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RESEARCH

Quality of care and cost of prescriptions for diabetes and hypertension at primary healthcare facilities in the Cape Town Metropole

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Background: Quality of care for diabetes mellitus and hypertension has been found to be suboptimal at primary health care level. There is an expectation that improving quality will require the increased utilisation of resources. This research was intended to determine the quality of care and cost of prescriptions at 10 facilities in the Cape Town Metropole.
Method: An analytical, cross-sectional study was conducted in order to relate the cost of medication to quality-of-care indicators for patients with diabetes mellitus and hypertension. Data were collected at the 10 facilities in the Cape Town Metropole over a three-month period.
Results: Quality-of-care processes were performed more often in diabetic than in hypertensive patients, i.e. determination of body mass index (BMI) 52.4% vs. 46.4%, creatinine 45.2% vs. 35.7% and cholesterol 44.5% vs. 35.4%, respectively. Nevertheless, outcome measures were better in the hypertensive patients. Targets were achieved in hypertensive vs. diabetic patients, respectively, as follows: BMI (22.2% vs.18.1%), blood pressure (39.8% vs. 28.7%), creatinine (93.2% vs. 91.4%) and cholesterol (46.8% vs. 44%). The median cost per script was R44.66 and R30.06 for diabetic and hypertensive patients with good quality-of-care scores, respectively, and R51.18 and R31.00, for those with poor quality-of-care scores.
Conclusion: The quality of care provided was poor when compared with the guideline recommendations, but was comparable to care provided in many other populations. There was no correlation between quality of care and the cost of the prescriptions.

Keywords: cost, noncommunicable diseases, primary health care, prescriptions, quality of care

Introduction

The global increase in the prevalence of noncommunicable diseases (NCDs) presents a global crisis.[1] NCDs are a particular challenge to developing countries, such as South Africa, as they affect younger populations and result in longer periods of morbidity and premature death, thus reducing the productivity required for development.[2]

The burden of NCDs is increasing in both the rural and urban areas of South Africa, and is foremost in poor people living in urban areas. Mayosi et al.[3] identified risk factors that contribute to the increase in NCDs, such as demographic changes (the increase in the number of older people in the population who are at greater risk of developing NCDs), lifestyle choices (tobacco use, inactivity and an unhealthy diet), changes in dietary intake (the shift to developed world diets) and genetic predisposition. South Africa has subsequently committed to targets, including preventative and disease management measures, to reduce NCDs by 2020.[3] Together with increasing urbanisation, the rising prevalence of NCDs places greater demands on the public health sector where most poor people seek health care. Over the last 20 years, most of the risk factors for NCDs in the South African population have worsened, and the identification, treatment and outcomes for care for individuals with NCDs have been below par.[3] The 2009 Western Cape province mortality profile indicated that NCDs were the main cause of mortality in all regions of the province.[4] The Western Cape Burden of Disease study[5] found that diabetes, strokes and ischaemic heart disease were among the leading causes of premature mortality. Diabetes moved from eight place in 2001 to fifth place in 2004. The study also found strokes to be a major cause of death. Cardiovascular disease was the leading cause of death in both men and women in the Western Cape province, accounting for one in four (25%) deaths.[5] The prevalence of overweight and obesity was high in women in the Western Cape (57.1%), and highest in men (38.4%) in all of the provinces. Similar results were also found in other developing countries. For example, the prevalence of hypertension in India was 164.18 per 1 000 (16.1%) in adults in urban areas, and 157.44 per 1 000 (15.7%) in adults in rural areas.[6]

Prior to the development of the Western Cape Chronic Disease Management (CDM) Policy Framework in 2009, NCDs were not prioritised in terms of resource allocation, and had to compete with other priorities, such as human immunodeficiency virus/acquired immune deficiency syndrome, tuberculosis and trauma.[7] The aim of the CDM policy is to develop and implement a comprehensive strategy for chronic disease management. After human resources (57%), the cost of medicine is the second biggest expenditure item at Metro District Health Services primary healthcare level, equating to 19% of R132 million.[8] The CDM policy prioritises five chronic diseases, including diabetes and hypertension, and aims to decrease the morbidity and mortality that result from these conditions and provide an overarching set of norms and standards for chronic disease management.

We could not find any studies conducted in South Africa or Africa that have assessed a correlation between the cost of prescriptions and the quality of care provided for diabetes mellitus or hypertension.

