_REASONS FOR ENCOUNTER AND DIAGNOSIS IN PATIENTS SEEN IN FRANCES BAARD DISTRICT PUBLIC PRIMARY CARE: A PROSPECTIVE CROSS SECTIONAL STUDY_

A research report submitted to the Division of Family medicine, University of Stellenbosch in partial fulfilment of the requirements for the degree of MMED Family Medicine

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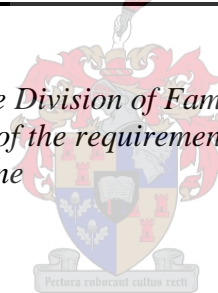
Declaration

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.

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ABSTRACT

Background

Information on the patient provider encounter, in terms of the most prevalent reasons for encounter and diagnoses at the primary care level, may help not only to improve the quality and efficiency of primary care service delivery, but also to develop training programmes for primary care providers. This study aimed to determine the range and prevalence of the reasons for encounter and diagnoses resulting form provider-patient encounters in public sector primary care facilities in the Frances Baard District.

Methods

This descriptive cross sectional survey was conducted in the Frances Baard district situated in the Northern Cape Province. The study aimed to include 6000 consultations. This sample size was allocated to the sub-districts based on their respective populations. The facilities in each sub-district were then listed and divided into community health centres, fixed clinics or mobile clinics. Following this stratification, the required number of health centres, fixed clinics and mobile clinics were then randomly selected. In order to account for seasonality and pattern of attendance throughout the week, the 5 days on which patients were sampled were divided over a 12 month period and between different days of the week. Vertical programmes were excluded from this study as well as clinics attending to only one type of patients. Data were coded according to the International Classification of Primary Care-Version 2.

Results

In total 1504 consultations were captured and resulted in 2930 RFE and 1958 diagnoses. Among these consultations 1491(99.1%) were conducted by nurses versus 13(0.9%) by doctors. Overall the sex ratio showed 591(39.3%) male to 902(59.9%) female patients. There was no significant difference between males and females in the number of RFEs (p=0.36) or diagnoses (p=0.35). Age was not related to the number of RFEs (p=0.77) but was significantly related to the number of diagnoses (p<0.01). Older clients had a significantly lower number of diagnoses in comparison to younger patients. The top 20 RFE and top 20 diagnoses are presented overall, by gender and separately for children.

Conclusion

Cough, fever and throat symptoms emerged as the main RFE. In adults hypertension, acute URTI/tonsillitis, tuberculosis and HIV were the most prevalent diagnoses. Children were primarily seen for respiratory tract infection, gastrointestinal infection and immunizations. Nurses were seeing 99% of all patients and their practice was dominated by non-communicable chronic diseases and infectious diseases. Delivering quality public primary care would require a comprehensive support system for nurses to improve their capacity to respond appropriately to the common reasons for encounter and conditions identified in this survey. In particular there is a need to

improve the recognition of mental health disorders and to foster a more bio-psycho-social approach.

INTRODUCTION:

South Africa is a middle income country with a healthcare system facing new healthcare challenges that require adequate planning particularly in a context where available resources are not always proportional to the pressing demand put over the healthcare system. Despite the considerable efforts made by the SA department of health, South Africa is still grappling with a quadruple burden of diseases.The estimated disability adjusted life years by broad group in the country ranks non communicable diseases first(33%) followed by HIV AIDS(30.9%) and communicable/maternal/perinatal/nutritional diseases(21.7%).(1) Injuries come last representing 14.3%. During the same period the percentage of deaths caused by non communicable diseases was estimated at 37% whereas those attributed to HIV AIDS were around 30%.(1) In spite of being a communicable disease too, the HIV/AIDS pandemic has been categorized separately owing to its unprecedented impact on the health of the South African society overall and the implications thereof over the resources of the country.(2)

The primary care level is the entry point to the health system in South Africa. The national health plan is premised on a primary health care (PHC) approach, seeking among other things to decentralize the organization and management of health services through a well-coordinated district health system and to make comprehensive community based health care accessible to all South Africans by establishing PHC centres as the foundation of the national health system.(3) The mission of the Department of Health is a caring and humane society in which all South Africans have access to affordable, good-quality health care. Access to primary care facilities increased from around 67 million visits in 1998, to over 100 million in 2006. The current national utilization rate is around 2.2 visits per annum.(4)

There is a widespread shortage of staff in the public sector, particularly in rural settings, leaving nurses in the position of being often the only health professionals carrying out primary health care.(5) The limitation of resources, heavy burden of disease and increasing demand on the primary health care system, requires that priorities be determined in order to provide an effective service to the community. Information on the patient provider encounter, in terms of the most prevalent reasons for encounter and diagnoses at the primary care level, may help not only to improve the quality and efficiency of primary care service delivery but also to develop training programmes for primary care providers(doctors, clinical assistant and nurses).

Within health care facilities the formulation of an effective clinical approach to the problems encountered will depend on knowing what the common presentations are and ensuring health workers are competent to assess and manage these patients. Moreover primary care offers a different context of care from the traditional teaching institution. Futhermore the old academic curriculum predominantly exposed medical students to academic teaching hospitals limiting their experience and preparation to handle typical health problems faced at primary care level.(6) Nurses have also not always been given the training and support necessary to fulfill their role adequately.

