Is quality control useful? An audit of the saving measures regarding prescriptions at National District Hospital in Bloemfontein

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Abstract

Background: This is a follow-up study to evaluate and improve quality health care for the majority of the population in Bloemfontein. The aim of this study was to evaluate the changes implemented to address the cost of prescribing drugs at National District Hospital, Bloemfontein as described in a previous study

Methods: The 20 most expensive or inappropriate prescribed drugs were identified from the results of the first study. These drugs were grouped together in order to address the problems systematically, e.g. revising and updating the current treatment protocols for chronic conditions and using cheaper alternatives. Three months after the implementation of the new measures, the affected drugs were re-evaluated over an eight-week period.

Results: A total of 28 drugs (the 20 drugs + eight drugs on which they may have a direct influence) was evaluated over an eight-week period. The introduction of the treatment protocols not only saved a large amount of money, but also made prescribers aware of the correct dosages of the drugs. A saving of R215 395 in the dispensing of medicine in eight weeks was demonstrated. A massive calculated saving of R1.4 million could be achieved over a one-year period at NDH with adherence to the saving measures.

Conclusion: Drug costs can be substantially reduced through review of drug use and introduction of protocols and guidelines.

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Background

A cost-conscious approach to prescribing will help to make therapy more affordable for patients[1] and the public sector. In a previous study, the cost of primary health care prescriptions was evaluated and problem areas were identified.[2] In that study, 1 000 prescriptions at both the Heidedal Community Health Centre and the National District Hospital (NDH) in Bloemfontein were evaluated over two-month periods. The average number of items per script was 3.1 and 4.1 respectively, and the average cost per script R11.04 and R64.08 respectively.

The aim of this study was to evaluate the changes implemented to address the cost of prescribing drugs at NDH, as described in a previous study.[2]

Method

From the results of the first study, the 20 most expensive or inappropriate prescribed drugs were identified. The problems identified by the previous study[2] were:

1. Hypertension treatment and follow-up and the use of anti-hypertensive drugs
2. Different types of insulin and diabetes monitoring
3. Gastrointestinal drugs
4. Drugs prescribed that were not on the Essential Drug List (EDL)[3]
5. Number of tablets prescribed for acute conditions, e.g. pain tablets
6. Repeat prescriptions in which acute or non-urgent drugs were also repeated
7. Drugs prescribed when cheaper or better alternatives were available on the EDL

These problems were grouped together in order to address them systematically. Each group of problems was then addressed according to the specific problem. The following general guidelines were given:

1. Do not treat side effects with drugs.[1]
2. Every prescriber must take responsibility for every drug that is prescribed.[1]
3. Beware of drug interactions.[1]
4. Try to reduce the number of items per script.[4]
5. Do not prescribe drugs not in the EDL.[5]

With regard to acute conditions, the following instructions were given:

1. Limit the number of pain tablets, e.g. limit paracetamol tablets to 10 and nonsteroidal anti- inflammatory

drugs (NSAIDs) to 15.
2. Seek cheaper alternatives, e.g. sennosides vs. liquid paraffin (R1,30 vs. R3, 23); ketoconazole oral gel (R42,74) vs. Diflucan® (free).[6]
3. Reconsider the use of non-urgent drugs, e.g. fibre stool softeners at R57 421/year.

Guidelines for chronic conditions included that:

1. Prescribers had to stick to treatment protocols.[7]
2. The use of patient carry cards had to be implemented.
3. The cheapest angiotensin-converting enzyme inhibitor (ACE inhibitor) (enalapril vs. perindopril) had to be used. This matter was referred to the Provincial Therapeutic Committee (PTC), which approved the cheaper ACE inhibitor.[8]
4. Patients should not receive any premixed unit dose vials (UDVs) for home nebulisation, but had to be taught how to use a metered dose inhaler (MDI) with a spacer.[9]
5. Proton pump inhibitors (PPIs) (omeprozole) and lipid-lowering drugs (atorvastatin) should be referred to the PTC. The PTC approved specific treatment protocols for these drugs.[10]
6. Patients on insulin who were able to use vials should be switched to vials instead of pen sets. The PTC later approved this policy for the Province.[11]

Revised and updated treatment protocols for chronic conditions were re-introduced to all healthcare professionals. Patient carry cards were implemented for patients with chronic conditions. All this information was communicated to the doctors and the rest of the Free State province via lectures on ICAM (interactive communication with audio-video methods). Notices on brightly coloured paper were displayed in the clinics to reemphasise the savings measures to the doctors and the patients. Supervisors in the clinics did in-service training. The pharmacy personnel cooperated well by informing the prescribers of anything prescribed that was not in accordance with the savings measures. The effect of the savings measures was monitored continuously and problems were addressed immediately. Matters of importance to the whole province were referred to the PTC, which can change provincial policy.

Three months after the implementation of the new measures, the 20 most expensive or inappropriate prescribed items were re-evaluated over an eight-week period. Eight drugs, in the same class or that could be used as substitutes for the 20 drugs, were also evaluated to see the impact of the changes on these drugs.