An American study published in 2000 found that many physicians were not providing key processes of care to their patients with diabetes mellitus.[9] In Germany, diabetic patients accounted for

over one fifth of the total pharmacy costs in primary practices, indicating that diabetes mellitus is a major economic factor in drug use.[10] An American study that assessed the quality of care in diabetic patients in the 1990s found that 18% of patients had a haemoglobin A_{1c} (HbA_{1c}) more than 9.5, 65.7% had blood pressure (BP) below 140/90 mmHg, and 63.3% had undergone an eye examination and 54.8% a foot examination in the preceding year.[11] Managing diabetes in a disease-specific programme (club system) resulted in a decreased cost and better quality of care compared to that for non-programme managed patients.[12]

Previous studies on hypertensive patients found that 56–64% received optimal care.[13,14] It was also found that quality of care fell short of indicators based on randomised controlled trials and guidelines, and it was concluded that poor performance in care processes was associated with poor BP control.[13,14]

Quality of care was found to be similar in two groups in an American study in which the use of protocols versus traditional care for diabetes and hypertension were compared.[15] However, the use of protocols identified more pathology and resulted in shorter consultations.

Aim and objectives

This study aimed to determine the quality of care for diabetic and hypertensive patients at community health centres (CHCs) in Cape Town, and whether or not there was an association between quality of care and the cost of prescriptions for these conditions.

The objectives of the study were to describe the quality of care for hypertension and diabetes mellitus at each CHC, and to determine the association between the costs of prescriptions with quality-of-care indicators for hypertension and diabetes mellitus at the facilities.

Method

Study design

An analytical, cross-sectional study was conducted in order to relate the cost of medication to the quality of care for diabetes mellitus and hypertension over a three-month period.

Setting

Data were collected at five 24-hour facilities in the Western Metropole of Cape Town, i.e. Mitchell's Plain, Hanover Park, Gugulethu, Vanguard and Retreat; three medium-sized eight-hour facilities with three or more doctors, i.e. Crossroads, Dr Abdurahman and Lotus River; and two smaller facilities with only one doctor, i.e. Inzame Zabantu and Hout Bay, over a three-month period.

Sampling

Systematic sampling was used. Patients aged 18 years and older who attended the facilities over the study period were eligible to be included in the study. The sample at each CHC was collected over a one-week period. Twenty per cent of the sample was collected on each weekday. The routine monthly report data (2010) for prescriptions issued per month for each facility was used as a guide to estimate the expected number of folders per day.

Sample size

Recruitment of diabetic and hypertensive patients was part of a larger recruitment of patients with chronic diseases. Three hundred and seventy folders were required from each CHC for this study. The sample size was based on a desired precision of 2% and a 95% confidence interval for this proportion of different chronic conditions in patients. Four hundred folders were sampled in order to account for potential missing data or ineligible folders. Therefore, at least 80 folders were selected per day, per facility, for five consecutive weekdays.

Recruitment

Patients who received medication for diabetes or hypertension, i.e. either consulted a clinician or collected a refill of their prescription, were eligible for inclusion in the study. Patient folders were reviewed over five weekdays at each facility. The folders of patients attending on the study days were collected at the pharmacy, reviewed and data from the prescription charts and medical records extracted. Recorded data included chronic disease diagnosis, medications and quality-of-care indicators at the last visit. Data were collected by one of the researchers (a pharmacist) and a research assistant. A standardised data collection tool (Appendix 1), which had been piloted at one of the study centres to ensure validity and reliability, was used.

Quality-of-care indicators

The indicators used were those defined in the Metro District Health Services Integrated Audit of Chronic Diseases Management Instruction Manual[16] for intermediate outcomes:

- *Hypertension:* BP < 140/90 mmHg (for 75% of the readings over the preceding six months), creatinine < 120 mmol/l, total cholesterol < 5 mmol/l, BMI < 25 kg/m^2 (most recent results within the preceding 12 months).
- *Diabetes:* BP < 130/80 mmHg (for 75% of the readings over the preceding six months), creatinine < 120 mmol/l, total cholesterol < 4.5 mmol/l, BMI < 25 kg/m^2, HbA_{1c} < 7% (most recent result within the preceding 12 months).
- *Quality score:* For hypertension, 2 points were given for each indicator that met the criteria listed above, 1 point was given if the indicators were measured, but did not meet the criteria for a maximum score of 8. A "good" quality score was defined as 6 or more points, an "average" quality score as 4–5 points, and a "poor" quality score as 3 or less points.