Consequently they may struggle to cope with basic diagnostic and prescription issues as well as activities outside of their clinics.(5)

Understanding the commonest reasons for encounter and diagnoses may also help with the revision and improvement of primary care nursing curricula as well as in-service training. This information may also be relevant to the training of medical students, interns and family physicians. Family physicians should have a key role in these activities as they are expected to not only provide individual clinical services but also to engage with clinical governance and support of the whole clinical team. (5)

There is, therefore, a need for a survey that will not only address the specificity of the primary care paradigm with it common presentations but also highlight the areas requiring training and support for primary care professionals. There is a scarcity of current data and publications related to the reasons for encounter (RFE) and diagnoses in South African public and private sector primary care. Previous morbidity studies at primary care level are mostly out-of-date or limited to a particular facility or season of the year. (7,8,9,10)

AIMS AND OBJECTIVES:

Aim:
The aim of this study was to identify the most common reasons for encounter and diagnoses resulting from provider-patient encounters in public sector primary care facilities in the Frances Baard District, Northern Cape. It was part of a multi-centre survey also being conducted in the provinces of Limpopo, North West and Western Cape.

Objectives:

1. To determine the range of RFE in public sector primary care Francis Baard District
2. To determine the range of diagnoses made
3. To determine the prevalence of the different reasons for encounter
4. To determine the prevalence of the different diagnoses made
5. To measure the average number and range of reasons for encounter and diagnoses per patient.
6. To compare the reasons for encounter and diagnoses in relation to gender and the age of patients
7. To compare the average number of reasons for encounter and diagnoses for doctors versus nurses

METHODS

Study design

This study was a cross sectional survey

Setting and study population

The survey was conducted in the Frances Baard District (see Figure 1), the most densely populated district in the Northern Cape province (26,2 persons per square km) with 324798 people (40.2% of the provincial population). The entire study was carried out in public sector primary care facilities.

Frances Baard District includes the four sub-districts of Dikgatlong, Magareng, Phokwane and Sol Plaatjie. The city of Kimberley, which is the seat of the District Municipality and of the Northern Cape legislature, is located in the Sol Plaatjie Municipality, the largest of the four.(11)

Sol Plaatjie covers 12 clinics and 1 community health centre (CHC). Dikgatlong and Magareng are respectively comprised of 9 and 4 clinics. Phokwane delivers primary care through 4 clinics and 1 community health centre. The provincial hospital situated in the Sol Plaatjie local municipality is the only referral hospital for the whole province while the other 3 sub-districts are served each by one district hospital.

Dikgatlong, Magareng and Phokwane are rural subdistricts and have respectively 39881, 21348 and 40757 people whereas Sol Plaatjie, with a population of 200013, is considered to be an urban setting. All the primary care facilities selected for the study carry out curative care, preventive care and health promotion activities.

Figure 1: Map of the Frances Baard district municipality

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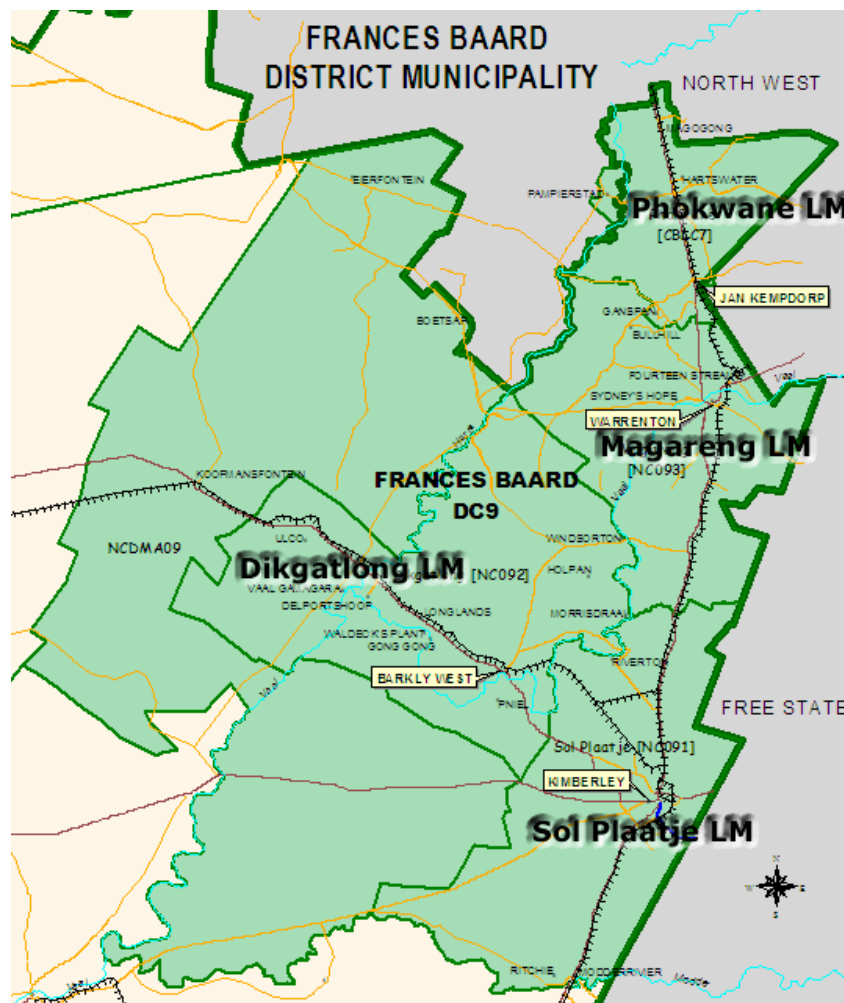
Sampling and sample size:

