

# CHRONIC PATIENT CARE AT NORTH WEST PROVINCE CLINICS

**Dr Claire van Deventer<sup>1</sup>, Prof Ian Couper<sup>2</sup>, Ms Nontsikelelo Sondzaba<sup>3</sup>**

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*1. Principal Family Physician, Southern district, North West Province, Senior Lecturer Family Medicine, University of the Witwatersrand*

*2. Head, Division of Rural Health, University of the Witwatersrand and Director of Rural Health, North West Province*

*3 Lecturer, Division of Rural Health, University of the Witwatersrand*

## Introduction

Since 1994, the department of health has reconfigured health services to include free clinic services and free access to health care for pregnant women and children under 6 years<sup>1</sup>. It was clearly indicated that the correct referral pathway should be from clinics to community health centres, where these were available and thereafter to district hospitals<sup>2</sup>. Those patients who could not be catered for at the district hospital level, would be referred to secondary and eventually tertiary level hospitals by medical practitioners.

The flow of patients back from district hospitals to their community resources was also mapped out in the national health plan; chronically ill patients who were not having complications or needing specialized treatment, were to be down-referred to their nearest clinics and health centres, where the visiting doctor would reassess them 6 monthly and the clinic nurse would supply monthly medication as well as doing basic screening tests.<sup>1</sup> Should the clinic nurse find anything of concern at the regular monthly visits, she would alert the visiting doctor who would adjust medication or decide on referral back to hospital. The plan was consolidated in the document on Norms and Standards for Primary Health Care<sup>3</sup> where there is clear guidance on the continuity of care and referral pathways for chronically ill patients.

Internationally the burden of chronic disease is increasing. There is thus a very large number of patients who are chronically ill. At a visit by the National directorate of chronic illness and rehabilitation in July 2006, in the North West province, statistics presented by different districts confirmed this to be equally true for North West province. The statistics for 2005/2006 from Southern district were as follows<sup>4</sup> (see Table 1).

<b>Sub-District</b>	<b>Hypertension</b>	<b>DM</b>	<b>Asthma</b>	<b>Epilepsy</b>
Maquassi hills	37077	3319	4078	3764
Klerksdorp	136407	18239	13962	15543
Potchefstroom	4961	318	363	619
Ventersdorp	2231	215	252	220
KT (Klerksdorp/Tshepong Hospital complex)	10467	3803	1537	1293

Table 1: Chronic patients seen in sub-districts of Southern district, 2005/6

It has however been observed that the care of chronically ill people is often not optimal at clinics so that they then incorrectly access hospitals, particularly after hours, in order to utilise what they perceive as better care.

The study was intended to explore the current state of district clinic services, relating in particular to patients on medication for chronic diseases, and the understanding and feelings of health personnel and patients regarding this.

Hospitals were not included in the study as the primary interest lay in assessing the care available at primary care level, at clinics and community health centres (CHC's).

## **Background**

Diabetes, hypertension, asthma and chronic obstructive airways disease and epilepsy and their complications form the bulk of chronic conditions seen at the clinics on a regular basis.

## *Diabetes (DM)*

An estimated 2 to 3 million people in South Africa are affected with diabetes mellitus, of whom more than 1 million are undiagnosed<sup>5</sup>. During the period 1990 to 2000 an increase of 30% in the prevalence of diabetes was reported in Africa, mostly due to a change of lifestyle and an increase in obesity<sup>5</sup>.

According to the World Health Organization (WHO)<sup>6</sup> DM is the fourth largest underlying cause of death in the world and is strongly associated with cardiovascular disease. Hypertension is commonly associated with DM and contributes significantly to morbidity in diabetes<sup>7,8,9,10</sup>. It is therefore very important to optimise the care of diabetic and hypertensive patients and to persist in the maintenance of care of the highest standard. The bulk of this care rests on the primary care system and in particular the care at clinics.

DM in South Africa carries a high mortality. Kalk *et al*<sup>11</sup> estimated that diabetes in women accounted for 18.2% of deaths in Asians, 7.1% in coloured patients, 4.3% in blacks and 3.0% in whites. Most of this mortality occurred in middle age. Amongst men DM-related mortality in black, coloured and white populations was reported at between 2.0-2.5% but amongst Asians it was higher at 4,9%.

Very little information is available on quality of care for patients with DM in clinics and hospitals in South Africa.

## *Hypertension*

Hypertension has been targeted as a priority disease by both the Reconstruction and Development Programme<sup>12</sup> as well as the National Department of Health<sup>13</sup>. A high prevalence of hypertension was found amongst adults with poor levels of control as reported by the Demographic and Health Survey.<sup>13</sup>

Table 2: Prevalence of hypertension in South Africa and the North West province (1998)

<u>Population group</u>	<u>NW province</u>	<u>South Africa</u>
Men	23.0 %	22.9 %
Men older than 65 years	Not available	52 %
Women	26.1 %	24.6 %
Women older then 65 years	Not available	60.4 %

Clinical guidelines for the management of hypertension were published by the Hypertension Society of South Africa<sup>14</sup> in 1995 and adapted by the Department of Health for implementation in the public sector. They were revised in 2006. These guidelines are aimed at providing simple practical protocols that could be followed in the primary care setting to improve the quality of care. They are targeted particularly at professional clinical nurses and general practitioners, and reflect realistic objectives that can be applied widely, aiming to diminish the impact of poorly treated hypertension in this country

## *Asthma*

In 2002 it was found in Cape Town that 23,7% of 12 year old children interviewed using the ISAAC scale, had asthma and 64,6% indicated that they had hayfever.<sup>15</sup> This was an increase as compared to data from the 1998 study and the trends were similar in Kenya and Nigeria.

South Africa has a significant burden of disease regarding asthma when compared with other countries.