For diabetes mellitus, 2 points were given for each indicator that met the criteria listed above, 1 point was given if the indicators were measured, but did not meet the criteria for a maximum score of 10. A "good" quality score was defined as 7 or more points, an "average" quality score as 4–6 points, and a "poor" quality score as 3 or less points.

The targets for diabetes were used for BP and cholesterol when the patients had both diabetes and hypertension.

Data analysis

Data were collected from the folders using a standardised paper-based template, then captured in an Excel® spreadsheet and analysed using Stata® version 10.1.

Ethical considerations

Ethics approval for the study was obtained from the Human Ethics and Research Committee, Faculty of Health Sciences of the University of Cape Town (HREC Ref 161/2011). Approval for the study was obtained from the Metro District Health Services Research Committee, directors of the substructures, as well as from the facility managers of the selected CHCs. Individual patients were not identified and confidentiality of the records was ensured through extraction of data from the folders at the CHCs where the records were held. Patient identities were not captured.

Results

A total of 4 184 chronic disease patients were included in the study, of whom 2 707 (64.70%) were female and 1 466 (35.04%) were male (Table 1). There were 823 (19.67%) diabetic patients, of

whom 718 (87%) had hypertension as well, and 2 467 hypertensive patients, which represents 59% of all of the chronic disease patients. The proportion of diabetic and hypertensive patients aged 35 years and younger was 3.3%, and that of those aged 65 years and older, 29.1%.

Overall, more than half (52.63%) of the quality-of-care scores for the diabetes mellitus patients were poor. There were no significant differences in the quality-of-care scores between men or women diabetic patients or between the different age categories. Similarly, most hypertensive patients (59.92%) scored poorly for quality of care. There was no significant difference between the gender or age categories. It was noted that the proportion of patients with poor scores in the age group 25–35 years was higher than that in the older age groups, i.e. 70% and 76.67%, for diabetes mellitus and hypertension, respectively (Table 2).

The quality-of-care indicators in the diabetic and hypertensive folders examined in this study indicated that BP was checked in 97.5% of cases, but only met the criterion for good control in 35.3% thereof. BMI was measured in 48.2% of cases, and was found to be less than 25 kg/m^2 in 20.7% of those measured. Of the indicators for which blood tests were required, total cholesterol was performed in 38.4% of cases, and 45.7% of those achieved the target; creatinine was performed in 39.5% of cases, and 92.5% of those achieved the target, and HbA_{1c} was performed in 37% of cases, and only 14.6% of those achieved the target (Table 3).

There were huge variations in the cost of prescriptions for diabetes mellitus and hypertension, ranging from R2.39 to R1 052.00, and R2.39 to R1 035.84, respectively. The calculation of the total prescription cost did not distinguish between the cost of treatment for diabetes mellitus or hypertension and other co-morbidities. There was no correlation with cost of prescriptions and the quality-of-care categories for diabetes mellitus or hypertension (Table 4).

Discussion

An American study in 2000 found that 65% of their diabetic sample was female and 30% was aged 65 years and older.[4] Our study found 64.7% to be female and 21% to be older than 65 years of age.

Insulin treatment was prescribed for nearly a third of the diabetic men and less than 10% of the diabetic women in a 2002 study in the USA.[12] In our study, 32.5% of all diabetic patients were on insulin. Sidoroy et al. also found that the most frequently used antihypertensive drug classes by the men were angiotensin-converting enzyme (ACE) inhibitors (39%), followed by diuretics (31%), calcium-channel blockers (11%) and beta blockers (11%).[12] The most frequently used antihypertensive drug classes by the women were diuretics (46%), followed by ACE inhibitors (22%), beta blockers (8%) and calcium-channel blockers (8%).[12] In our study, the frequency of antihypertensive agents was as follows: diuretics (33.8%), ACE inhibitors (29%), calcium-channel blockers (23.3%) and beta blockers (12.6%), which reflect the current guideline recommendations.

There was an increased prescription use for most drugs, and especially cardiovascular drugs, by the diabetic patients.[13] It was reported in this study, conducted in 1998, that diabetic subjects (7.9% of all patients) accounted for 21% of total annual prescription costs in the practices. In our study, diabetic patients represented 16% of patients and accounted for 23.6% of the prescription costs.

