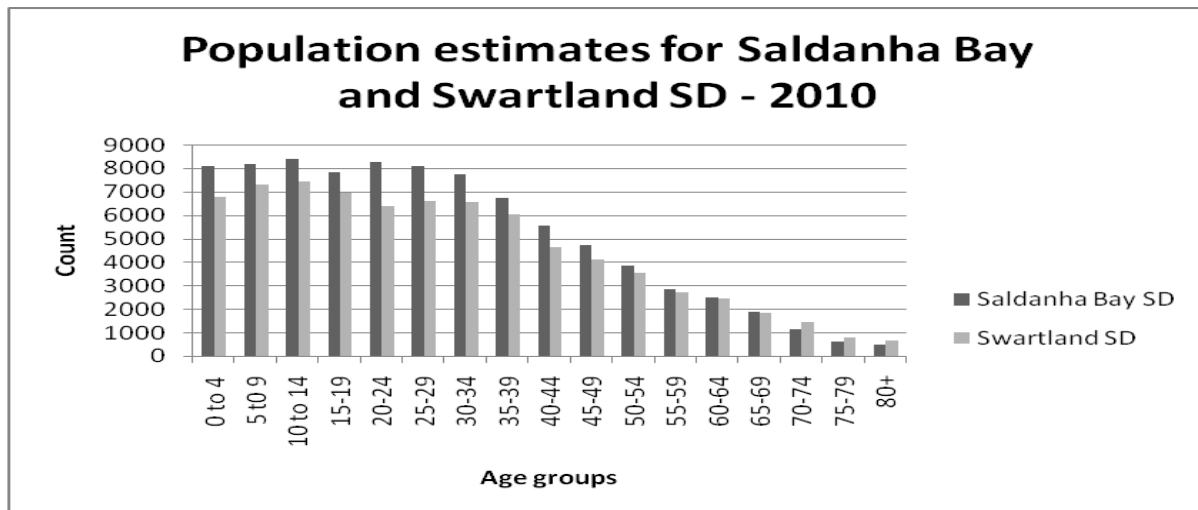


Figure 2: Graph depicting the population distribution in Saldanha Bay and Swartland Sub districts

The Provincial Government of the Western Cape is the main health authority responsible for health care services in both the sub districts. The Saldanha Bay sub district has 12 primary care facilities, which include 8 clinics, 2 satellite clinics and 2 mobile clinics. The Swartland sub district has 17 primary care facilities which include 6 clinics, 7 satellite clinics and 4 mobiles. The clinics operate daily, whereas the satellite clinics are open only 2 to 3 days of the week and the mobiles provide services 8 times per year. There is also a Level 1 Hospital in each of the sub districts.

All the primary care facilities are nurse-driven, with total of 18 Clinical Nurse Practitioners providing care in the Swartland SD and 21 in Saldanha Bay SD. Local general practitioners provide support to some of the clinics on a sessional basis. According to the Information Management department from the West Coast District office, a total of 418 715 patients were seen in the two sub districts between August 2009 and May 2010.

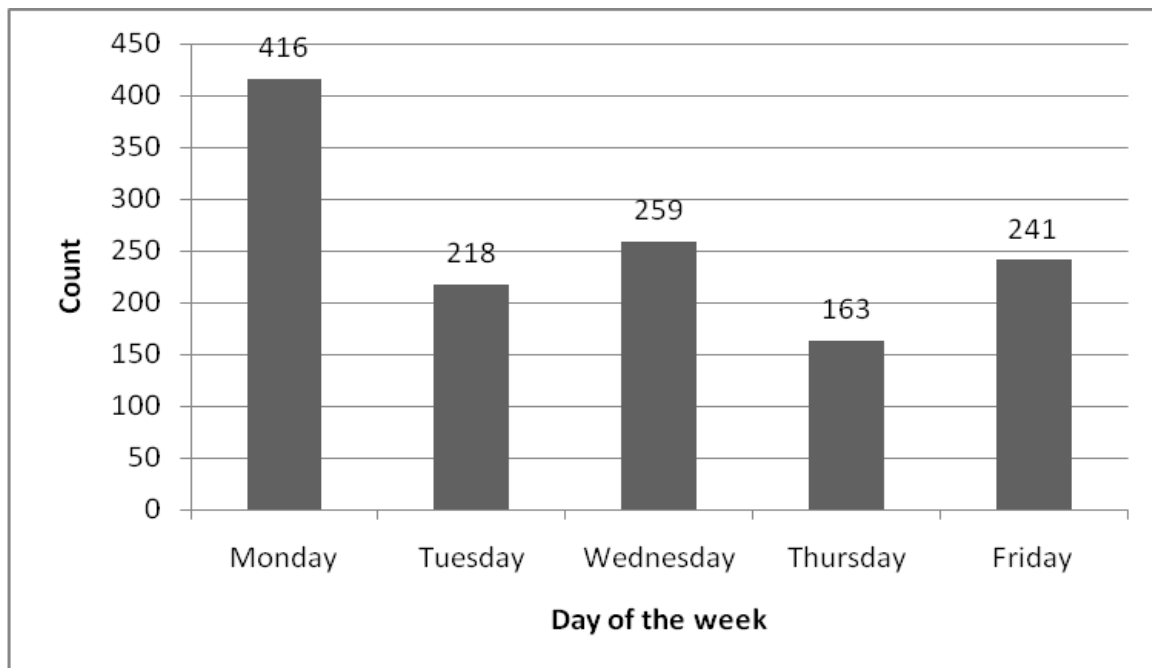
*Sampling and sample size*

Facilities within the pre selected sub districts were randomly selected and weighted in terms of the size of the population served, as well as the size of the facility. The following health facilities were selected:

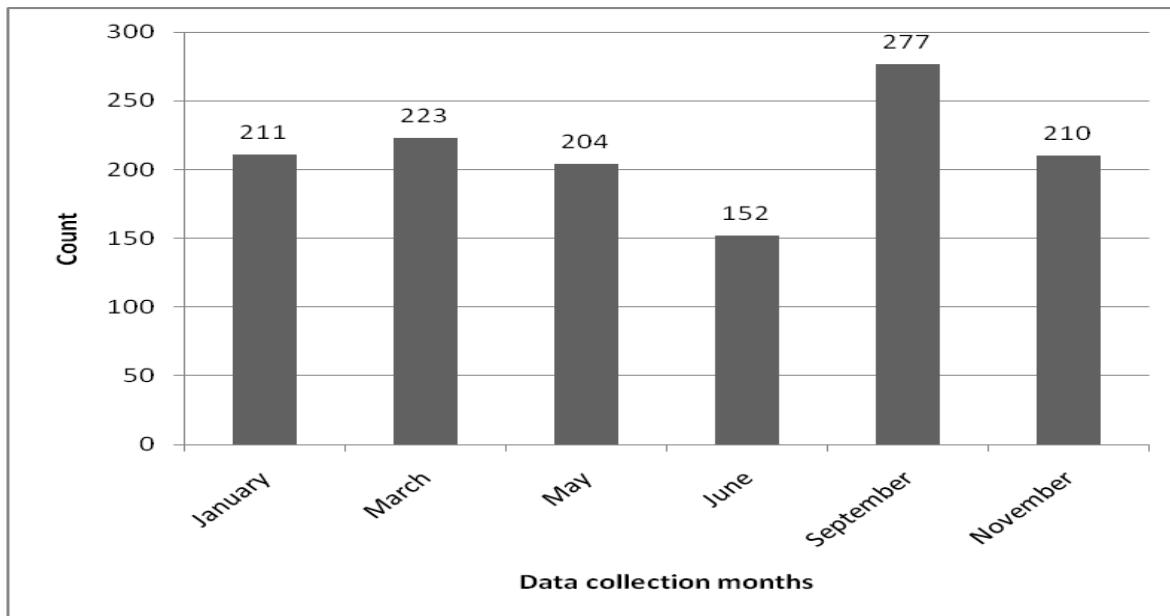
Saldanha Bay sub district: Diazville clinic, Vredenburg clinic, Laingville clinic, Langebaan clinic, and Sandy Point satellite.

Swartland sub district: Wesbank clinic, Riebeeck-Kasteel clinic, Koringberg satellite, Chatsworth and Riverlands satellite.

Sampling periods were stratified by month to account for seasonality, and by day to account for the different patterns of attendance throughout the week. Data collection took place on one day during six time periods from August 2009 to June 2010.



**Figure 3: Number of RFE's according to days of the week**



**Figure 4: The number of RFE's according to month of the year**

Figures 3 and 4 demonstrate how the facilities were surveyed on different days of the week and during different months of the year, reflecting patterns of attendance at the clinics.

The national survey targeted 6 000 patient encounters per province. Each province was divided into 4 sub-districts, therefore this study aimed for 1 500 patient encounters for each of the sub-districts.

Inclusion criteria for patients:

- All patients seeking care at the selected clinics.

Inclusion criteria for the healthcare provider:

- Willingness and motivated to participate
- Should preferably be available for the duration of the study.

#### *Data collection*

Primary care practitioners (doctors and nurses) working at the pre selected facilities were requested to participate, and sequential ambulatory patients presenting to the health facility were enrolled. Written informed consent was sought from both the facility and the healthcare provider.

Participants were provided with data collection sheets on which they entered the following data: age, sex, RFE (maximum of 5) and the diagnosis (new or pre-existing) offered (maximum of 5). Before every data collection day, the nurse manager or the participating healthcare

provider(s) at each of the clinics were contacted, and arrangements were made to collect the data collection sheets from the previous data collection, and to confirm the next date. This was also to check if the forms were completed correctly and also to query any uncertainties related to data previously collected. The participants collected data on all patients seen on the selected day.

#### *Data coding and analysis*

All the study investigators attended a one-day workshop in the Division of Family Medicine and Primary Care, where they received training in the ICPC-2 coding system. Throughout the study period, the investigators were in contact with each other and the Principal investigator of the study to discuss any uncertainties that arose with the coding of RFE's or diagnoses.

Reasons for encounter and diagnoses were coded using the ICPC-2 system and captured electronically on a standardized Microsoft Excel spreadsheet. Statistical analysis was done by the Centre for Statistical Consultation at the University of Stellenbosch, using the software programme Statistica version 9. The analysis included calculating the frequencies of the RFE's and diagnoses, and estimating the range and median of RFE's per patient and diagnoses per patient. The frequency of RFE's and diagnoses were also analysed by sex and age category. The number of encounters recorded during each time period and each day of the week was also analyzed.

#### *Ethical considerations*

Ethics approval for the multicentre study was obtained from the Research Ethics Committees of the Faculty of Health Sciences, University of Cape Town and the University of Stellenbosch. This study was included in this approval. The Provincial Department of Health of the Western Cape granted permission for the study to be conducted in the different sub districts. The West Coast Municipality granted permission for the study to be conducted at the pre selected clinics in the Swartland and Saldanha Bay sub districts.

## Results

### Primary objectives:

#### 1. Frequency of RFE's and diagnoses

A total of 13 healthcare providers participated over the whole study period and documented a total of 1277 patient encounters, 2091 RFE's were recorded, giving a rate of 163 RFE's per 100 encounters; 1706 diagnoses were made, with a rate of 133 diagnoses per 100 encounters. Tables 1.1 and 1.2 enumerate the frequency of RFE's and diagnoses respectively for each of the ICPC chapters.

**Table 1.1: Frequency of RFE's according to body system for all encounters (N=1277)**

#### **Reasons for encounter (N=2091)**

<b>ICPC Chapter</b>	<b>Frequency (N)</b>	<b>%</b>
R -Respiratory	416	19.9
D - Digestive	234	11.2
L - Musculoskeletal	200	9.6
K - Cardiovascular	194	9.3
S - Skin	184	8.8
A - General and unspecified	158	7.6
N - Neurological	115	5.5
T - Endocrine and metabolic	102	4.9
U - Urological	96	4.6
X - Female genital	94	4.5
H - Ear	81	3.9
W - Pregnancy, childbearing and family planning	64	3.1
B - Blood, blood forming and immune system	61	2.9
F - Eye	46	2.2
P - Psychological	23	1.1
Y - Male genital	15	0.7
Z - Social	6	0.3

**Table 1.2: Frequency of diagnoses according to body system for all encounters (N=1277)****Diagnoses (N=1706)**

<b>ICPC Chapter</b>	<b>Frequency (N)</b>	<b>%</b>
R -Respiratory	365	21.4
K - Cardiovascular	240	14.1
A - General and unspecified	194	11.4
S - Skin	155	9.1
D - Digestive	146	8.6
L - Musculoskeletal	145	8.5
W - Pregnancy, childbearing and family planning	75	4.4
H - Ear	73	4.3
U - Urological	70	4.1
T - Endocrine and metabolic	61	3.6
B - Blood, blood forming and immune system	53	3.1
X - Female genital	41	2.4
P - Psychological	24	1.4
N - Neurological	20	1.2
F - Eye	20	1.2
Y - Male genital	5	0.3
Z - Social	2	0.1

Problems related to the respiratory system accounted for the most common reasons for patient encounters, as well as for the diagnoses offered by the health care provider. This was followed by problems related to the digestive system, musculoskeletal system, cardiovascular system, skin, general and unspecified conditions. Psychosocial problems occurred at low frequencies for both RFE's(1.4%) and diagnoses(1.5%) During all consultations, the main RFE's were for collection of cardiovascular medication (K50), cough (R05) and throat symptoms (R21) as shown in table 2.1.

