

Pharmacoeconomics of Selected Essential Medicines for Chronic Diseases in Bhiwani District, Haryana, India

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Abstract

Introduction: Medicines represent a substantial proportion of the economic costs for treating chronic diseases. In low and middle income countries (LMIC) 50–90% of the population have to pay for medicines themselves. Inappropriate access and availability of essential medicines contribute substantially to out-of-budget expense. A significant population of developing countries (up to 90%) purchase medicines through out-of-pocket payments. This research study was conducted to investigate the comparative availability and relative price to patient for selected essential medicines used in the treatment of chronic diseases in Bhiwani district.

Material and methods: A research study on availability and price to patient for selected essential medicines used in the treatment of chronic diseases was conducted. Standardized methodology of World Health Organization and Health Action International was employed. The research study was conducted on retail pharmacy outlets of Bhiwani District, i.e., residential areas of Bhiwani city and five administrative areas of Bhiwani district.

Results: Overall percent availability of the most of the surveyed medicines used in the treatment of chronic diseases was found to be less than 50%. Huge difference in price of brands/generics was found in different administrative areas for a single brand/generic of each surveyed medicine.

Conclusions: Dissemination of well documented information on availability and relative price to medicine consumers in all residential areas may enhance consumer demand for lower price medicine and thus may serve to enhance the availability of demanded medicine (lowest priced) in all the areas of Bhiwani district.

Keywords: Essential medicines; Chronic diseases; Accessibility; Availability; Relative price to patient; Retail pharmacy outlets; Bhiwani

Introduction

Medicines represent a substantial proportion of the economic costs of treating chronic diseases in most of the countries. In Latin America and the Caribbean, medicine costs account for 44% of the direct medical costs of diabetes [1]. Further, in low- and middle-income countries 50–90% of the population have to pay for medicines themselves [2]. A significant proportion of chronic disease morbidity and mortality can be prevented if medications are made accessible and affordable. Several studies have examined the availability, price and affordability of essential medicines; however none have focused specifically on medicines used to treat chronic diseases (EDM, 2003). Globally, approximately 35 million deaths (60% of all deaths) are attributable to chronic diseases each year, with more than 30 million deaths (52% of all deaths) due to cardiovascular disease (accounting for 30% of all deaths), cancer (13% of all deaths), chronic respiratory disease (7% of all deaths) and diabetes (2% of all deaths) [3].

World Health Organization (WHO) estimated that up to 30% of the world's population lack regular access to essential medicines and up to 50% in the poorest countries of Africa and Asia [4]. Medicines prices are often unaffordable in low and middle income countries (OECD, 2008; [5]. Generic medicines are up to 20-90% cheaper than their innovator brands [6,7] and "gold standard" and "first line therapy" for many acute and chronic diseases [8], promoting generic medicines to improve medicine access both for government and individuals who have to pay out of pocket for medicines [5]. Out-of-pocket expenditure includes cost-sharing, self medication and other expenditure paid directly by private households [4]. Up to 20–60% of medicine accounts for health spending in low and middle income countries (LMIC), compared with 18% in countries of the Organisation for Economic Co-operation and Development (OECD) [9]. A significant population up

to 90% purchase medicines through out-of-pocket payments, making medicines the largest family expenditure item after food in developing countries [10].

A generic medicine is identical to its corresponding innovator medicines in terms of safety, quality, efficacy, dosage form, strength and route of administration and has the same intended use as the innovator medicine (The US Food and Drug Administration (FDA), 2009. Promotion of generic medicines recommended being a part of the national medicine policy [11] to achieve a comprehensive and sustainable health care system in Europe [12].

The present study is perhaps the only study that compares the availability of generic as well as branded medicines and relative prices to patient for essential medicines used in the treatment of chronic diseases in a single district of any state. This research study covers whole of Bhiwani district along with administrative areas serve to document comparative availability of generic as well as branded medicines and relative prices to patients for essential medicines used in the treatment of chronic diseases (Hypertension, Ulcers, Diabetes, Depression) in different geographical areas of Bhiwani district. The method used in

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the present study is based on World Health Organization (WHO), Geneva, Switzerland and Health Action International Global (HAI), Amsterdam Netherland Guidelines. A manual of WHO/HAI survey methodology was released in 2003. Later this WHO/HAI manual was updated in 2008 to reflect the wealth of practical experience in conducting medicine price and availability survey.

Material and Methods

Methods

This survey has been designed to provide a comprehensive picture of the relative prices to patient and availability of selected essential medicines essential medicines used in the treatment of chronic diseases in a single district of any state. To carry out the survey WHO/HAI methodology was adopted. It is usually not feasible to Collect data from a large number of health facilities, pharmacies and other medicine outlets, so a small sample of facilities was selected in at least six geographical areas: a country's main urban centre and five other administrative areas (survey areas) [13].