It was found in a Swedish study that BMI had been recorded for only 39% of their diabetic sample, cholesterol for 42%, BP for 89% and HbA_{1c} for 68%.[17] In our study, BMI was recorded in more patients (48.2%), cholesterol in 38.4% and BP in 97.5%, but HbA_{1c} was only carried out for 37% of the diabetic patients. In the Swedish study, a BMI value below 25 kg/m^2 was found in 22%, compared to 20.7% in our study, and a BMI above a value of 27 kg/m^3 was found in 64%.[14] Systolic BP was reported to be 140 mmHg or below in 37.4%, compared to 35.3% in our study; and 160 mm Hg or below in 74.8% of their sample. HbA_{1c} below 7% was achieved in approximately 40% of patients, compared to 14.6% in our study.

Another American study found that 77.9% of the participants had had their BP taken, and only 3.3% had undergone a complete foot examination.[15] In their study, Rosenblatt et al. found that 27.5% of patients underwent tests for cholesterol and HbA_{1c}, and their eyes examined, in a given year.[18]

A recent World Bank report noted a rise in NCDs in younger patients in middle and lower-income countries.[19] It was reported that the long-term treatment and care provided in this regard, with its

Table 1: Demographic information of the patients attending the different community health centres

Parameter	All patients, *n* (%)	Diabetic and hypertensive patients		
		Diabetes mellitus only, *n* (%)	Diabetes mellitus and hypertension, *n* (%)	Hypertension only, *n* (%)
Gender				
Male	1 466 (35.04)	38 (36.19)	236 (32.87)	498 (28.47)
Female	2 707 (64.70)	66 (62.86)	482 (67.13)	1 246 (71.24)
Missing data	11 (0.26)	1 (0.95)	0 (0.00)	5 (0.29)
Total	**4 184 (100.00)**	**105 (100.00)**	**718 (100.00)**	**1 749 (100.00)**
Age (years)				
< 24	214 (5.11)	1 (0.95)	0 (0.00)	8 (0.46)
25–34	437 (10.44)	8 (7.62)	13 (1.81)	55 (3.14)
35–44	697 (16.66)	27 (25.71)	57 (7.94)	232 (13.26)
45–54	960 (22.94)	31 (29.52)	149 (20.75)	458 (26.19)
55–64	984 (23.52)	24 (22.86)	260 (36.21)	491 (28.07)
65+	878 (20.98)	14 (13.33)	238 (33.15)	497 (28.42)
Missing data	14 (0.33)		1 (0.14)	9 (0.51)
Total	**4 184 (100.00)**	**105 (100.00)**	**718 (100.00)**	**1 749 (100.00)**

Table 2: Quality-of-care scores for diabetes and hypertension by gender and age group

Parameter	Quality-of-care category				*p**
	Poor (score < 3), *n* (%)	Average (4–7), *n* (%)	Good (8–10), *n* (%)	Total, *n* (%)	
Diabetes					
Gender					0.527
Male	133 (50.19)	81 (30.57)	51 (19.25)	265 (100.00)	
Female	287 (53.95)	157 (29.51)	88 (16.54)	532 (100.00)	
Missing data	0 (0.00)	1 (100)	0 (0.00)	1 (100)	
Total	**420 (52.63)**	**239 (29.95)**	**139 (17.42)**	**798 (100.00)**	
Age					0.732
25–34	14 (70.00)	3 (15.00)	3 (15.00)	20 (100.00)	
35–44	46 (58.23)	23 (29.11)	10 (12.66)	79 (100.00)	
45–54	90 (50.28)	55 (30.73)	34 (18.99)	179 (100.00)	
55–64	139 (50.73)	84 (30.66)	51 (18.61)	274 (100.00)	
65+	130 (53.06)	74 (30.20)	41 (16.73)	245 (100.00)	
Missing data	1 (100)	0 (0.00)	0 (0.00)	1 (100)	
Total	**420 (52.63)**	**239 (29.95)**	**139 (17.42)**	**798 (100)**	
Hypertension					
Gender					0.81
Male	425 (60.98)	157 (22.53)	115 (16.5)	697 (100.00)	
Female	985 (59.55)	384 (23.22)	285 (17.23)	1 654 (100.00)	
Missing data	1 (25.00)	2 (50.00)	1 (25.00)	4 (100.00)	
Total	1 411 (59.92)	543 (23.06)	401 (17.02)	2 355 (100.00)	
Age					0.1
> 24	4 (66.67)	1 (16.67)	1 (16.67)	6 (100.00)	
25–34	46 (76.67)	8 (13.33)	6 (10.00)	60 (100.00)	
35–44	171 (64.29)	49 (18.42)	46 (17.29)	266 (100.00)	
45–54	351 (60.73)	125 (21.63)	102 (17.65)	578 (100.00)	
55–64	413 (57.04)	178 (24.59)	133 (18.37)	724 (100.00)	
65+	420 (58.99)	180 (25.28)	112 (15.73)	712 (100.00)	
Missing data	6 (66.67)	2 (22.22)	1 (11.11)	9 (100.00)	
Total	**1 411 (59.92)**	**543 (23.06)**	**401 (17.02)**	**2 355 (100.00)**	