## *Epilepsy*

According to a US statistical survey<sup>16</sup>, an estimated 375 851 out of 44, 458 470 South Africans (about 0.8% of population) have been diagnosed with epilepsy, as compared to the USA (0.07%), Zimbabwe (0.24%) and Australia (0.8%). This is therefore not an illness with the large proportions of hypertension or diabetes but it does have a significant impact on the quality of life of patients (e.g. ability to work, complete education, drive a car or use heavy machinery amongst others)

## *Chronic illnesses*

In the Department of Health's 2001 – 2005 goals, objectives and indicators document<sup>1</sup>, there is a separate subsection for "chronic diseases, disabilities and geriatrics". This excludes HIV/Aids and TB as well as other communicable diseases. The three objectives in this section are to:

- Improve quality of care to people with chronic diseases

- Ensure prevention, early diagnosis and effective management of hypertension, diabetes, stroke and asthma
- Decrease the percentage of overweight and obese people

The indicators concentrate on emergency admissions and mortality rates of patients with hypertensive complications, diabetes, asthma and alcohol-related illnesses as well as obesity. The national objectives are reflected in the North West Province's Integrated Implementation Programme in a broader way where it is stated that the aim is to: "develop and implement a comprehensive package of services" and "ensure equity of access to appropriate PHC services"<sup>17</sup>

The Essential Drugs List and Standard Treatment Guidelines (EDL) manual was updated in 2003 and is currently being revised<sup>18</sup>. Chronic conditions e.g. hypertension, diabetes, asthma and others are comprehensively included in the primary care EDL whereby treatment may be initiated for all the common chronic illnesses mentioned above, by a professional nurse. Monthly monitoring is also the domain of the clinic personnel and there are clear referral guidelines if the patient should develop complications or fail to improve satisfactorily at the clinic.

There is therefore a national plan to combat the complications and mortality of chronic diseases and the machinery is in place in order for this to happen in terms of guidelines and staff competence. Patients however, still decide independently when, how and where to access their health care. This has significant consequences when they commonly perceive that public sector treatment is not effective, that the clinics cannot treat all illnesses and that the way they are treated is unacceptable.<sup>19</sup>

Part of the problem is that in the “supermarket” system where a wide range of conditions need to be managed by a generically trained nurse clinician, management of illnesses such as diabetes and hypertension is reduced to simple medication maintenance.<sup>20</sup>

In a study regarding the inappropriate use of hospital services, chronically ill patients’ reasons for not making use of their local clinics included the need to see a doctor, lack of pills at the clinic, rude clinic staff, convenience (such as being in town for shopping), and the need for an X-ray or sonar.<sup>21</sup>

The Directorate of Quality Assurance’s policy for Quality Health in South Africa recommends two approaches to deal with the above-mentioned perceptions: “Creating the environment in which quality health care will flourish” which concentrates on consumer information and equity and “Building the capacity to improve quality” which includes evidence based practice and research.<sup>22</sup>

The intention of this research was to understand the views of providers and consumers of chronic illness care as well as to review evidence based management in order to improve the quality of this care.

The aim was to understand and evaluate the care of chronically ill patients at primary care clinics in one district in the North West province.

The objectives were:

- To investigate the proportion of chronic diseases seen at the research clinics



- To evaluate chronic disease drug management at the research clinics, using the National Department of Health's Essential Drugs List (EDL) and Standard Treatment Guidelines (STG's) as the gold standard.
- To explore the feelings and experiences of chronically ill patients at clinics regarding their management.

## **Methods**

Study design: This was a descriptive cross-sectional study involving chart and record reviews and focus group interviews.

Research site: The research was done in four randomly selected clinics in the Southern district, North West province.

Data collection: Two methods were used, namely chart and record reviews for quantitative data, and focus groups for qualitative data.

Data was collected at one clinic in each of the sub-districts in the Southern District of North West province, namely Ventersdorp, Potchefstroom, Matlosana (Klerksdorp, Orkney, Stilfontein, Hartbeesfontein) and Maquassi Hills (Wolmaransstad). In each case, the clinic was selected randomly using a random number table.

1. Chart and record reviews. The quantitative component was done by using the monthly registers at each clinic and capturing the records of patients with recorded diagnoses of diabetes, asthma, chronic obstructive airways disease, epilepsy and hypertension, over

6 months. The proportion of these particular chronic patients was then calculated with regard to the total number of patients seen at each clinic.

The clinical management information was captured by using a variables table and assessing the appropriate management of all the patients seen over 1 month. This was done by doing chart reviews on the back-up files at 3 clinics and using the chronic register at the one clinic which did not have back-up files. (See tool in addendum 1.)

2. Focus groups. Interviews were conducted with adult patients (over 18 years) suffering from any of the following chronic illnesses: diabetes, asthma, chronic obstructive airways disease, epilepsy and hypertension. Small focus groups were used in each of two clinics, in the Ventersdorp and Matlosana sub-districts. The sampling of respondents was purposive in nature, whereby articulate patients who could express their opinions, were chosen in order to attain the depth of information needed, with English or Afrikaans being the languages of choice. The question posed was: "How do you experience the management at this clinic of your chronic illness?" The interviews continued until information saturation had been reached. The interviews were audiotaped and the information transcribed from Afrikaans into English.

The inclusion criteria for patients in both the registers and the focus groups were age over 18 years, stable patients visiting the clinic for follow up care, and patients having the following 4 common diseases separately or in combination: asthma/chronic obstructive airways disease (COAD), non-insulin dependent diabetes mellitus (NIDDM), hypertension and epilepsy. Exclusion criteria were age younger than 18 and presentation with acute attacks needing hospitalization.