- Main urban center- Bhiwani city
- Geographical areas of Bhiwani city-

BA1 - Opposite Civil Hospital, Ghantaghar / Bapura chowk, Krishna colony, Dinod Gate

BA2 - Hansi gate / road, Opp. Old Bus stand, Sec -13, Friends colony, Chiriyaghar road, Old Housing Board

BA3 - Meham Gate, Meham Road / Vidyanagar

BA4 - Rohtak gate / road, M.C. Colony, New Bharat Nagar, Opp. New Bus Stand, Vikas Nagar

BA5 - Dadri Gate, Bawari Gate, Hanuman Gate

- Administrative areas of Bhiwani city- Dadri, Siwani, Loharu, Tosham, Bawanikhera (Figure 1).

List of medicines used for survey

As per WHO/HAI guidelines up to 50 medicines can be included in the survey but undertaking such a survey is beyond the scope of an individual, and requires the commitment of a group of people. So a smaller sample of medicines was selected for the survey. To carry out survey, medicines used for the treatment of four chronic diseases

(Ulcer, Depression, Hypertension, Diabetes) were selected from the National List of Essential Medicines, India 2013 and hospital formulary of Bhiwani.

- **Medicines used for the treatment of Ulcer**

Omeperazole 20 mg cap/tab, Pantoprazole injection 40 mg injection, Ranitidine 150 mg cap/tab, Famotidine 20 mg cap/tab

- **Medicines used for the treatment of Depression**

Amitriptyline 25 mg cap/tab, Fluoxetine 20 mg cap/tab, Imipramine 25 mg cap/tab

- **Medicines used for the treatment of Hypertension**

Amlodipine 5 mg cap/tab, Atenolol 50 mg cap/tab, Enalapril 5 mg cap/tab

Losartan Potassium 25 mg tab, Methyldopa 250 mg tab, Nifedipine 20 mg cap/tab

Sodium Nitroprusside inj. 50 mg/5 ml, Hydrochlor thiazide 25 mg tab/cap

- **Medicines used for the treatment of Diabetes**

Glibenclamide 5 mg cap/tab, Insulin injection (soluble) 40 iu/ml

Intermediate acting (lente/ NPH Insuline) 40 iu/ml, Premix Insulin 30:70 injection 40 iu/ml, Metformin 500 mg cap/tab

Ethical approval

Ethical approval to carry out survey in Bhiwani district was taken from Distt. Drug Controller Officer, Bhiwani and map of Bhiwani city was collected from municipal council, Bhiwani.

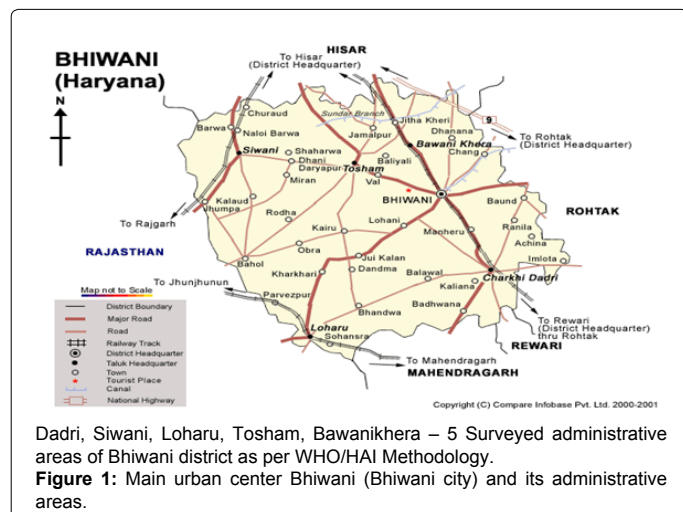
Methodology

Step-1: Percent availability of essential medicines used for the treatment of chronic diseases (Hypertension, Ulcer, Diabetes, Depression) in different geographical areas of Bhiwani city: In this procedure data was collected on given format, i.e., availability and relative price paid for essential medicines used for the treatment of chronic diseases in Bhiwani district. Percent availability of each surveyed medicine was calculated in each geographical area of Bhiwani city by dividing the number of retail pharmacy outlets having that medicine by total number of retail pharmacy outlets of that geographical area.

Step-2: Cumulative percent availability of essential medicines used for the treatment of chronic diseases in Bhiwani district: In this procedure data was collected on the given format from Bhiwani city and five administrative areas (Dadri, Siwani, Loharu, Tosham, Bawanikhera). Cumulative percent availability of each medicine was checked and it was divided by total number of retail pharmacy outlets of Bhiwani district.