**Table 2.1: The top 20 RFE's for all encounters**

<b>RFE (N=2091)</b>	<b>ICPC code</b>	<b>Frequency (N)</b>	<b>(%)</b>	<b>Cum %</b>
Script/request for cardiac treatment	K50	168	8.0	8.0
Cough	R05	154	7.4	15.4
Throat symptom/complaint	R21	85	4.1	19.5
Headache	N01	73	3.5	23.0
Fever -	A03	65	3.1	26.1
Ear pain/earache	H01	51	2.4	28.5
Diarrhoea	D11	49	2.3	30.8
Script/request for endocrine/metabolic treatment	T50	46	2.2	33.0
Rash generalised	S07	44	2.1	35.1
Dysuria/painful urination	U01	41	1.9	37.0
Vomiting	D10	36	1.7	38.7
Sneezing/nasal congestion	R07	34	1.6	40.3
Vaginal discharge	X14	33	1.6	41.9
Script/request for respiratory treatment	R50	32	1.5	43.4
Abdominal pain/cramps general	D01	31	1.4	44.8
Bladder symptom/complaint other	U13	30	1.4	46.2
Lump/swelling localised	S04	29	1.3	47.5
Sputum/phlegm abnormal	R25	27	1.3	48.8
Loss of appetite	T03	26	1.2	50.0
Back symptom/complaint	L02	26	1.2	51.2

Table 2.2 lists the top 20 diagnoses made during all patient encounters, and as for the RFE's, problems related to the cardiovascular system (K86 – uncomplicated hypertension) and respiratory disorders (R74, R76, R78, R96) are of the most commonly treated conditions in the two sub-districts.



**Table 2.2: The top 20 diagnoses for all encounters**

<b>Diagnoses (N=1706)</b>	<b>ICPC code</b>	<b>Frequency (N)</b>	<b>%</b>	<b>Cum %</b>
Hypertension uncomplicated	K86	185	10.8	10.8
Upper respiratory infection acute	R74	90	5.3	16.1
Acute bronchitis/bronchiolitis	R78	76	4.5	20.6
Cystitis/urinary infection other	U71	58	3.4	24.0
Tonsillitis acute	R76	56	3.3	27.3
Acute otitis media/myringitis	H71	54	3.2	30.5
Tuberculosis	A70	49	2.9	33.4
Infectious diseases other/NOS*	A78	48	2.8	36.2
Diabetes non insulin dependent	T90	45	2.6	38.6
Asthma	R96	39	2.3	41.1
Health maintenance/prevention	A98	37	2.2	43.3
Osteoarthritis other	L91	35	2.1	45.4
Pregnancy	W78	34	2.0	47.4
Dermatophytosis	S74	30	1.8	49.2
Back syndrome without radiating pain	L84	28	1.6	50.8
Gastroenteritis presumed infection	D73	27	1.6	52.4
No disease	A97	27	1.6	54.0
HIV infection/AIDS	B90	26	1.5	55.5
Sinusitis acute/chronic	R75	26	1.5	57.0
Contraception other	W14	25	1.5	58.5

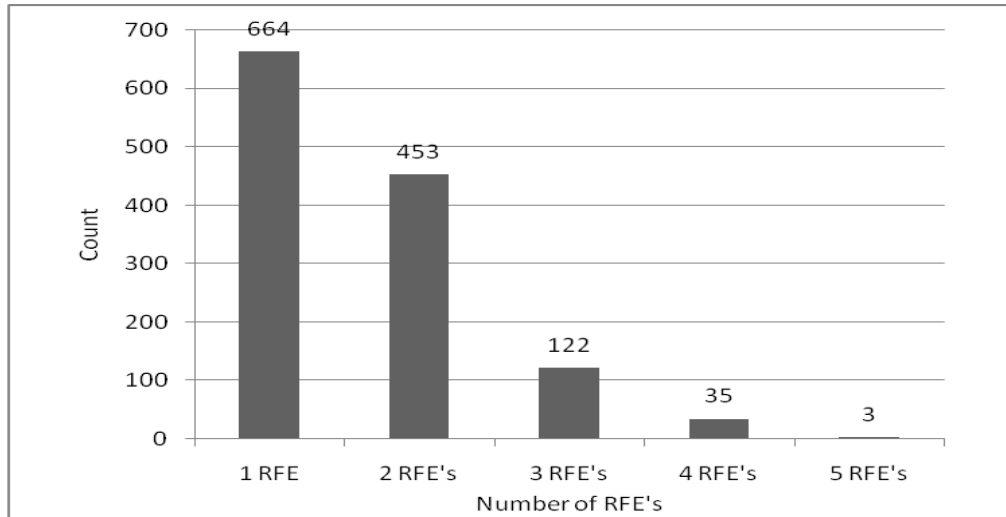
**\*NOS = not otherwise specified**

The top 20 RFE's and diagnoses also represent more than half of the cumulative % of all RFE's and diagnoses during all encounters. (51.2% and 58.5% respectively) In table 2.2 the ICPC code A78 refers to infectious diseases other or not otherwise specified (NOS), which essentially include all infections not coded under the ICPC system. These include brucellosis, infections with site not specified, Lyme's disease, meningococcal infections, mycoplasma, Q fever, rickettsial disease, scarlet fever, sexually transmitted diseases not specified, thrush NOS and toxoplasmosis. This diagnostic label used mostly when a diagnosis of a sexually transmitted infection was made.

Secondary objectives:

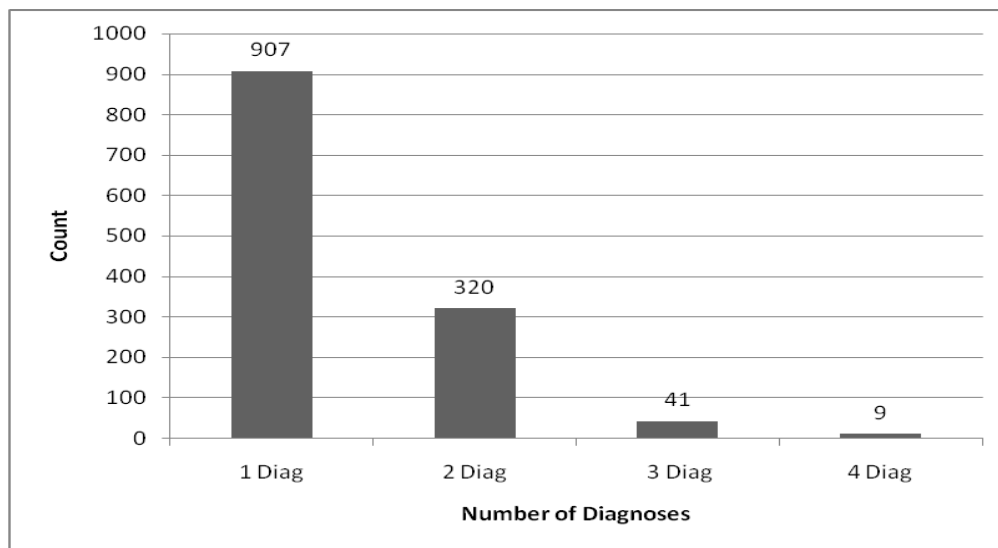
1. Number of RFE's and diagnoses per patient

Figure 5 illustrates the number of RFE's per patient during all encounters (N =1277). The majority of respondents only had 1 RFE (52.0%), 35.5% had 2 RFE's, 9.6% had 3 RFE's, 2.7% had 4 RFE's and only 0.2% had 5 RFE's.