Definitions: For the purposes of this research the following concepts were used:

\*Screening refers to specific indicators used to assess illness control; the indicators used for the purposes of this study were blood pressure for hypertension, random blood glucose for diabetes, peak flow for asthma and blood levels for epilepsy drugs.

\*Control refers to the extent to which national norms for acceptable limits of these indicators were achieved, thus a BP of <140/90, a random blood glucose less than 11, a peak flow above 80% of predicted as determined by peak flow charts, and blood levels within therapeutic ranges

### *Ethical considerations*

The study was approved by the Committee for Research on Human Subjects of the University of Witwatersrand. Permission was also gained from the Head of Department of Health, North West province. The District and sub-district managers of the Southern region, North West province, were granted permission to do research in their sites.

Individual informed consent was obtained from interviewed patients. No names or identifying details of patients, staff or clinics were used in the report, and the confidentiality of participants has been maintained.

### *Bias and limitations.*

The researcher used a second language in the focus groups, with the possibility of misunderstandings arising. However, the researcher is fluent in the language and aware of the vernacular use.

There was a relatively small sample selected to make the research achievable. This means that there are restrictions in the generalization of the findings.

Outcomes of the chronic illnesses were not measured e.g. hospital admissions for end stage conditions.

Documents in clinics were not always complete as one clinic had no back-up files and information was extracted from the clinic register. Clinic statistics were generally not found to be accurate as there was no standard system for capturing chronic patient data e.g. a chronic register.

## Results of record reviews

1. General. A total of 1017 records were assessed, which included 695 hypertension, 136 epilepsy, 129 diabetes, and 57 asthma records.

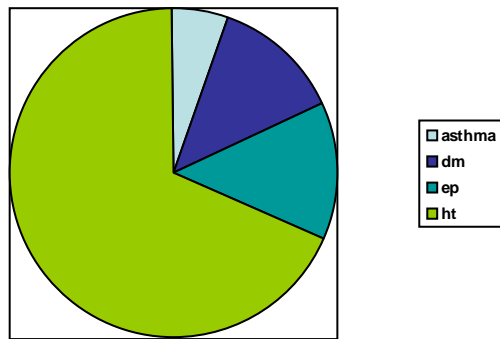


Figure 1. Proportion of chronic illnesses to one another

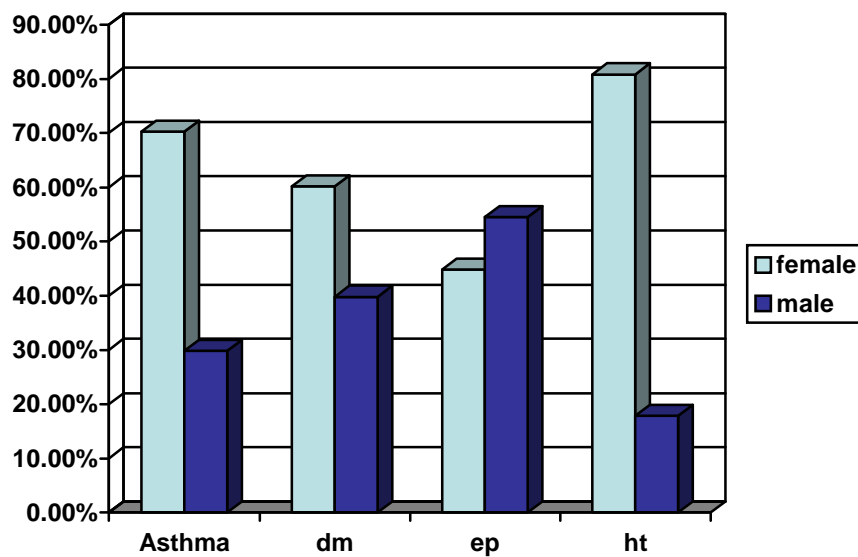


Figure 2. Sex prevalence in different chronic illnesses

The proportion of chronic illness seen at clinics as compared to the total adult head count was the following according to statistics averaged over 1 year (January to December 2006):

$$\text{Ventersdorp } 243/1364 = 17.8 \%$$

Matlosana = 689/2418= 28.4%

Potchefstroom = 1280/3016= 42.4%

Maquassi Hills = 217/1073 = 20.2%

## 2. Specific chronic conditions

### 2.1. Asthma.

Total files assessed: 57

Sex: Female 40 (70,2%), Male 17 (29,8 %)

Age: The youngest was 18 and the oldest 76 years

Peak flow readings were documented in 3,5% of patient records, not documented in 96,5%. All the readings were abnormal, and all were done at one clinic only.

The Standard Treatment Guidelines were followed in 75% of cases with the most common prescriptions being the following:

Salbutamol and beclomethazone (31,6%)

Salbutamol only (21,1%)

Salbutamol plus beclomethazone plus theophylline (21.1%)

2.5% of patients were using daily oral prednisone in combination with other drugs.

Theophylline as a single drug was given at the Matlosana clinic (15.8%) and Maquassi Hills (20%).

There was no clear distinction between chronic obstructive airways disease (COAD) and asthma, which indicates that accurate diagnosis was lacking.

## 2.2. Diabetes mellitus.

Total files assessed: 129.

Sex: Females 77 (60.2%), Males 51 (39.8%)

Age: 70% older than 50 years with youngest being 28 and oldest 90. Blood glucose done =52 (40,4%), with 26 being normal (50%)

Urine testing was seldom done and a recorded BMI was not found in any patients. There was no screening for cholesterol and no health education documented in the files. No assessment of target organ disease was mentioned, i.e. eye or foot tests, and the HB1Ac was not done in any of the patients. There was no documentation of health education given.

The STG was followed in 64% of patients. The most common prescriptions were:

Metformin and gliclazide (23.3%)

Metformin only (17.8%)

Actraphane only (17.8%)

Glibenclamide was very seldom used. There were a small number of patients on protophane only, metformin and actraphane, and maximum dosages of oral hypoglycaemics plus actraphane.