Table I: Drugs evaluated in the study

Most expensive or inappropriate	Directly-influenced drugs
Perindopril	
Enalapril	
Hydrochlorothiazide	
Nifedipine CR	
Atorvastatin	
Hyoscine butylbromide	
Omeprazole	Cimetidine
Magnesium tricilicate/aluminum hydroxide	
Liquid paraffin Ispaghula husk powder	Sennosides A and B
Pre-mixed 30/70 insulin pen set	Pre-mixed 30/70 insulin vials
Intermediate-acting insulin pen set	Intermediate-acting insulin vials
Glucostix	
Imipramine hydrochloride Hydroxizine tabs	Amitryptiline
Ibuprofen	
Paracetamol	
B2 nebulising fluid (UDVs)	Salbutamol metered dose inhalers
Ipratropium bromide (UDVs)	Ipratropium bromide metered dose inhalers
Ciprofloxacin hydrochloride	
Ketoconazole oral gel	

Table II: The effects of the savings measures on gastrointestinal drugs over the eight-week period

Drug	Extra money spent in the 8 weeks (R)	Money saved in the 8 weeks (R)
Omeprazole		21 824
Cimetidine	1 078	
Magnesium tricilicate/ aluminium hydroxide		108
Hyocine butylbromide		2 515
Ispaghula husk powder		6 360
Sennosides A and B		190
Liquid paraffin		43

The pharmacy cards (a daily stock record card) of the specific drugs were used to establish the exact number of drugs dispensed during the eight-week period. These figures were compared with the average number of drugs dispensed in the 52 weeks that preceded the implementation of the new measures. Seasonal variation does not play a major role in the drugs evaluated.

Results

Table I lists the drugs evaluated in this study.

Table II demonstrates the effects of the savings measures in relation to the drugs prescribed for gastrointestinal conditions during the eight-

Table III: The effects of the savings measures on drugs for chronic conditions over the eight-week period

Drug	Extra money spent in the 8 weeks (R)	Money saved in the 8 weeks (R)
Perindopril		22 102
Enalapril	6 743	
Nifedipine LA	3 327	
Hydrochlorothiazide	No effect	No effect
Atorvastatin		44 560
Insulin pen sets		103 366
Insulin vials	5 484	
Glucostix		844
UDVs (Beta2 and ipratropium bromide)		18 765
MDIs (Beta2 and ipratropium bromide	2 644	

Table IV: The effects of the savings measures on drugs for acute conditions over an eight-week period

Drug	Extra money spent in the 8 weeks (R)	Money saved in the 8 weeks (R)
Imipramine		1 562
Amitriptyline	No effect	No effect
Hydroxyzine		4 521
Ibuprofen		945
Paracetamol		520
Ciprofloxacin		678
Ketoconazole oral gel		480

week period. Patients had to be given a gastroscopy before PPIs were prescribed, and then the drugs were prescribed for a limited period only. The indications for fibre stool softeners were also restricted.

Table III demonstrates the effect of the saving measures on the drugs for chronic conditions. Insulin pen sets were replaced with insulin vials when indicated and glucostix were only prescribed if the patient knew how to use them and adjust his or her treatment accordingly. The use of UDVs was limited to the minimum, as home nebulisation with B_2 stimulants or ipratropium bromide UDVs is not superior to correctly metered dose inhalers.[9]

Table IV demonstrates the effects of the saving measures on drugs prescribed for acute conditions. When prescribing antibiotics for specific conditions, prescribers had to follow guidelines according to the EDL. The number of pain tablets for the treatment of acute conditions was reduced to 10 or 15 instead of the pre-packed 30 to 90 tablets.

During the eight-week audit, there was a decrease of R215 395 in the cost of the medicines that were dispensed. This means that R1.4 million could be saved at NDH in a one-year period.

Discussion

The prescribers' responsibilities regarding prescribing methods were stressed during the introduction of the saving measures. In patients with chronic conditions, patient care and satisfaction improved with the implementation of the patient carry cards and revised treatment protocols. From the carry cards it was possible to monitor adherence, the following of protocols and disease control better, and the patients took more responsibility for their diseases. An interesting aspect that is illustrated in Table II is the reduction in the use of all laxatives with the introduction of the savings measures for fibre stool softeners. The change from perindopril to enalapril, the cheaper alternative, saved a lot of money and it would have been possible to save a further R142 295.20 on the remainder of the perindopril stock in the hospital had enalapril been used instead of perindopril. The change from the insulin pen sets to the insulin vials and the introduction of the treatment protocols for diabetes not only saved a lot of money, but also made the prescribers aware of the correct dosages of insulin and how to calculate the number of vials accurately.

The prescribing of two schedule-5 drugs, hydroxyzine (used for sleep disorders) and imipramine (used for depression), which were not on the EDL for primary health care use, were stopped without any influence on the available drug, amitriptyline.

Conclusion

Drug costs can be substantially reduced through a review of drug use and the introduction of protocols and guidelines.

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