Table 1: Geographical spread of the sample

Sub-districts	Location	Population	Required number of health workers	Required number of facilities		
				CHC	Clinic	Mobile
NORTHERN CAPE						
Sol Plaajtie	Urban	200,013	25	0	12	0
Dikgatlong	Rural	39,881	17	0	9	0
Magareng	Rural	21,348	6	0	3	0
Phokwane	Rural	40,757	12	0	6	0

The study aimed to include 6000 consultations. The sample size was based on two considerations: firstly the number of health care workers a research assistant could train and support across a number of facilities and secondly on ensuring that the secondary reasons for encounter would be encountered in large enough numbers (>100). The sample size per province was therefore the product of the number of health care workers that could be handled (60), the number of sampling days for each health care worker (5) and the number of patients per day (20) resulting in 6000 encounters per province and 24000 overall.

This sample size was allocated to the sub-districts based on their respective populations. The facilities in each sub-district were then listed and divided into community health centres, fixed clinics or mobile clinics. It was assumed that a larger community health centre would have 5 health workers participating in the survey, a fixed clinic 2 health workers and a mobile clinic 1 health worker. It was assumed that each health worker would see at least 20 patients a day and collect data over 5 separate days. The number of health workers required to deliver the sample size was then determined and distributed between the different types of facilities in proportion to the total number of different facilities in the sub-district. The required number of health centres, fixed clinics and mobile clinics were then randomly selected.

In order to account for seasonality and pattern of attendance throughout the week, the 5 days on which patients were sampled were divided over a 12 month period and between different days of the week. On these days all sequential ambulatory patients attending the health care providers (nurses and doctors that agreed to participate) working in theses sites were included in the survey.

Inclusion/exclusion criteria for nurses and doctors were defined as follows:
- Should be willing to participate
- Should be available to participate for the next 12 months on specified dates in each quarter.
- Should not be exclusively involved in a vertical programme and seeing only one type of patients
- Should be in general ambulatory care section – not emergency section

Data collection:

All participants in the study as well as the clinic supervisors were trained on the actual process of data collection. A data collection sheet was provided which allowed the provider to record the age, gender and up to 5 reasons for encounter and 5 diagnoses.

Data coding and capture:

The International Classification of Primary Care –second edition (ICPC-2) was used for the codification of the reasons for encounter (RFE) and diagnoses in our study.(12,13) ICPC is based on a simple bi-axial structure: 17 chapters based on body systems on one axis, each with an alpha code, and seven identical components with rubrics bearing a two digit numeric code as the second axis.(12) The ICPC-2 coding process is fairly easy owing to its mnemonic quality. The ICPC-2 allowed the researchers to classify RFE and diagnoses.

Prior to the implementation of the study the researcher underwent training on ICPC -2 coding at the division of Family Medicine and Primary Care, Stellenbosch University. The coding was checked and where necessary discussed with the supervisor and other students engaged in similar surveys elsewhere. A random sample of 20 data collection sheets (10 patients per sheet) were also independently coded by the trainer, who acted as the gold standard. The error rate between the trainer and the researcher for RFE and diagnoses was then calculated. The error rates in this study were respectively 7.2%(4.1-10.3) and 9.2%(5.1-13.2) for the RFE and diagnosis.

Reasons for encounter and diagnoses were then captured electronically in a Microsoft excel spreadsheet.

Data Analysis:

Data was analysed by the Centre for Statistical Consultation at Stellenbosch University. Analysis of the RFE and diagnoses involved simple frequency tables. The Mann-Whitney Chi Square test was used as a test of significance for differences in RFE and diagnoses according to age and gender.

Pilot study:

Prior to the actual data collection process a pilot study was conducted at a clinic in the Sol Plaatjie sub-district. . One family physician and a primary care nurse were conveniently selected to participate in the pilot study. The research process and instrument (sampling, data collection and analysis) were shown to be understandable and practical in the setting.

Ethical considerations:

Ethics approval for the study was obtained from the Health Research Ethics Committee of the Faculty of Health Sciences, University of Cape Town and the University of Stellenbosch (project number: N07/08/192). Subsequently the Northern

Cape provincial ethics committee was approached and gave its approval in April 2009. All health workers gave written consent to participate in the study.