There were 71,3% of diabetic patients also using antihypertensives, with 7% on the newer regimen (indapamide, perindopril and amlodipine)

## 2.3. Epilepsy.

Total files assessed: 136

Sex: Females 60 (44,8%), males 73 (54,5%), not documented 3 (0.7%)

Age:, the youngest was 18 and the oldest 76 years.

Therapeutic blood levels done in the last year: 35 (29,7%). Of these 40% were normal.

The others were all sub-therapeutic.

The number of records with documented fits was 65 (47,8%); 3 (4.6%) patients were recorded as having more than 2 fits per month, and 62 (95.3%) as having less than 2 or none at all.

The STG was followed in 86.9% of cases with 91% of patients on monotherapy. Ten patients were being prescribed controlled release carbamazepine three times daily instead of twice daily.

#### 2.4. Hypertension.

Total files assessed: 695

Sex: Female 580 (80.8%), Male 109 (17.9%), not documented (6)1.3% Age: 70% were 50 or older. The youngest was 25 and the oldest 98.

A blood pressure (BP) was documented in 505 patients (72,7%). At the Potchefstroom clinic all information was taken from registers and there was seldom documentation of the actual BP reading.

A normal BP was found in 266/505 (52,6%) with Maquassi Hills having the poorest percentage of controlled patients (42,9%).

The STG was followed in 85% of cases if one takes into consideration the 2006 hypertension guidelines. The most common prescriptions were:



Hydrochlorothiazide (HCTZ) and atenolol 26.7%

HCTZ and angiotensin converting inhibitor (ACE) 22.1%

HCTZ plus atenolol plus ACE 13.8%

Seven patients were on methyldopa.

Calcium channel blocker dosages were 53 nifedipine SR 30mg (7.7%), 17 nifedipine SR 60mg (2.5%) and only 3 patients on nifedipine SR 90mg (0.4%)

Enalapril was the most often used ACE inhibitor as opposed to perindopril

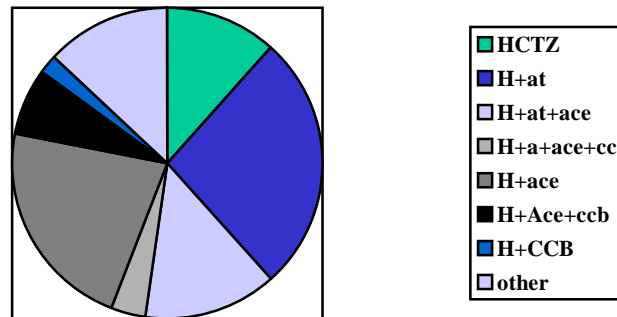


Figure 3 Chronic drugs used

HCTZ = hydrochlorothiazide

H+at = HCTZ + atenolol

H+at+ace= HCTZ + atenolol+ ace inhibitor

H+a+ace+cc = HCTZ + atenolol +ace inhibitor + calcium channel blocker

All the above findings are summarized in Table 4.

	Asthma N=57	Diabetes N=129	Epilepsy N=136	Hypertension N=695
Sex	F 70,2% M 29.8%	F 60,2% M 39.8%	F 44.8% M 54.5%	F 80.8% M 17.9%
Age	70% older than 50	70% older than 50	65% older than 50	41.9% older than 50
Screening done	3.5%	40,4%	25,7%	72,7%
Screening normal	0%	50%	40%	52.6%
STG followed	75%	64%	86.9% with 91% on monotherapy	85%

Table 4: Summary of findings

### 3. Individual Clinics

#### 3.1 Ventersdorp

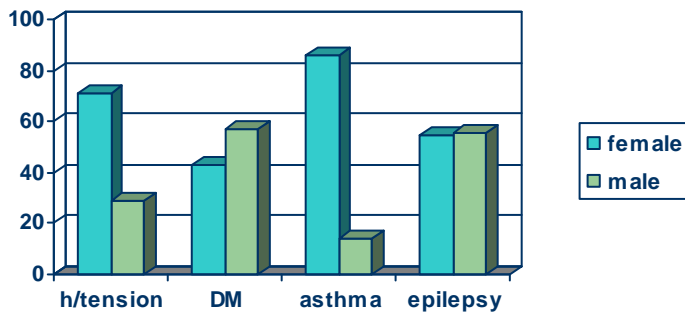
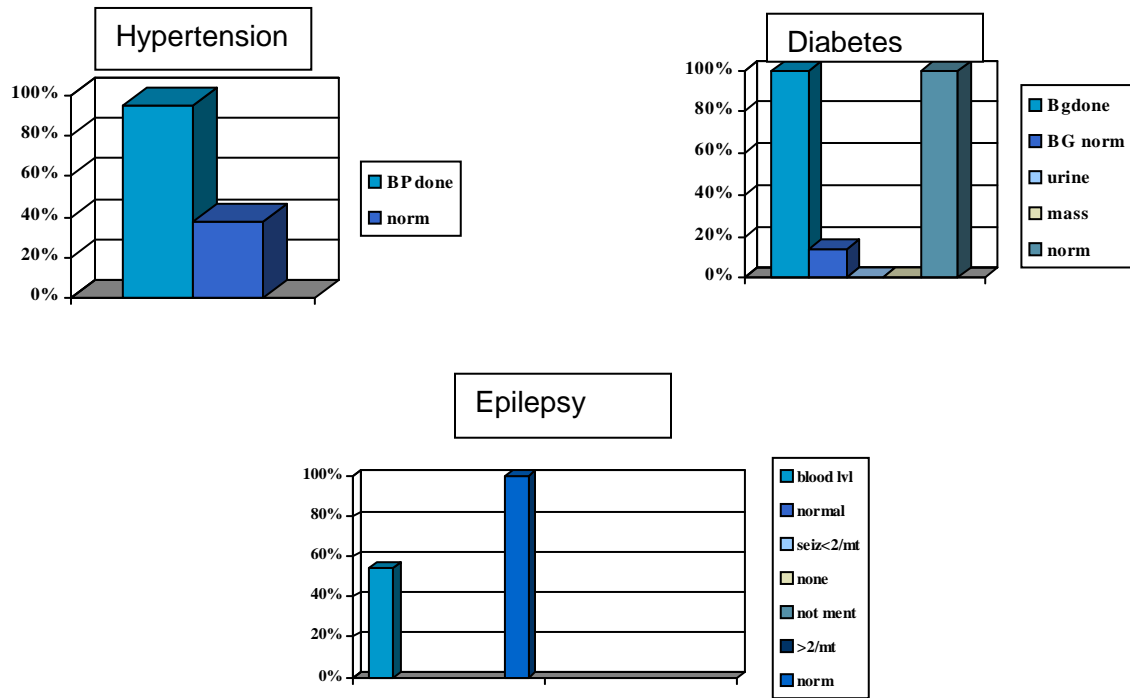