**Figure 5: The number of RFE's per patient for all patient encounters**

A similar trend is noted for the number of diagnoses per patient in figure 6, which shows that 71.0% of patients were offered only one diagnosis, with less than 4% of consultations producing more than 3 diagnoses.



**Figure 6: The number of diagnoses for all patient encounters**

The mean number of RFE's per patient for all encounters (N = 1277) was calculated to be 1.6 (95% CI 1.5-1.6) SD 0.784. The mean number of diagnoses per patient for all encounters (N = 1277) was 1.3 (95% CI 1.3 – 1.4) SD 0.574.

## 2. Frequency of RFE's and diagnoses according to sex

**Table 3.1: The top 20 RFE's according sex for all encounters (N = 1277)**

<b>RFE (N=2091)</b>	<b>ICPC code</b>	<b>Female (N)</b>	<b>%</b>	<b>Male (N)</b>	<b>%</b>	<b>Total count (N)</b>
Script/request for cardiac treatment	K50	114	67.9	54	32.1	168
Cough	R05	80	51.9	74	48.1	154
Throat symptom/complaint	R21	60	70.6	25	29.4	85
Headache	N01	54	74.0	19	26.0	73
Fever -	A03	35	53.9	30	46.1	65
Ear pain/earache	H01	32	62.8	19	37.2	51
Diarrhoea	D11	28	57.1	21	42.9	49
Script/request for endocrine/metabolic treatment	T50	29	63.0	17	37.0	46
Rash generalised	S07	25	56.8	19	43.2	44
Dysuria/painful urination	U01	25	61.0	16	39.0	41
Vomiting	D10	18	50.0	18	50.0	36
Sneezing/nasal congestion	R07	18	52.9	16	47.1	34
Vaginal discharge	X14	32	97.0	1	3.0	33
Script/request for respiratory treatment	R50	21	65.6	11	34.4	32
Abdominal pain/cramps general	D01	22	71.0	9	29.0	31
Bladder symptom/complaint other	U13	26	86.7	4	13.3	30
Lump/swelling localised	S04	16	55.2	13	44.8	29
Sputum/phlegm abnormal	R25	13	48.1	14	51.9	27
Loss of appetite	T03	14	53.9	12	46.2	26
Back symptom/complaint	L02	15	52.7	11	42.3	26

**Table 3.2: The top 20 diagnoses according to sex for all encounters (N=1277)**

Diagnoses (N=1706)	ICPC code	Female (N)	%	Male (N)	%	Total count (N)
Hypertension uncomplicated	K86	128	69.2	57	30.8	185
Upper respiratory infection acute	R74	58	64.4	32	35.6	90
Acute bronchitis/bronchiolitis	R78	38	50.0	38	50.0	76
Cystitis/urinary infection other	U71	47	81.0	11	19.0	58
Tonsillitis acute	R76	33	58.9	23	41.1	56
Acute otitis media/myringitis	H71	32	59.3	22	40.7	54
Tuberculosis	A70	23	46.9	26	53.1	49
Infectious diseases other/NOS*	A78	39	81.1	9	18.9	48
Diabetes non insulin dependent	T90	29	64.4	16	35.6	45
Asthma	R96	26	66.7	13	33.3	39
Health maintenance/prevention	A98	30	81.1	7	18.9	37
Osteoarthritis other	L91	28	80.0	7	20.0	35
Pregnancy	W78	34	100.0	0	0.0	34
Dermatophytosis	S74	13	43.3	17	56.7	30
Back syndrome without radiating pain	L84	17	60.7	11	39.3	28
Gastroenteritis presumed infection	D73	16	59.3	11	40.7	27
No disease	A97	17	63.0	10	37.0	27
HIV infection/AIDS	B90	17	65.4	9	34.6	26
Sinusitis acute/chronic	R75	22	84.6	4	15.5	26
Contraception other	W14	25	100.0	0	0.0	25
	Total	672	67.5	323	32.5	995

\*NOS = not otherwise specified

Tables 3.1 and 3.2 enumerate the frequency of the top 20 RFE's and diagnoses for all encounters stratified according to sex. The majority of patients that requested a repeat of cardiac medication (K50), were female (67.9%). The top 20 RFE's for both sexes constituted 51.6% of all RFE's for all patient encounters, with 32.3% of respondents female and 19.3% male. For most of the RFE's, there appears to be an equal distribution between females and males, except for patients that complained of headaches (N01) and those with throat symptoms (R05). The one male patient coded with a vaginal discharge (X14), is an error.

The top 20 diagnoses for both sexes constituted 58.3% of all diagnoses made during all patient encounters. The majority of patients diagnosed with uncomplicated hypertension (K86) were females. For the rest of the common diagnoses offered, there appears to be a female predominance.

**Table 3.3: The top 20 RFE's for females for all encounters (N = 2091)**

<b>RFE</b>	<b>ICPC code</b>	<b>Frequency(N)</b>	<b>%</b>	<b>Cum%</b>
Script/request for cardiac treatment	K50	114	5.5	5.5
Cough	R05	80	3.8	9.3
Throat symptom/complaint	R21	60	2.9	12.2
Headache	N01	54	2.6	14.8
Fever	A03	35	1.7	16.5
Vaginal discharge	X14	32	1.5	18.0
Ear pain/earache	H01	32	1.5	19.5
Script/request for endocrine/metabolic treatment	T50	29	1.4	20.9
Diarrhoea	D11	28	1.3	22.2
Bladder symptom/complaint other	U13	26	1.2	23.4
Dysuria/painful urination	U01	25	1.2	24.6
Rash generalised	S07	25	1.2	25.8
Abdominal pain/cramps general	D01	22	1.1	26.9
Script/request for respiratory treatment	R50	21	1.0	27.9
Rash localised	S06	21	1.0	28.9
Vomiting	D10	18	0.9	29.8
Lump/swelling localised	S04	16	0.8	30.6
Leg/thigh symptom/complaint	L14	16	0.8	31.4
Back symptom/complaint	L02	15	0.7	32.1
Loss of appetite	T03	14	0.7	32.8

**Table 3.4: The top 20 RFE's for males for all encounters (N=2091)**

<b>RFE</b>	<b>ICPC code</b>	<b>Frequency (N)</b>	<b>%</b>	<b>Cum%</b>
Cough	R05	74	3.5	3.5
Script/request for cardiac treatment	K50	54	2.6	6.1
Fever	A03	30	1.4	7.5