RESULTS

In total 1504 consultations were captured and resulted in 2930 RFE and 1958 diagnoses. Among these consultations 1491(99.1%) were conducted by nurses versus 13(0.9%) by doctors. Overall the sex ratio showed 591(39.3%) male to 902(59.9%) female patients. There was no significant difference between males and females in the number of RFEs (p=0.36) or diagnoses (p=0.35). Age was not related to the number of RFEs (p=0.77) but was significantly related to the number of diagnoses (p<0.01). Older clients had a significantly lower number of diagnoses in comparison to younger patients. In terms of the number of consultations, the under 5s with a total of 188 had the highest number while elderly above 80 years with only 14 consultations had the lowest number.

The distribution of the RFEs according to the ICPC-2 chapters is shown in Table 1.

Table 2: Frequency of the RFEs by the ICPC-2 chapters

RFEs / ICPC-2 Chapter	Alpha Code	N	%
Respiratory	R	555	18.9
General and unspecified	A	349	11.9
Digestive	D	291	9.9
Cardiovascular	K	285	9.7
Neurological	N	253	8.6
Skin	S	229	7.8
Musculoskeletal	L	224	7.6
Endocrine/Metabolic and Nutritional	T	177	6.0
Female genital	X	114	3.9
Eye	F	83	2.8
Urological	U	82	2.8
Pregnancy, Childbearing, Family planning	W	75	2.6
Blood, Blood Forming Organs and Immune Mechanism	B	70	2.4
Ear	H	48	1.6
Male genital	Y	46	1.6
Psychological	P	41	1.4
Social problems	Z	8	0.3

The 20 commonest RFEs are shown in Table 2. Ongoing care for cardiovascular and endocrine diseases was almost entirely for hypertension and diabetes respectively.

Table 3: Top 20 reasons for encounter

ICPC-2 Code	RFEs	Number	Percentage
R05	Cough	247	8.4
K50, K31	Ongoing care cardiovascular	214	7.2
N01	Headache	141	5.0
A03	Fever	128	4.3

R21	Throat symptoms	89	3.0
A01	General body pain	68	2.3
D11	Diarrhoea	68	2.3
T03	Loss of appetite	62	2.1
U01	Dysuria	59	2.0
D10	Vomiting	47	1.6
A04	Weakness	44	1.5
N17	Dizziness	44	1.5
R01	Chest pain, respiratory	42	1.4
T50	Ongoing care, endocrine	42	1.4
L02	Back pain	41	1.4
S07	Generalized rash	38	1.3
S02	Pruritis	35	1.2
S06	Localized rash	33	1.1
R07	Nasal congestion/sneezing	32	1.1

The distribution of diagnoses by the ICPC chapters is shown in Table 3. The order of chapters differs between RFE and diagnoses. This may be explained by RFE in one chapter resulting in a diagnosis in another chapter. For example headache may be diagnosed as an URTI or Influenza. Several RFEs in different chapters, for example a cough, weight loss and sweating at night, may result in one diagnosis in only one chapter, for example tuberculosis.

Table 4: Frequency of diagnoses by the ICPC-2 chapters

Diagnoses/ICPC-2 chapter	Alpha Code	N	%
Respiratory	R	414	21.1
Cardiovascular	K	321	16.4
General and unspecified	A	221	11.3
Digestive	D	140	7.1
Skin	S	139	7.1
Musculoskeletal	L	135	6.9
Blood, Blood forming organs and Immune mechanism	B	103	5.3
Endocrine/metabolic and nutritional	T	103	5.3
Pregnancy, Childbearing and Family planning	W	84	4.3
Neurological	N	71	3.6
Urological	U	53	2.7
Ear	H	42	2.1
Eye	F	38	1.9
Psychological	P	37	1.9
Female genital	X	33	1.7
Male genital	Y	18	0.9
Social problems	Z	6	0.3

As shown in Table 4 the five most common diagnoses made were hypertension, tuberculosis, acute upper respiratory tract infection, HIV infection and acute tonsillitis. "Infectious disease other" was used to code for sexually transmitted diseases as per the syndromic approach to diagnosis used in South Africa.

Table 5: Top 20 diagnoses

ICPC -2 code	Diagnosis	Count	Percentage
K86	Hypertension	289	14.7
A70	Tuberculosis	92	4.7
R74	Acute upper respiratory tract infection	87	4.4
B90	HIV infection	85	4.3
R76	Acute tonsillitis	78	4.0
T90	Diabetes	70	3.6
R80	Influenza	66	3.4
R81	Pneumonia	55	2.8
D70	Gastrointestinal infection	53	2.7
L99	Musculoskeletal disease	53	2.7
W78	Pregnancy	50	2.5
N88	Epilepsy	47	2.4
R96	Asthma	47	2.4
A78	Infectious disease other	39	2.0
U71	Cystitis/Urinary tract infection	37	1.9
A97	No disease	28	1.4
L81	Musculoskeletal injury	27	1.4
R75	Sinusitis	27	1.4
A92	Allergy	24	1.2
S10	Boil/carbuncle	24	1.2

Table 5 shows the number of RFE and diagnoses per patient. The mean number of RFE were 1.95 (95% CI:1.89- 2.00) and diagnoses 1.30 (95%CI:1.27-1.33).