**p*-value associated with a chi-square test

accompanying disability, was likely to have a greater socio-economic impact than other health conditions. It is of concern that our study found the quality of care for both diabetes and hypertension in the age group 25–34 years to be worse than that offered to the older age groups. Gray et al. also found poorer recordings of quality of care for younger (18–44 years of age) diabetic patients.[20] This may be a reflection on the effectiveness of lifestyle modification education given at primary health care level. Parker found that patients' preferences for health education differed, and that one specific method could not be utilised by all patients.[21]

There were huge variations in the cost of prescriptions for patients with diabetes mellitus and hypertension, probably reflecting the spectrum of severity of these conditions and also the different number of co-morbidities. A distinction was not made in the calculation of the total prescription cost between the cost of treatment for diabetes mellitus or hypertension specifically. Perhaps, we should have considered the cost of medications for these conditions separately.

We found no correlation between the cost of prescriptions and the quality-of-care categories with respect to diabetes or hypertension. This was thought to be owing to increasing costs being associated more with the number of co-morbidities, rather than the quality of care. We also found no statistically significant correlation between the number of co-morbidities and quality-of-care scores for either diabetes or hypertension (Table 5).

Limitations

The condition of some of the folders, disorganisation of data and poor recordkeeping may also have resulted in low quality scores, as indicators measured may have been performed, but were not found on the day of the audit.

Our calculation of quality scores was based on processes and outcomes, and perhaps we should have separated the two components as the staff was solely responsible for the processes, but the outcomes depended on many variables which may not have been under the control of staff members to the same degree.

Conclusion

The quality of care provided to diabetic and hypertensive patients was poor when compared to evidence-based guideline targets, but was comparable to care provided in many other

Table 3: Summary of quality-of-care indicators performed for diabetes mellitus and hypertension

Quality-of-care indicator*	Diabetic and hypertensive patients		
	Diabetes mellitus only, *n* (%)	Diabetes mellitus and hypertension, *n* (%)	Hypertension only, *n* (%)
Number of patients	**105**	**718**	**1 749**
Blood pressure			
Test not performed	3 (3.16)	16 (2.27)	42 (2.53)
Test performed: > 130/80 mmHg for diabetes mellitus > 140/90 mmHg for hypertension	42 (44.21)	515 (72.95)	972 (58.62)
Test performed: < 130/80 mmHg for diabetes mellitus < 140/90 mmHg for hypertension	50 (52.63)	175 (24.79)	644 (38.84)
Total	**95 (100.00)**	**706 (100.00)**	**1 658 (100.00)**
Total cholesterol			
Test not performed	56 (58.95)	388 (54.96)	1 068 (64.61)
Test performed: > 4.5 mmol/l for diabetes mellitus > 5.0 mmol/l for hypertension	26 (27.37)	174 (24.65)	311 (18.81)
Test performed: < 4.5 mmol/l for diabetes mellitus < 5.0 mmol/l for hypertension	13 (13.68)	144 (20.4)	274 (16.58)
Total	**95 (100.00)**	**706 (100.00)**	**1 068 (100.00)**
Creatinine			
Test not performed	57 (60.00)	382 (54.11)	1 046 (63.28)
Test performed: > 120 µmol/l	2 (2.11)	29 (4.11)	41 (2.48)
Test performed: < 120 µmol/l	36 (37.89)	295 (41.78)	566 (34.24)
Total	**95 (100.00)**	**706 (100.00)**	**1 653 (100.00)**
Body mass index			
Test not performed	43 (45.26)	338 (47.88)	884 (53.61)
Test performed: > 25 kg/m^2	41 (43.16)	303 (42.92)	595 (36.08)
Test performed: < 25 kg/m^2	11 (11.58)	65 (9.21)	170 (10.31)
Total	**95 (100.00)**	**706 (100.00)**	**1 649 (100.00)**
Haemoglobin A_{1c}			
Test not performed	68 (73.12)	434 (61.65)	N/A
Test performed: > 7%	23 (24.73)	229 (32.53)	
Test, performed: < 7%	2 (2.15)	41 (5.82)	
Total	**93 (100.00)**	**704 (100.00)**	