Figure 4 Sex



(Asthma is not reported due to no screening having been done.)

Figure 5: screening done

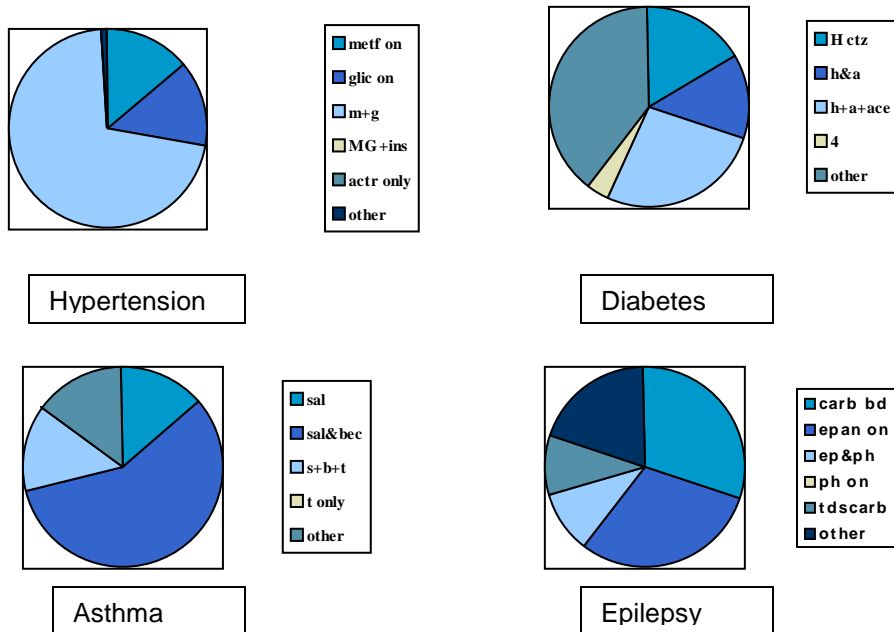


Figure 6: STG followed

### 3.2 Potchefstroom

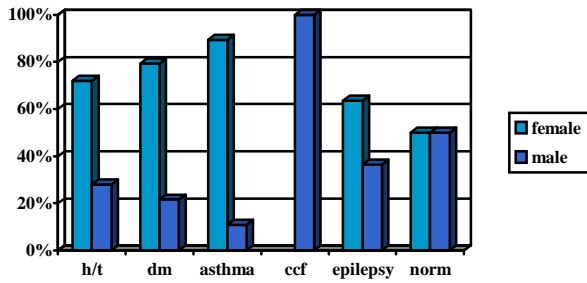
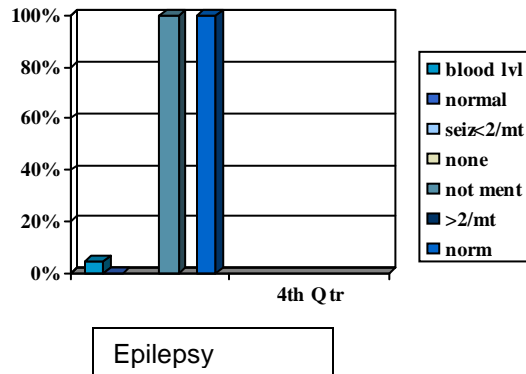
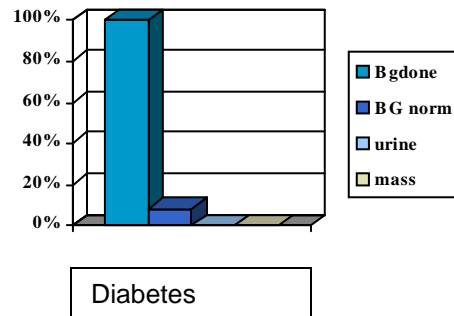
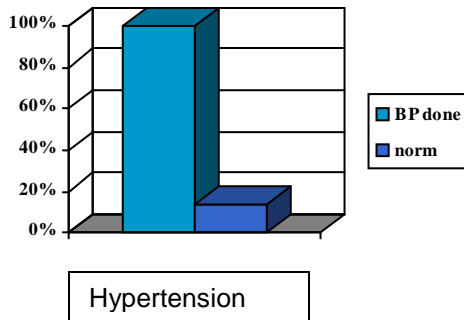
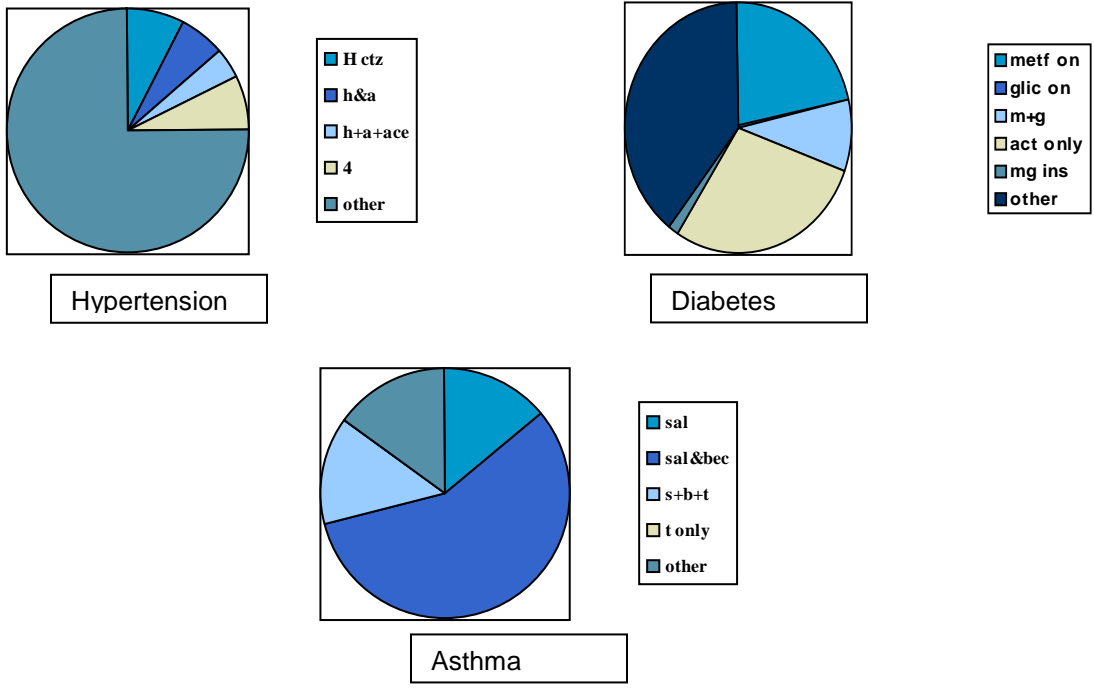