Throat symptom/complaint	R21	25	1.2	8.7
Diarrhoea	D11	21	1.0	9.7
Rash generalised	S07	19	0.9	10.6
Ear pain/earache	H01	19	0.9	11.5
Headache	N01	19	0.9	12.4
Vomiting	D10	18	0.9	13.3
Script/request for endocrine/metabolic treatment	T50	17	0.8	14.1
Sneezing/nasal congestion	R07	16	0.8	14.9
Dysuria/painful urination	U01	16	0.8	15.7
Sputum/phlegm abnormal	R25	14	0.7	16.4
Lump/swelling localised	S04	13	0.6	17.0
Lump/swelling generalised	S05	13	0.6	17.6
Rash localised	S06	12	0.6	18.2
Loss of appetite	T03	12	0.6	18.8
Wheezing	R03	12	0.6	19.4
Back symptom/complaint	L02	11	0.5	19.9
Shoulder symptom/complaint	L08	11	0.5	20.4
Script/request for respiratory treatment	R50	11	0.5	20.9
Lymph glands enlarged/painful	B02	11	0.5	21.4

Tables 3.3. and 3.4 demonstrate the top 20 RFE's for females and males respectively. Respiratory complaints and requests for cardiac treatment were the main reasons for both females and males seeking healthcare. It is therefore not surprising to find that uncomplicated hypertension and respiratory tract infections were amongst the commonest diagnoses offered for both females and males. (tables 3.5 and 3.6)

**Table 3.5: The top 20 diagnoses for females for all encounters (N=1706)**

Diagnoses	ICPC code	Frequency (N)	%	Cum%
Hypertension uncomplicated	K86	128	7.5	7.5
Upper respiratory tract infection acute	R74	58	3.4	10.9
Cystitis/urinary infection other	U71	47	2.8	13.7
Infectious diseases/NOS	A78	39	2.3	16.0

Acute bronchitis/bronchiolitis	R78	38	2.2	18.2
Pregnancy	W78	34	2.0	20.2
Tonsillitis acute	R76	33	1.9	22.1
Acute otitis media/myringitis	H71	32	1.9	24.0
Health maintenance/prevention	A98	30	1.8	25.8
Diabetes non insulin dependent	T90	29	1.7	27.5
Osteoarthritis other	L91	28	1.6	29.1
Asthma	R96	26	1.5	30.6
Contraception other	W14	25	1.5	32.1
Tuberculosis	A70	23	1.4	33.5
Sinusitis acute/chronic	R75	22	1.3	34.8
No disease	A97	17	1.0	35.8
HIV infection/AIDS	B90	17	1.0	36.8
Back syndrome without radiating pain	L84	17	1.0	37.8
Gastroenteritis presumed infection	D73	16	0.9	38.7
Diarrhoea	D11	14	0.8	39.5

Urinary tract infections ( U71 - 2.8%) were amongst the 5 commonest diagnoses made in females, whilst pregnancy and issues related to contraception were diagnosed at lower frequency (3.5%). The top 20 diagnoses made in males were almost similar to that as for females, except more specific dermatological conditions were diagnosed (e.g. scabies and dermatophytosis).

**Table 3.6: The top 20 diagnoses for males for all encounters (N=1706)**

Diagnoses	ICPC code	Frequency (N)	%	Cum%
Hypertension uncomplicated	K86	57	3.3	3.3
Acute bronchitis/bronchiolitis	R78	38	2.2	5.5
Upper respiratory tract infection acute	R74	32	1.9	7.4
Tuberculosis	A70	26	1.5	8.9
Tonsillitis acute	R76	23	1.4	10.3
Acute otitis media/myringitis	H71	22	1.3	11.6
Dermatophytosis	S74	17	1.0	12.6
Diabetes non insulin dependent	T90	16	0.9	13.5
Asthma	R96	13	0.8	14.3
Gastroenteritis presumed infection	D73	11	0.6	14.9
Influenza	R80	11	0.6	15.5
Back syndrome without radiating pain	L84	11	0.6	16.1
Scabies	S72	11	0.6	16.7
Cystitis/urinary infection other	U71	11	0.6	17.3
Stomach function disorder	D87	10	0.6	17.9
HIV infection/AIDS	B90	9	0.5	18.4
Urethritis	U72	9	0.5	18.9
Pneumonia	R81	9	0.5	19.4
Infectious disease other/NOS	A78	9	0.5	19.9
Secondary effect of trauma	A82	8	0.4	20.3

**\*NOS - not otherwise specified**

The mean number of RFE's for both females and males were 1.6. The mean number of diagnoses for females was 1.3 and for males 1.4. The Mann Whitney analyses of these values showed that there is no difference in the mean values for RFE's between females and males (*p value* 0.8383). Similarly, there is also no difference in the mean values for diagnoses between females and males (*p value* 0.7560).



3. Number of RFE's and diagnoses according to age groups for all encounters (N =1277)

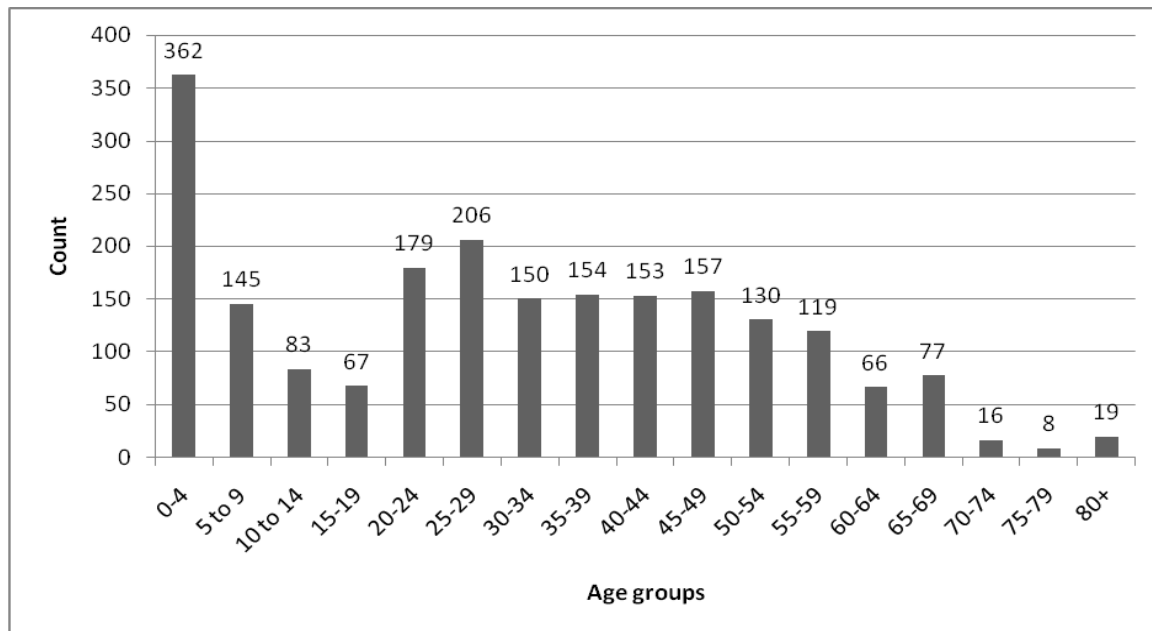


Figure 7: The number of RFE's according to the different age groups for all encounters