N/A: not applicable
*Quality-of-care indicators were not obtained for all patients

Table 4: Quality-of-care scores for diabetes and hypertension and the cost of prescriptions

Quality-of-care score category	Total prescription cost (rands)						
Diabetes							
	n	**Mean**	**Median**	**SD**	**Min**	**Max**	***p****
Poor	420	81.24	51.18	87.24	5.7	1 052.00	0.21
Average	239	78.35	52.10	71.96	5.11	417.04	
Good	139	69.41	44.66	67.94	10.21	521.29	
Total	**798**	**78.31**	**50.16**	**79.78**	**5.11**	**1 052.00**	
Hypertension							
	n	**Mean**	**Median**	**SD**	**Min**	**Max**	***p****
Poor	1 411	55.67	31.00	69.62	2.39	1 035.84	0.12
Average	543	58.80	35.38	65.50	2.39	473.45	
Good	401	50.20	30.06	54.32	2.39	521.29	
Total	**2 355**	**55.46**	**31.62**	**66.33**	**2.39**	**1 035.84**	

Max: maximum, Min: minimum, SD: standard deviation
**p*-value associated with a Kruskal-Wallis equality-of-populations rank test

populations. More process indicators were performed on diabetic patients than on hypertensive patients, but the hypertensive patients achieved the target values more often.

There was no correlation between quality of care and the cost of prescriptions. Quality of care decreased with increased co-morbidities, which should be borne in mind when

Table 5: Quality-of-care scores for diabetes and hypertension for a different number of co-morbidities

Quality-of-care score category	Number of chronic diseases, *n* (%)				*p**
	1	2	3+	Total	
Diabetes					0.63
Poor	28 (50.90)	150 (52.44)	242 (52.95)	420	
Average	12 (21.81)	85 (29.72)	142 (31.07)	239	
Good	15 (27.37)	51 (17.83)	73 (15.97)	139	
Total	**55 (100.0)**	**286 (100.0)**	**457 (100.0)**	**798**	
Hypertension					0.104
Poor	273 (63.63)	618 (59.94)	520 (58.10)	1 411	
Average	83 (19.34)	230 (22.30)	230 (25.69)	543	
Good	73 (17.01)	183 (17.74)	145 (16.20)	401	
Total	**429 (100.0)**	**1 031 (100.0)**	**895 (100.0)**	**2 355**	

*p-value associated with a chi-square test

implementing quality improvement strategies that focus on single conditions.

Recommendations

The high proportion of co-morbidities at primary health care level should be considered when implementing quality improvement strategies that focus on single conditions. Younger patients with chronic diseases should be identified for additional or innovative lifestyle modification and adherence counselling. Quarterly audits could be performed to monitor progress in achieving targets set, following the annual CDM audit.

A number of initiatives to improve the quality of care of chronic patients has been undertaken at Metro District Health Services facilities and these should be researched for their effectiveness, and include the establishment of chronic care teams, risk stratification tools, patient-held cards with key indicators, and community-based services to assist with patient education. Further studies are also needed to assess prescribing patterns with respect to diabetes mellitus and hypertension and to compare them with the Essential Drugs List.[22]

Conflict of interest – There was no conflict of interest for any of the research investigators.

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Appendix 1. Data collection tool

Age	(18–29 yrs) – 1	(30–45yrs) – 2	(46–59) – 3	(60–69) – 4	(> 80) – 5
Gender	(Male) – 1	(Female) - 2			
Facility name	Mitchell's Plain – 1	Hanover Park – 2	Gugulethu – 3	Retreat) – 4	Vanguard – 5
	Abdurahman – 6	Crossroads – 7	Lotus River – 8	InzameZabantu – 9	Hout Bay – 10
Visit	Acute – 1	Chronic – 2			
Chronic Diagnosis	Hypertension – 1	Diabetes – 2	Asthma/COPD – 3	Epilepsy – 4	Arthritis – 5
	(Mental Health) – 6	(Other) – 7			
Treatment initiation	CHC – 1	Hospital - 2			
Medication	1	2	3	4	5
	6	7	8	9	10
Indicators (for DM and HPT)					
BP (most recent in last 6 months, max of 5) –					
Most recent record in last year of:	Total Cholesterol –	Creatinine –	BMI/waist circumference -	HbA1c -	
Quality of care score	Diabetes -	Hypertension -			