Table 6: Number and percentage of RFEs and diagnoses per patient

Number	RFEs		Diagnoses	
	Count	Percentage	Count	Percentage
0	18	1.2	23	1.5
1	632	42.0	1094	72.7
2	446	29.6	312	20.7
3	258	17.1	62	4.1
4	118	7.8	11	0.7
5	32	2.1	2	0.13
Total	1504	100	1504	100

Table 6 and Table 7 highlight respectively the top 20 RFEs and diagnoses in relation to gender. In both males and females the RFEs are similar, featuring prominently cough, fever, ongoing care for hypertension, headache and throat symptoms. Again on going care for cardiovascular disease was almost entirely due to hypertension.

Fourteen of the RFE appear in the top 20 for both males and females. Generalized and localised rash, follow up of epilepsy, weight loss, sweating and abdominal cramps are only found in males whereas vaginal discharge, follow up of diabetes, follow up of pregnancy, nasal symptoms and pruritis appear only in females.

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Table 7: Frequency of the RFEs in relation to gender

ICPC-2 Code	RFEs/Males N=1135	Count	%	ICPC-2 Code	RFEs/Females N=1774	Count	%
R05	Cough	109	9.6	R05	Cough	134	7.5
A03	Fever	64	5.6	K50	Medical script/CV∗	104	5.9
K50	Medical script/CV∗	50	4.4	N01	Headache	100	5.6
N01	Headache	45	4.0	A03	Fever	61	3.4
R21	Throat symptom	34	3.0	R21	Throat symptom	55	3.1
D11	Diarrhea	31	2.7	A01	General body pain	49	2.8
U01	Dysuria	28	2.5	K31	Partial health evaluation/CV∗	40	2.2
A04	Weakness/tiredness general	22	1.9	T03	Loss of appetite	40	2.2
T03	Loss of appetite	22	1.9	D11	Diarrhea	36	2.0
D10	Vomiting	21	1.8	N17	Dizziness	35	2.0
A01	General body pain	19	1.7	X14	Vaginal discharge	32	1.8
K31	Partial health evaluation/CV∗	19	1.7	U01	Dysuria	31	1.7
L02	Back symptom	18	1.6	T50	Medical script/diabetes	30	1.7
R01	Pain respiratory system	18	1.6	W31	Partial health evaluation/Pregnancy	26	1.5
S07	Rash generalized	18	1.6	D10	Vomiting	25	1.4
N50	Medical script/Epilepsy	17	1.5	R01	Pain respiratory system	24	1.3
S06	Rash localized	15	1.3	R07	Sneezing/nasal congestion	24	1.3
T08	Weight loss	15	1.3	L02	Back symptom	23	1.3
A09	Sweating problem	12	1.1	S02	Pruritis	23	1.3
D01	Abdominal pain/cramps	12	1.1	A04	Weakness/tiredness general	22	1.2

∗Cardiovascular (mostly hypertension)

Seventeen of the diagnoses appeared in the top 20 for both males and females. Musculoskeletal injury, dermatophytosis and other respiratory tract infections were only found in males whereas pregnancy and acute otitis media/myringitis appeared only in females.

Table 8: Frequency of diagnoses in relation to gender

ICPC-2 Code	Diagnoses/ Males N=753	Count	%	ICPC-2 Code	Diagnoses/ Females N=1193	Count	%
K86	Hypertension	86	11.4	K86	Hypertension	201	16.8
A70	Tuberculosis	43	5.7	R74	Acute URTI*	55	4.6
R76	Acute tonsillitis	33	4.4	B90	HIV disease	54	4.5
B90	HIV infection	31	4.1	T90	Diabetes	50	4.2
R74	Acute URTI*	31	4.1	A70	Tuberculosis	49	4.1
N88	Epilepsy	27	3.6	W78	Pregnancy	49	4.1
R81	Pneumonia	25	3.3	R76	Acute tonsillitis	45	3.8
R80	Influenza	23	3.0	R80	Influenza	42	3.5
D70	GI† infection	22	2.9	L99	MSK‡ disease other	35	2.9
R96	Asthma	21	2.8	D70	GI† infection	30	2.5
T90	Diabetes	20	2.7	R81	Pneumonia	29	2.4
L99	MSK‡ disease other	18	2.4	A78	Infectious disease other(mostly STI) §	26	2.2
L81	Injury MSK‡ NOS	16	2.1	R96	Asthma	25	2.1
U71	Cystitis/UTI‖ other	15	2.0	U71	Cystitis/UTI‖other	22	1.8
A78	Infectious disease other (mostly STI) §	13	1.7	A97	No disease	20	1.7
S74	Dermatophytosis	12	1.6	N88	Epilepsy	20	1.7
S10	Boil/carbuncle	11	1.5	R75	Sinusitis	18	1.5
A92	Allergy/allergic reaction	9	1.2	A92	Allergy/allergic reaction	15	1.3
R75	Sinusitis	9	1.2	H71	AOM**/myringitis	13	1.1
R83	RTI†† other	9	1.2	S10	Boil/carbuncle	13	1.1

*upper respiratory tract infection, †gastrointestinal infection, ‡musculoskeletal, § sexually transmitted infections, ‖urinary tract infection,
**Acute otitis media, ††respiratory tract infection

Children under-5 years showed a different picture for their RFE and diagnoses (Table 8 and 9). The most frequent RFEs in the age category 0 to 4 years were cough, fever, diarrhea, loss of appetite and preventive immunization; while the commonest diagnosis were pneumonia, gastro-intestinal infection , immunization, acute URTI and influenza.