Table 4.1: The number of RFE's according to age group for all encounters (N=2091)

Age group	Count (N)	%
0 - 4	362	17.3
25 - 29	206	9.9
20 - 24	179	8.6
45 - 49	157	7.5
35 - 39	154	7.4
40 - 44	153	7.3
30 - 34	150	7.2
5 - 9	145	6.9
50 - 54	130	6.2
55 - 59	119	5.7
10 - 14	83	4.0
65 - 69	77	3.7
15 - 19	67	3.2
60 - 64	66	3.2
80+	19	0.9
70 - 74	16	0.8
75 - 79	8	0.4

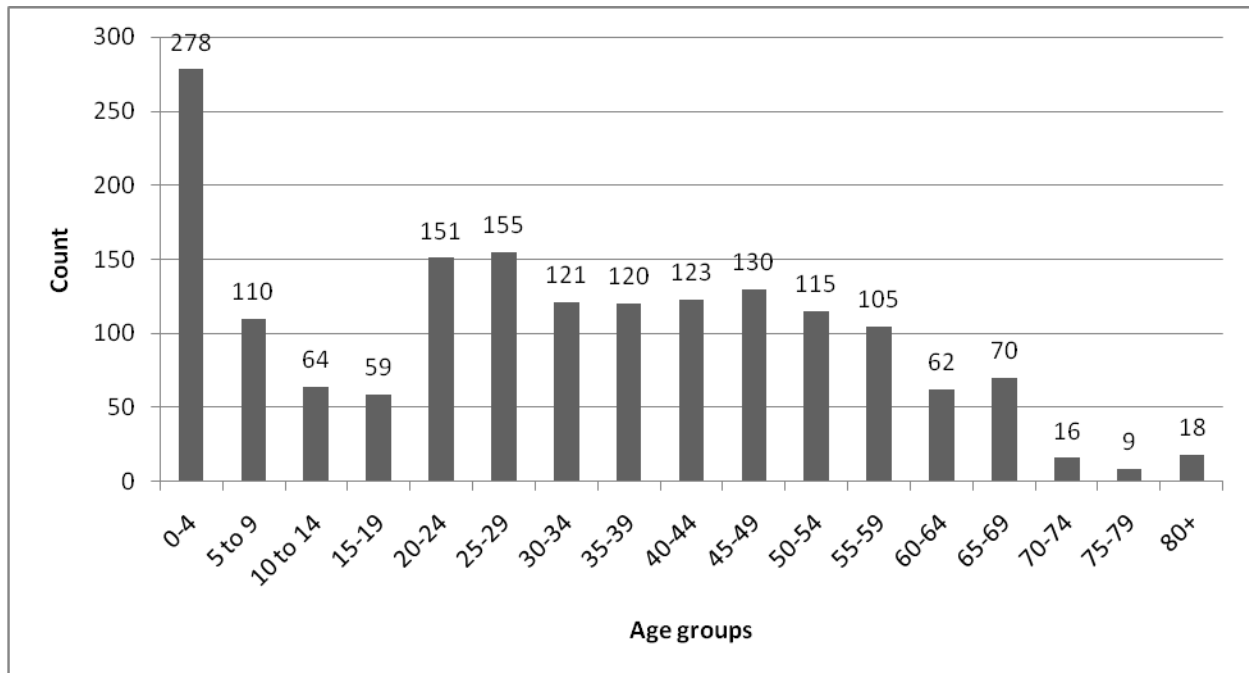


Figure 8: The number of diagnoses according to the different age groups for all encounters

Table 4.2: The number of diagnoses according to age groups for all encounters (N=1706)

Age group	Count(N)	%
0 - 4	278	16.3
25 - 29	155	9.1
20 - 24	151	8.9
45 - 49	130	7.6
40 - 44	123	7.2
30 - 34	121	7.1
35 -39	120	7.0
50 - 54	115	6.7
5 - 9	110	6.4
55 - 59	105	6.2
65 - 69	70	4.1
10 - 14	64	3.8
60 - 64	62	3.6
15 - 19	59	3.5
80+	18	1.1
70 - 74	16	0.9
75 - 79	9	0.5

Figures 7 and table 4.1 show the frequency of RFE's according to the different age groups of patients that were enrolled into the study. Figure 8 and table 4,2 show the frequency of diagnoses that were made for the different age groups during all patient encounters. The distribution of both the RFE's and diagnoses within these age groups are similar, with the majority of patients that were seen during all the consultations being under the age of 4. There was a significant difference in the total number of RFE's between the different age groups (p value

0.0237). Similarly, there was also a very significant difference in the total number of diagnoses made between the different age groups (p value 0.0000).

Table 4.3 lists the commonest symptoms/complaints with which children under 4 presented to the clinic, with cough and fever being the most common. The rest of the RFE's include symptoms related to ears, eyes, oral cavity and the skin.

**Table 4.3: The top 20 RFE's for children 0-4 for all encounters (N=2091)**

RFE	ICPC code	Frequency (N)	%	Cum%
Cough	R05	64	3.1	3.1
Fever	A03	39	1.9	5.0
Vomiting	D10	22	1.1	6.1
Diarrhoea	D11	20	1.0	7.1
Rash generalised	S07	20	1.0	8.1
Wheezing	R03	12	0.6	8.7
Throat symptom/complaint	R21	12	0.6	9.3
Loss of appetite	T03	12	0.6	9.9
Ear pain/earache	H01	11	0.5	10.4
Sneezing/nasal congestion	R07	11	0.5	10.9
Consult with primary care provider - endocrine/metabolic/nutritional problem	T46	9	0.4	11.3
Rash localised	S06	8	0.3	11.6
Lymph gland(s)enlarged/painful	B02	7	0.3	11.9
Mouth/tongue/lip symptom complaint	D20	7	0.3	12.2
Lumps/swellings generalised	S05	7	0.3	12.5
Eye discharge	F03	6	0.3	12.8
Ear discharge	H04	5	0.2	13.0
Ear symptom complaint other	H29	5	0.2	13.2
Fear of other disease NOS*	A27	4	0.2	13.4
Health maintenance/prevention	A98	4	0.2	13.6

\*NOS -not otherwise specified

The RFE A27 (Fear of other disease NOS) refers to concerns the patient or parent may express about having a disease in the patient without the disease or the diagnoses is not proven. Respiratory tract infections were the commonest diagnoses made in children under 4, which include upper respiratory tract infections(2.1%) and acute bronchitis(1.1%) as shown in table 4.4. Children also presented with different skin conditions, including fungal infections, bacterial skin infections (e.g. impetigo). The diagnostic label S99 (Skin disease, other) refers to skin conditions which include dermatitis artefacta, discoid lupus erythematosus, erythema multiforme, erythema nodosum, granuloma annulare, hyperkeratosis NOS, rosacea, rhinophyma, scar, seborrhoeic or senile warts, striae atrophicae, vitiligo, and other skin conditions NOS.