Figure 7: Sex



(Asthma not screened for therefore not reported.)

Figure 8: Screening done



(Epilepsy – no documented treatment.)

Figure 9: STG

3.3 Matlosana

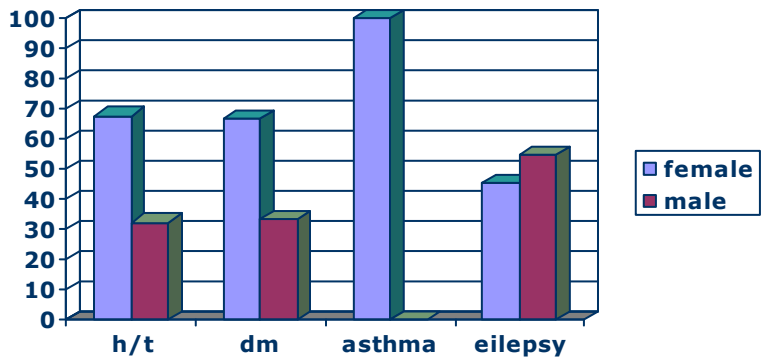
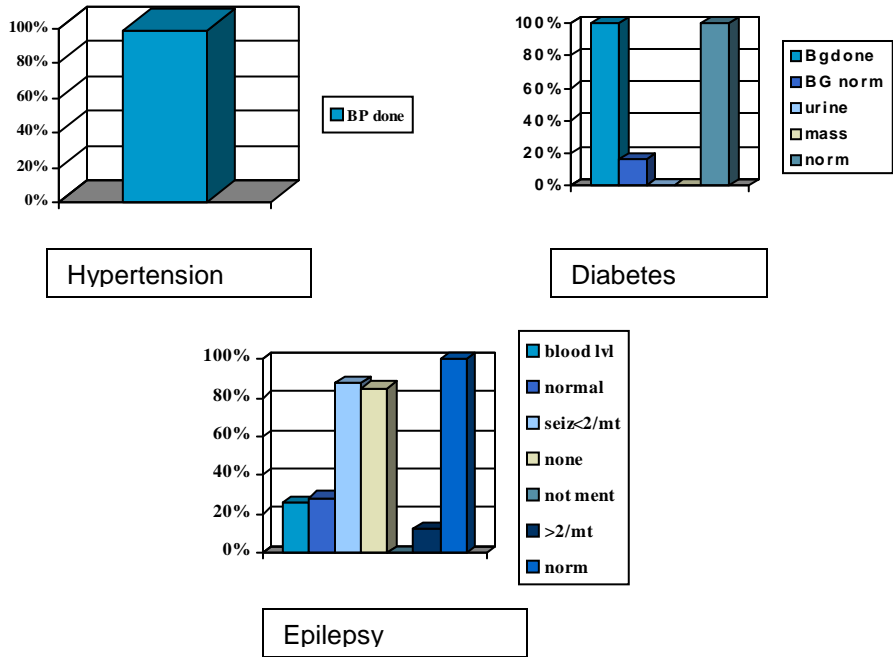


Figure 10: sex



(Asthma not reported on as not screened for.)