Table 9: Frequency of the RFEs in children under-5 years

ICPC-2 code	RFEs N=366	Count	Percentage
R05	Cough	58	15.8
A03	Fever	55	15.0
D11	Diarrhea	28	7.6
T03	Loss of appetite	24	6.6
A44	Preventive immunization	21	5.7
R04/R02	Shortness of breath/Breathing problem other	17	4.6
D10	Vomiting	16	4.4
R08/R07	Nose symptoms/Sneezing/Nasal symptoms	9	2.5
S24	Hair/scalp symptom	8	2.2
H01	Earache	7	1.9
F02	Red eye	6	1.6
R21	Throat symptom	6	1.6
S06	Rash localized	6	1.6
T10	Growth delay	6	1.6
D20	Mouth/tongue/lip symptom	5	1.4
H04	Ear discharge	5	1.4
S04	Lump/swelling localized	5	1.4
S07	Rash generalized	5	1.4
S14	Burn/scald	5	1.4
A23	Risk factor NOS*	3	0.8

*Not otherwise specified

Table 10: Frequency of diagnoses in children under-5 years

ICPC-2 code	Diagnosis N=226	Count	Percentage
R81	Pneumonia	33	14.6
D70	Gastrointestinal infection	21	9.3
A97	No disease(immunization)	18	8.0
R74	Acute URTI*	18	8.0
R80	Influenza	11	4.9
R76	Acute tonsillitis	10	4.4
T91	Vitamins/nutritional deficiency	9	4.0
A99	General disease	8	3.5
S14	Burns/scald	7	3.1
F70	Infectious conjunctivitis	6	2.6
D83	Mouth/tongue/lip disease	5	2.2
H71	AOM† /myringitis	5	2.2
H99	Ear/mastoid disease other	5	2.2
A92	Allergy/allergic reaction	4	1.8
R83	Respiratory infection other	4	1.8
S10	Boil/carbuncle	4	1.8
S74	Dermatophytosis	4	1.8
A23	Risk factor NOS‡	3	1.3
A70	Tuberculosis	3	1.3
D19	Teeth/gum symptom/complaint	3	1.3

*upper respiratory tract infection, †acute otitis media, ‡Not otherwise specified

DISCUSSIONS

MAIN FINDINGS:

Overall the most common RFEs in patients consulting at public primary health care in the Frances Baard district were cough, visits for hypertension, headache, fever and throat symptoms. In addition to cough and fever a higher proportion of under-5s presented for diarrhea, loss of appetite and immunization. In view of these results, it emerges that while most clients use public primary care services for curative services, children use more preventative services than other age categories. In small clinics without a separate reproductive unit we also registered a large number of adult women attending for family planning. In larger clinics reproductive units function separately and these patients would not be included.

Non communicable diseases (cardiovascular and metabolic diseases) emerge as the most prominent conditions in Frances Baard primary care followed by infectious diseases (chronic or acute). Injuries, intentional or unintentional, did not feature in this study. The most common diagnoses were hypertension, acute URTI/ tonsillitis, HIV, diabetes and tuberculosis. This result does not reflect the ranking of the burden of disease found in South Africa where HIV comes first followed by cardiovascular diseases, infectious and parasitic diseases, malignant neoplasm and injuries.(1) This difference could be explained by the fact that the burden of disease study assessed mortality and morbidity in the whole community whereas our survey looked solely at the morbidity profile in ambulatory primary care. In addition HIV disease is mostly managed in a vertical programme and most clinics have separate clinics for HIV patients which were excluded from our study.

Most trauma particularly moderate and severe injuries are managed at the district hospitals or at a level of care above. In larger clinics or community health centres trauma cases are seen in a casualty unit/emergency room and not in the ambulatory part of the facility. Therefore the number of trauma/injuries cases would not be accurately reflected in a study such as this. Although the gender distribution in the district population shows 52% females in the general population, 60% of encounters were with women. In South Africa and internationally health seeking behaviour seems to be more pronounced in female than male patients. (14,15,16) Locally this might have to do with the belief system of the society whereby males are more tardy in seeking attention for health problems. They are more likely to attend traditional practitioners first. Professional activities of man may also limit their availability for attending to health related matters. On the other side women are more likely than men to do house chore and be responsible for the health of the family. They therefore might have more opportunities than men to attend clinics as beside caring for themselves they are often the likely family member to bring children or other family members to health facilities for minor ailments and other activities such as immunization or check ups. Rathgeber E M and Vlassoff C found that the socio-economic and cultural position of women in the society influence significantly their opportunities and constraints in resolving health.(17)

Family planning, pregnancy and sexually transmitted diseases(STIs) account for a substantial number of RFEs and diagnoses among female patients in this survey. .The

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issues related to family planning, pregnancy and STIs are so interconnected that addressing them separately lead not only to a duplication of services but also to a missed opportunity for tackling crucial problems regarding prevention, treatment or health promotion.