**Table 4.4: The top 20 Diagnoses for children 0-4 for all encounters (N=1706)**

Diagnoses	ICPC code	Frequency (N)	%	Cum%
Upper respiratory tract infections acute	R74	36	2.1	2.1
Acute bronchitis/bronchiolitis	R78	19	1.1	3.2
Acute otitis media/myringitis	H71	19	1.1	4.3
Health maintenance/prevention	A98	14	0.8	5.1
No disease	A97	13	0.8	5.9
Tonsillitis acute	R76	13	0.8	6.7
Influenza	R80	13	0.8	7.5
Diarrhoea	D11	11	0.6	8.1
Pneumonia	R81	11	0.6	8.7
Gastroenteritis presumed infection	D73	10	0.6	9.3
Dermatophytosis	S74	8	0.5	9.8
Impetigo	S84	8	0.5	10.3
Tuberculosis	A70	7	0.4	10.7
Worms/other parasites	D96	6	0.4	11.1
Chickenpox	A72	5	0.3	11.4
Conjunctivitis infectious	F70	5	0.3	11.7
Skin disease, other	S99	4	0.2	11.9
Anaemia other/unspecified	B82	3	0.2	12.1
Vomiting	D10	3	0.2	12.3
Dermatitis/atopic eczema	S87	3	0.2	12.5

## Discussion

### Main findings of the study

During the study we were able to record and code using the ICP-2 coding system, the main reasons for encounter and diagnoses for 1277 consultations at primary care facilities in the rural sub districts of Saldanha Bay and Swartland. Most of the study participants were nurses (96%). Brueton et al reported in their morbidity survey in the Eastern Cape Province that 97% of contacts at the health facilities were with a nurse.<sup>30</sup> The majority of the patients seen were female and comprised 64.5% of the encounters. In a Norwegian RFE survey, 59.1% of the patients were female.<sup>10</sup> In the morbidity studies in the Eastern Cape Province and in Sri Lanka, 53.0%<sup>20,30</sup> of attendees were female. The high female attendance may be explained by a demand for contraception and pregnancy related complaints and advice.<sup>30</sup> However the findings of this study does not support this notion, as symptoms and diagnoses related to these issues comprised only 3.5% of all diagnoses for all the patients encounters. (see tables 2.2. and 3.5)

Based on the frequency of RFE's and diagnoses offered, most patients accessing primary care facilities in these rural subdistricts, had symptoms related to an acute illness, with cough (7.4%), throat symptom (4.1%), headache (3.5%) and fever (3.1%) amongst the five commonest symptoms. The findings from the studies in the Eastern Cape<sup>30</sup> and Mthatha<sup>31</sup> were similar, with cough being the commonest presenting complaint. Cough is in general, a common symptom, and is mostly due to an upper respiratory tract infection which is self limiting, but can also be a symptom of other respiratory infections or diseases (e.g. TB, pneumonia, asthma, COPD) or even of underlying cardiac failure. The most common diagnosis categories were respiratory (21.4%) and cardiac (14.1%). Similar findings were reported in Sri Lanka (respiratory 28.1%)<sup>20</sup> and for the Eastern Cape Province (respiratory 23%)<sup>30</sup> In this survey upper respiratory tract infections, acute tonsillitis and acute bronchitis/brochiolitis were amongst the 5 most common diagnoses. Tuberculosis was diagnosed in 2.9% of patients, which is similar to the results from the survey in the Eastern Cape where 3% of patients were diagnosed with TB.<sup>30</sup> HIV was diagnosed in 1.5% of patients (1.3% females, 0.7% males), which is slightly lower than the data reported from Gauteng, where HIV was diagnosed in 2.7% of women and 2.8% of men.<sup>31</sup> HIV positive patients in these sub-districts may be accessing a dedicated clinic (wellness clinic or ARV site) elsewhere.

The analysis showed that the majority of patients presented with a request for their cardiovascular medication (K50 – 8%), hypertension in most cases, as the most common diagnosis made during all encounters, was uncomplicated hypertension (K86 – 10.8%). It is very interesting that the burden of care mirrors the huge burden from non communicable diseases on primary care facilities in these sub-districts. Other non communicable diseases that were also amongst the top 20 common conditions diagnosed in this survey, include non insulin dependent diabetes (2.6%) and asthma (2.3%). These findings corroborate the findings by Mayosi et al<sup>32</sup> that the burden of non communicable diseases is rising in rural communities. According to WHO estimates for 2004, non communicable diseases caused 28% of the total burden of disease measured by disability-adjusted life years (DALYs), of which 12% were from cardiac and respiratory conditions and 6% from neuropsychiatric conditions.<sup>32</sup> In the Gauteng study, depressive disorders were amongst the top 20 diagnoses made in women attending primary care clinics.<sup>31</sup> In this study, however, very few patients presented with psychological and social problems. This finding was similar in the Sri Lanka study<sup>20</sup> and that in the Eastern Province.<sup>30</sup>

Most often patients with mental health problems present with somatic symptoms, and it is possible that social problems will likewise be presented with a somatic ticket.

As the commonest RFE was for collection of medication (K50), it correlates with the high frequency of patients only presenting with only 1 RFE, and as you would expect, these patients will only be offered one diagnosis, hence the high frequency of one diagnosis during all encounters. The same applies to the high frequency of patients presenting with 2 RFE's. Most of the patients with respiratory symptoms were given a diagnosis of an acute upper respiratory tract infection, and it is likely that these patients would have complained of a cough (R05) and sore throat (R21) as the main RFE's.

More women attended the clinics for treatment of their chronic diseases, but it does not suggest that more women in these areas suffer from diseases of lifestyle. As is the trend in the general population, men are less inclined to seek medical care, and also one can assume that the men are at work during the day and cannot attend the clinic out of fear of losing their work. What may also confound this observation, is the fact that the wife could have collected the treatment on behalf of her husband, and the study participant would have recorded the details of the wife, and not that of the patient. Despite the fact that almost two thirds of the patients that were enrolled into the study, were females, there was no difference in the mean number of RFE's and diagnoses between the sexes. (p values 0.8383 and 0.7560 respectively). This means that sex did not determine the number of RFE's provided by the patients and the number of diagnoses offered by the provider. It is also interesting to note that despite the female predominance, problems related to female genital tract were not amongst the main reasons for encounter and diagnoses. The top 20 diagnoses in males enumerated in table 3.6, shows varying frequencies of acute illnesses (mainly respiratory and gastrointestinal), non communicable diseases (hypertension, diabetes and asthma), trauma related conditions, and HIV and TB, which reflects the quadruple burden of diseases that is currently plaguing the country's healthcare system.