Figure 11: Screening done

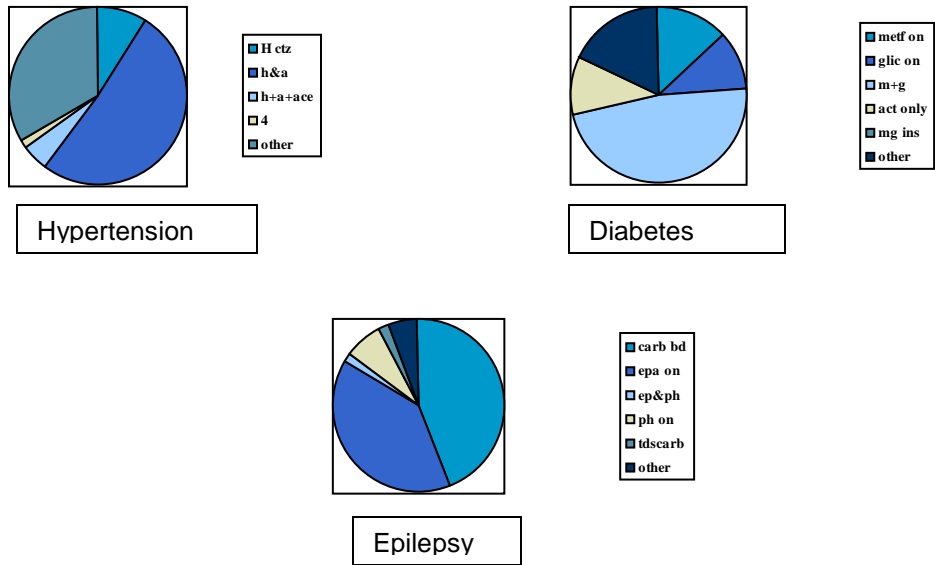


Figure 12 STG followed

### 3.4 Maquassi Hills

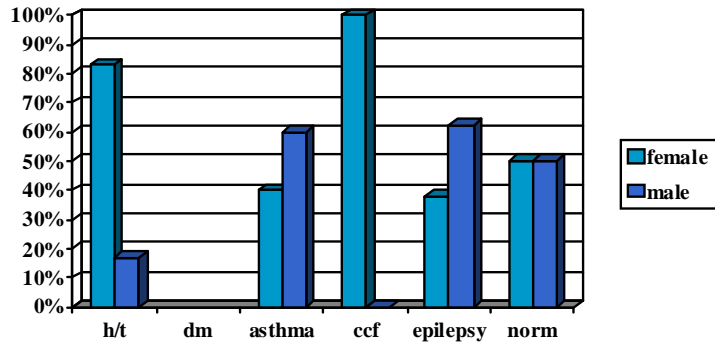


Figure 13: Sex

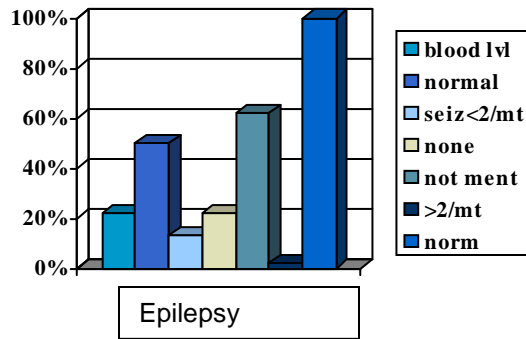
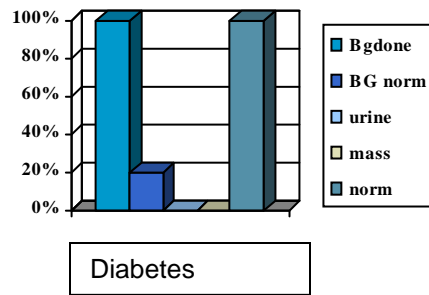
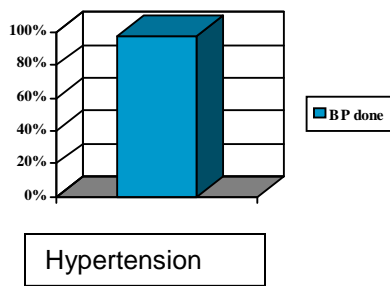
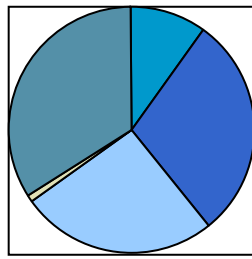
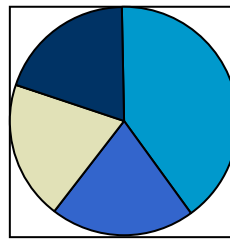


Figure 14: Screening



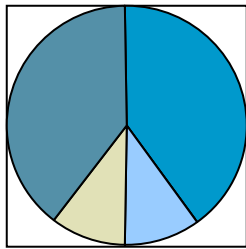
- H ctz
- h&a
- h+a+ace
- h+a+ac+cc
- other

Hypertension



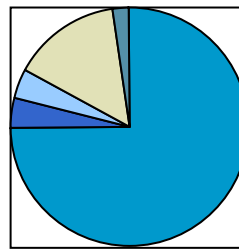
- metf on
- glic on
- m+g
- actr only
- mg ins
- other

Diabetes



- sal
- sal&bec
- s+b+t
- t only
- other

Asthma



- carb bd
- ep% ph
- ph only
- tdscarb
- other

Epilepsy

Figure 15: STG's



## **Discussion of quantitative data**

### *1. Screening/assessment of chronic patients.*

This is the only way in which there can be a measure of understanding about an individual's illness control. As it is a monthly patient encounter, even if the basic tests were done at every clinic visit, this in itself is only a snapshot of the patient's ongoing control on a particular day. Where even the most basic screening is not being well done, that snapshot does not exist.

The condition most poorly screened for is asthma. In spite of peak flow meters being available, there was no indication of this being done and no documentation of symptoms or signs in the files to indicate whether the patients were in fact suffering from asthma as opposed to chronic obstructive airways disease, and whether they were persistent mild, moderate or severe asthmatics. There was also no record regarding smoking in any of the files.