Psychological problems do not appear among the top 20 RFEs/diagnoses identified among the patient-provider encounters described in this study. The average family doctor would expect to see one or more cases of depressive illness per day (an estimated 5% to 20% of general practice consultations).(18) In view of the magnitude of psychological problems in general practice it seems likely that these conditions have been under diagnosed, which raises concerns on the ability of primary care practitioners to promptly identify psychological problems. Primary care practitioners may therefore need to be trained to be more aware of different psychological problems that often present in the form of somatic symptoms e.g. headache, general body pains, tiredness…

Considering the importance of social problems and particularly the amount of intimate partner violence, unemployment and poverty in our society (2), one would argue that the lack of social problems identified by health workers in this survey is a serious shortcoming. This would suggest that primary care providers are not assessing patients holistically and therefore are missing the psychological and social dimensions of their patients.

Brueton V et al found in their study of the primary care morbidity in the Eastern Cape that most contacts at the clinic (97%) and the health center (80%) were with a nurse.(16) Participants in this cross sectional study were almost exclusively from the nursing staff as doctors who took part in this study represented less than 1% of the total number of participants. This finding speaks primarily to the fact that primary health care at the district level is almost exclusively run by nurses. Secondly in the view of the diagnostic difficulties encountered by nurses particularly in relation to psychological and social problems, this study highlights the potential need for more input from family doctors in the form of support and clinical governance in order to provide an adequate and a holistic approach to care at primary care level.

COMPARISON TO THE LITERATURE

Respiratory problems are the most common RFEs locally and beyond our borders. Similar to the findings of our survey, the respiratory chapter of the ICPC-2 ranked first among the main RFEs in the Eastern Cape province (16) and Soweto (19) with cough as the most common symptom. Elsewhere in the world (14,15,20) primary care morbidity surveys corroborate this finding and rank the respiratory system as the top ICPC chapter on the list of problems encountered at primary care level. Competence in the assessment of respiratory complaints and further management is therefore a requirement of primary care providers.

Cough emerged as the most common RFEs locally (16,19,) and in other surveys overseas. (14,21) While it is indispensable to identify this symptom, it is even more important to clearly sort out the differential diagnosis of the underlying conditions. URTI appear to be the most common diagnosis but primary care practitioners should also be able differentiate other respiratory conditions (e.g. tuberculosis, asthma,

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bronchitis, other allergic conditions) often misdiagnosed for URTI and even cardiac diseases as they may mimic respiratory diseases.

While health maintenance and prevention uptake was low in our survey it was found to be the first RFE in the Eastern Cape.(16) However in the latter study health maintenance and prevention included follow-up appointments, repeats prescription and disease monitoring which in our survey were categorized in their respective ICPC-2 chapters. Preventative care activities such as care of normal pregnancy were reported to be among the top 12 problems encountered in Sri Lanka.(14) Equally pregnancy was ranked among the top 10 diagnosis among women in our survey although in most clinics reproductive health units are run separately. This would be explained by the fact that early pregnancy (not diagnosed yet) can mimic other general medical condition and such cases may initially be seen in the general clinic. On the other hand staff shortages in most of the PHC facilities may explain the amalgamation of separate services into one.

In our study hypertension and diabetes took center stage with respect to chronic diseases amongst adults. Hypertension was ranked respectively second in the Eastern cape survey(16) and third in the Soweto general practice morbidity study.(19) Diabetes mellitus also featured prominently in primary care morbidity studies carried out elsewhere (14,15, 22) in the world. These findings point to the need for particular attention to the principles of ongoing and chronic care in the training of primary care nurses in relation to non communicable diseases. They highlight the importance of non communicable disease in primary care setting and the need for putting in place good structures and processes in the management of chronic non communicable diseases in our primary health care system.

While Tuberculosis and HIV are virtually absent in the primary care morbidity surveys carried out elsewhere in the world(14,15,20), these two conditions are among the top 5 diagnoses in our study, which reiterates the importance of TB and HIV/AIDS in the morbidity profile of our district. The relatively low prevalence of TB reported in the Eastern Cape study could be due to under diagnosis of TB and the emphasis on confidentiality practices in the case of HIV.(15) A study commissioned by the USAID in South Africa found that TB-HIV/AIDS co-infection rate is high, with an estimated 73 percent of new TB patients co-infected with HIV.(23) Thus tuberculosis and HIV are and will continue to feature prominently in the epidemiology of our health system. Therefore there is a need for capacity building at the district level in order to tackle more efficiently these two conditions that often present together.