The highest frequency for both RFE's and diagnoses was for children under the age of 4. (17.3% and 16.3% respectively). The survey in the Eastern Cape Province found that children 0 – 4 years comprised 15% of all contacts.<sup>30</sup> This correlates with the high frequency of RFE's and diagnoses of problems related to the respiratory (upper respiratory tract infections/bronchitis) and digestive systems (gastroenteritis). It is interesting to note the pattern of distribution of the frequency of RFE's and diagnoses within the different age groups. It does not reflect the pattern in the general population for the two sub districts as depicted in figures 9 and 10.

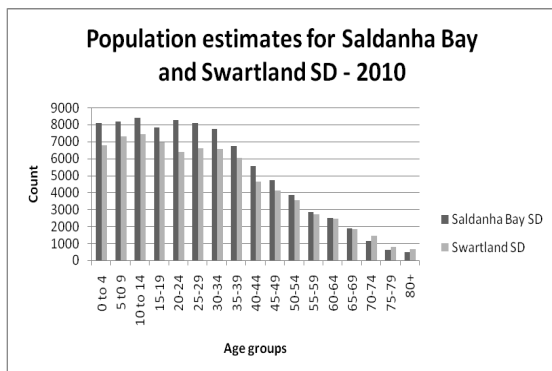


Figure 9: Population estimates for the 2 sub districts according to age groups

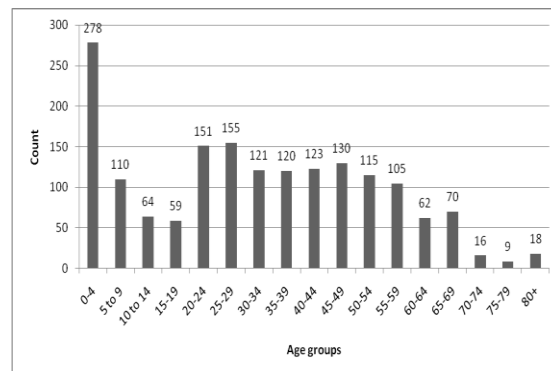


Figure 10: The distribution of RFE's according to age groups

### **Strengths and limitations of the study**

The data obtained in this study will allow for comparison of the burden of care and disease in other areas, especially in the urban and other underresourced rural areas of South Africa, which were surveyed for the multi-centre study. Different health facilities in the two sub-districts were invited to participate in the study to gain insight into a wide spectrum of clinical problems. The results compare with the findings of other similar morbidity studies, both locally and internationally, especially with regards to the commonest reasons for encounter and diagnoses. The data was collected during the different months of the year to account for seasonal variations in disease presentations, as well as on different days of the week to account for daily variations in disease presentations. All study investigators were trained in data coding and were in contact with each other and the principal investigator throughout the study period.

A limitation of the study is the small sample size that was obtained, which was lower than what was aimed for; the main reasons for this include the staff shortages experienced at some of the facilities and also, most of the facilities only has one clinical nurse practitioner, who is responsible for both curative and preventive services. Only 2 out of the 10 pre selected clinics have more than one clinical nurse practitioner. Unfortunately, no doctor participated in the full duration of the study, and doctor consultations constituted only 4% of all patient encounters. This is mainly due to the fact that all the clinics are nurse-driven/ doctor-supported and it was difficult to coordinate the data collection dates with the days on which the doctors provided outreach to the participating health facilities. The coding of the data was not checked for inter- and intra-coder reliability, which can potentially confound some of the frequencies.

### **Implications/recommendations for managers, policy makers, education and researchers**

Acute illnesses affecting different body systems, including respiratory, digestive, skin, musculoskeletal, general and unspecified, place a huge burden on primary care facilities in these sub-districts. This information can assist the district managers with the allocation of resources (e.g. adequately trained clinical staff, drug supply, education programmes, etc) to the different facilities and for the planning of comprehensive patient management.

The top 20 RFE's and diagnoses accounted for more than 50 per cent of all encounters, thus defining the most common conditions that healthcare providers working in these areas should be familiar with. This information can also be useful to curricula designers at the different training institutions (medical schools and nursing colleges). Respiratory conditions were found to be very common, and a significant proportion of patients were children under 4 years. This necessitates that all nurses working in these clinics should be trained in IMCI (Integrated management of childhood illnesses) and PALS Plus (Practical approach to lung health and HIV/AIDS in South Africa). The latter training manual has a very limited scope of disease management, and does not address the other common symptoms and chronic conditions that patients can present with in primary care. The data obtained in this study on the main RFE's and diagnoses made at the primary care facilities in the two sub-districts, in conjunction with the data from the rest of the multi-centre survey, will be useful for guideline developers to expand the current PALS plus manual to include other common presenting symptoms. The children also presented with a wide spectrum of skin conditions and ongoing training in the management of common skin conditions should be provided.

The huge burden of non communicable diseases on the primary health care system, and the growing trend in rural areas in South Africa, is borne out in this study. In 2006 the Department of Health published a national guideline<sup>33</sup> for the management and control of non communicable diseases, but there has been barriers in its implementation.<sup>32</sup> There is a definite need to improve the skills of clinicians working at primary care clinics to deal comprehensively with non communicable diseases.

National BOD studies to estimate DALYs requires reliable mortality and morbidity data. The latter component requires incidence rates for each condition, as well as its severity and duration.<sup>34</sup> The information obtained from this study can be useful to plan follow up longitudinal studies that can assess the impact of health services and other interventions are having on the health of the population.

## **Conclusion**

In this study we were able to ascertain the health seeking behaviour and the main reasons why patients access primary care clinics in the two rural sub-districts of Saldanha Bay and Swartland. In addition we were also able to establish how the healthcare provider interprets the patient's complaint/request and offer a diagnosis. Most of patients accessing the clinics were female, with a significant proportion under 4 years, and were consulted by a nurse. We were also able to demonstrate how the burden of care can mirror the burden of disease, and the huge impact non-communicable diseases have on primary care facilities in rural areas. The ICPC-2 was useful in classifying the different RFE's and diagnoses, and can be used in further studies that will monitor health services in terms of quality and assessing the impact it has on the health of the population.

## **Acknowledgements**

I would like to extend my sincere appreciation to the nursing staff working in clinics that participated in the study, as well as to the West Coast Municipality for granting permission for study to be conducted in the clinics. Professor Bob Mash, Principal investigator and study supervisor, for his invaluable assistance and guidance throughout the study. The Division of Family Medicine and Primary Care at the University of Stellenbosch covered the travelling costs.



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