Epilepsy screening was done erratically and not according to the national guidelines which stipulate that at least an annual blood therapeutic level should be checked on all epileptics.

It was of concern that only 40% of diabetics were being screened, as this is the condition with the most aggressive negative outcomes e.g. renal failure, myocardial infarct, loss of vision, amputations.

## *2. Following the STG.*

The STG's are very simple to follow. However, during the time of the study there was a significant factor which led to confusion. The STG's in the National Department of Health's Standard Treatment Guidelines and Essential Drugs List <sup>18</sup> and the new national hypertension guidelines<sup>14</sup> differ in significant ways, and in spite of awareness and training, this has created some confusion.

A positive finding was that the bulk of epilepsy patients are on monotherapy at the clinics.

The treatment regimens for diabetic patients were influenced by down referrals from local hospitals where non-EDL regimes were commonly being followed e.g. actraphane and metformin was a fairly common non-STG combination with no known evidence for its usage. The clinics seldom change prescriptions that have been written in hospital and so the poor drug use is perpetuated. This is a common problem for clinics.

An alarming finding was the large percentage of diabetics with hypertension for whom no plan had yet been made to use an optimal regime e.g. drugs as recommended by the ASCOT study<sup>25,26</sup> and others

It was found in all four conditions that even where the screening was being done, the results were extremely poor. In all the conditions, good control of the illnesses was about 50% or less. **The conclusion is that the health service in the Southern district is not managing to assist half of the chronically ill patients in adequately treating their illness.**

### 3. *Comparison of clinics*

The reason that the Maquassi Hills clinic has the poorest adherence to EDL was attributed to the fact that there had been no permanent doctor visiting the clinics for months due to a general shortage of medical doctors in the sub-district.

All the other clinics did however have at least weekly doctor support. There was consistently poor screening and control and guidelines were not well understood and practised.

There is generally a very high doctor turnover at clinics, so good practices are learnt and then the doctors leave. Most of the doctors working in the Southern district clinics are either interns doing their Family Medicine rotation or community service doctors, rotating through primary care. There seems to be very little chance currently to improve the continuity of care which more permanent doctors would bring to the system.

Health education is allegedly being done and not documented. Therefore this has been difficult to quantify or report on.

## Results of interviews

Due to the failure of the promised funding from the provincial research committee, the initial planning had to be changed. It was initially intended to have focus groups at all 4 clinics with purposefully selected chronically ill patients as well as interviews with staff members of the same clinics. The lack of funding meant one researcher had to do all the data collection herself, so the qualitative aspect was limited to two focus groups of patients.

### *Matlosana clinic*

There were 6 patients who were interested in being part of the group. They had all been waiting their turn to see a professional nurse at the clinic for follow up medication and were all chronically ill patients. They had a combination of the four chronic illnesses being studied as well as osteoarthritis. The language spoken was Afrikaans. All the respondents had seTswana as their first language but were fluent in Afrikaans.

### Themes

1. Help being provided. They're trying to help. "They listen... they listen really well" "Their pills are good for you." The hypertension pills "hou my baie lekker" [are keeping me well].
2. Changed systems/limitations. "In the past we could get flu medicine in winter and tonsils – we no longer come for such things" [
3. Personal physical complaints. "My knee... and those feet!" "Nou kry ek weer 'n dronk in my kop" (Now again I get a 'drunk' in my head) "I drank arthritis pills which gave me an ulcer"

4. Doctor services. "We want the doctor". "The sisters only give the high blood. When you get older there are many things at the body".
5. Staff and waiting time issues. "We stay here the whole day. There are too few nurses"
6. Health education. There was some discussion regarding this. It seems very basic. Patients expressed a need for more information.

### *Ventersdorp clinic*

There were five patients who participated. Two were Afrikaans speaking and three were seTswana speaking but fluent in Afrikaans. They were hypertensive, diabetic and asthmatic and one had epilepsy.

### Themes

1. Help being provided. "There are sisters here that help a lot, we are satisfied". "It's OK". "I am always treated with respect"
2. Limitations/changed systems. "They don't tell you what's wrong. They just give pills ... antibiotics or cough mixture. You always get the same medicine".

Only chronic medication is given. If there is another complaint this is not heard "They say you cannot use the pain pills"

Information is not always clear. There was concern about correct diagnosis in one patient.

3. Personal physical complaints. Concern e.g. about menopause, was listened to by the sister and a plan was made. ".gaan die dokter sien en 'n womb-skraap kry". "Eyes cannot see well any more"
4. Doctor services were not mentioned at all.

5. Staff and waiting time issues. "Another clinic must be built. The people are sitting outside. We spend the whole day here."

6. Health education. Salt and weight discussed. There is not enough of this though. Patients indicated they would prefer more.

### **Discussion of qualitative data**

There seems to be general satisfaction with the nursing staff at the two clinics although two patients had mentioned that they were not heard when they voiced different types of complaints.

It appears that chronic medication is being given in a rote fashion without the patient being seen as a whole and other issues being addressed e.g. pain, need for more information etc.

The stricter adherence to EDL medication at clinics seems to have led to some dissatisfaction as patients perceive that the services have deteriorated when they cannot get a pill that was available years ago.

Communication and health education remain areas needing attention. This confirms what was found in the quantitative component.

## **Recommendations**

1. In order for these four chronic illnesses to be managed with a basic level of competency, following national guidelines, a quality improvement project should be done on each one of them, involving as many clinics as possible.
2. Clear, concise clinical guidelines must be at hand as references for the STG's e.g. laminated posters on walls.
3. Ongoing doctor and nurse awareness and training regarding chronic illness must be implemented.

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