Skin symptoms were found to be the second most common RFEs in the Eastern Cape province (16) and fifth in Soweto (19) while our survey ranked skin problems sixth. The morbidity survey conducted in Sri Lanka ranked skin related RFEs fifth.(14) Dermatological symptoms and conditions are a prominent feature of primary care practice. Scabies are prevalent in areas of high poverty associated with poor housing, overcrowding and suboptimal hygienic conditions. The difference in ranking between the Eastern Cape and the Northern Cape provinces may be explained by the fact that the survey in the Northern Cape included Kimberley, a relatively large urban center with primary care facilities covering some of the most affluent suburbs where the level of education and income would be expected to be higher

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The prevalence of sexually transmitted infections in both male and female clients is relatively high in this survey. Pelvic inflammatory disease was also common in Soweto.(19) Genital diseases were also among the top 10 diagnoses in the Eastern Cape. Lee et al ranked female genital disease sixth in the age bracket 20-44 in Hong Kong. Mindful of the fact that many curable STIs enhance HIV transmission (24), the strategies put in place to combat the HIV epidemic in our health system should include the prevention and effective treatment of STIs.

The mean numbers of RFEs (1,9) and diagnoses (1.3) per patient in our study are relatively higher than those found in a Chinese study (22) where there was respectively 1.6 RFE per encounter and 1.1 diagnosis per encounter.

In our survey the under-5s presented a different pattern of RFEs and diagnoses in comparison to the general trend shown in the overall result. Hoosain R in Soweto also found that respiratory (URTI, influenza) and digestive (GI infection) diagnoses were most common in children under 7 years of age. Among the RFEs in children respiratory and digestive complaints are also prominent worldwide.(15,19) Ambulatory primary care therefore has a key role to play in reducing mortality from respiratory tract infection and diarrhoea.

LIMITATIONS

Although encounters recorded in this study are a reflection of the provider patient interaction at the primary care level, they do not include vertical programmes and do not portray the total morbidity profile of all encounters in primary care facilities with different sections or departments.

Instead of the initial sample of 6000 encounters, we only registered a total of 1504 encounters at the end of the study. We found multiple reasons to explain this shortfall. Our initial plan of recruiting 5 participants at CHCs, 2 at large clinics and 1 at mobile clinics couldn't be implemented due to staff shortage. We only managed to recruit one participant per primary healthcare facility. There were also several cases where the daily minimum number of 20 patients was not reached.

For the 6 clinics in Sol Plaatjie under the district municipality, the data collection was initially a challenge although we managed to obtain their full participation during the second half of the data collection period. Furthermore due to communication challenges, data collected in the Phokwane and Makgareng sub-districts (representing 10 clinics) in September 2009 and July 2010 were not recovered at the district office although clinics reported to have sent them. During the last two rounds of data collection in Phokwane and Makgareng sub-districts only 2 primary care clinics out of a total of 10 forwarded their data. It is also important to note the 3 mobile clinics selected were operational only two days per week. Lastly the high turnover of nursing staff in the clinic did not facilitate the data collection.

Most data(59.6%) came from the Sol Plaatjie municipality which constitutes an urban bias due to the city of Kimberley. Dikgatlong was second followed by Phokwane and Makgareng, all these three sub-districts being rural. It is therefore possible that our results could be reflective of the patient provider encounters in a more urban setting

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and may not represent accurately the encounters from the rural municipalities of the district.

The smaller sample size in our survey is likely to affect the accuracy of the estimates made of variables that were few in number. For this reason only the top 20 results are reported as the prevalence of lower ranking RFEs and diagnoses may not be reliable.

The percentages of patients with RFEs and diagnosis not accounted for (RFEs: 1.2%, diagnosis: 1.5%) did not carry enough weight to alter the results The error rate was estimated at 7.2% for the RFEs and 9.2% for the diagnosis. Most errors were due to minor differences in coding.

There were not enough doctor consultations to meet the objective of comparing RFE and diagnoses between doctors and nurses.

IMPLICATIONS FOR THE DISTRICT HEALTH SERVICES AND THE TRAINING PROGRAMMES

Primary health care facilities in the district are first and foremost led and run by nurses. Consequently their training and continuing professional development programmes should be tailored to their scope of practice. This applies also to medical officers and family physicians whose role at primary care facilities should not be limited to mentoring and supporting the nursing staff only but also in seeing the more complex and difficult cases.

From the findings of this study it emerges that primary care practitioners will require specific skills in dealing with the common RFEs as well as the ongoing care and monitoring of chronic non communicable diseases. Equally they will be expected to effectively manage infectious diseases in particular HIV, TB, respiratory tract infections and diarrhea.

Attention should be given to a more bio-psycho-social approach amongst all practitioners and to the recognition of mental health disorders.

CONCLUSIONS

This descriptive cross sectional study identified cough, fever and throat symptoms to be the main RFEs in the Frances Baard district. Hypertension, acute URTI/tonsillitis, tuberculosis and HIV emerged as the most prevalent diagnoses in adult patients. The number of RFEs and diagnosis ranges from 0 to 5 with the mean number of RFEs and diagnosis per patient respectively 1.9 and 1.3. In both males and females RFEs are essentially similar while both genders shared seventeen of their most common diagnosis. Children were primarily seen for respiratory tract infection, gastrointestinal infection and immunizations. Nurses saw 99% of all patients and their practice is dominated by non-communicable chronic diseases and infectious diseases. Efforts to improve the delivery of care at public primary health care facilities in the district should first and foremost be geared toward a comprehensive support system for nurses that would improve their capacity to assess clients holistically.. In particular

there is a need to improve the recognition of mental health disorders/social problems and to foster a more bio-psycho-social approach.

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