Step-3: Percent availability of each brand/generic of essential medicines used for the treatment of chronic diseases in different geographical areas (BA1, BA2, BA3, BA4, BA5) of Bhiwani city: In this procedure data was collected on the given format from Bhiwani city (BA1, BA2, BA3, BA4, BA5). The percent availability of each brand/generic in each geographical area was calculated by dividing the number of retail pharmacy outlets having that brand/generic by total number of retail pharmacy outlets in that geographical area.

Step-4: Percent availability of each brand/generic of essential medicines used for the treatment of chronic diseases in different



geographical areas of Bhiwani city and five administrative areas of Bhiwani district separately: In this procedure data was collected on the given format from Bhiwani city (BA1, BA2, BA3, BA4, BA5) and five administrative areas (Dadri, Siwani, Loharu, Tosham, Bawanikhera) of Bhiwani district. Percent availability of each brand/generic of each surveyed medicine for each geographical and administrative area was calculated separately and also for Bhiwani city.

Step- 5: Average Unit Price of each brand/generic of essential medicines used for the treatment of chronic diseases in different geographical areas (BA1, BA2, BA3, BA4, BA5) of Bhiwani city: In this procedure data was collected on the given format in different geographical areas of Bhiwani city. Average unit price of each brand/generic of each medicine was calculated by dividing the sum of unit prices of the each corresponding brand/generic by total number of retail pharmacy outlets having that brand/generic of the particular geographical area. For Bhiwani city calculation of average unit price of each brand/generic was done similarly.

Step- 6: Average Unit Price of each brand/generic of essential medicines used for the treatment of chronic diseases in five administrative areas (Dadri, Siwani, Loharu, Tosham, Bawanikhera) of Bhiwani district separately: In this procedure data was collected on the given format for each brand/generic of essential medicines used for the treatment of chronic diseases in five administrative areas of Bhiwani district separately. Average unit price was calculated separately for each administrative area for each brand/generic by dividing the sum of unit prices of corresponding brand/generic by total number of retail pharmacy outlets on which that brand/generic was present in a specific administrative area.

Step-7: Cumulative Percent availability of total number of brands/generics of each surveyed medicine available in Bhiwani district: In this procedure total number of brands/generics available for each surveyed medicine in Bhiwani district was checked. The cumulative percent availability of total number of brands/generics of each medicine was calculated by dividing the total number of brands/generics available in a specific administrative/geographical area/main urban centre by total number of brands/generics available in whole district.

Results

The availability of medicines is expressed in percentage and average unit price are expressed in rupee (Rs.). Results are shown in (Table 1-11). The results are expressed in tabular form so that all the values can be compared easily and simultaneously for different types of brands available in various regions of Bhiwani district. All the tables are self explanatory. In the tables area wise comparison of percent availability and relative average unit price to patients for each surveyed medicine have shown so that consumers could know where they can find their desired product at an affordable price. In (Table 1) cumulative percent availability and availability location/area of each surveyed medicine in Bhiwani district have shown. For most of the surveyed essential medicines availability was found to be suboptimal. In (Table 2) percent availability of each surveyed medicine in different geographical areas of Bhiwani district have shown. In (Table 3) list of Brands/Generics available for each surveyed medicine in Bhiwani district have shown. In (Table 4) to (Table 9) most selling, cheapest, lowest available brands/generics of each surveyed medicines in Bhiwani city, Dadri, Siwani, Loharu, Tosham, Bawanikhera respectively have shown. In (Table 10) relative prices of different types of brands/generics of each surveyed medicine available in Bhiwani city have shown. From the tables

following points could be easily observed:

- The availability of brands/generics was found to be maximum for Pantoprazole (total no. of brands/generics- 16) and Omeprazole (total no. of brands/generics- 12) in Bhiwani district.
- Huge difference in price of brands/generics was found in different administrative areas for a single brand/generic of a medicine, e.g., Insulin.
- Lowest priced brands/generics found for the surveyed medicines in bhiwani city were Omesecc, Pentab, Monorin, Famonext, Amitome, Fludac, Dapsonil, Amodep, Hipres, Envas, Losakind, Alphadopa, Depin, Glibet, Actrapid, Human mixtard, Walaphage, Glyciphage.
- Most selling/Available brands/generics found for the surveyed medicines in bhiwani city were Ocide, P-PPI, Rantac, Faocid, Tryptomer, Fludac, Dapsonil, Amodep, Aten, Atecard, Envas, Losar, Alphadopa, Daonil, Nicardia, Actrapid, Mixtard, Huminsulin 30/70 and Glycomet.

Results are shown in (Table 1-11).

Discussion

Bhiwani covers a larger geographical area as compare to other districts of Haryana state. Therefore, in order to get more precise results about the percent availability and average unit price of each surveyed medicine, it is necessary to cover maximum geographical area. Therefore, a more detail study that samples a large percentage of availability, will be possible only when the administrative areas along with a main urban centre are covered. This study could be useful to government health policy makers in providing a broad picture of the present situation regarding availability and relative price of essential medicines used for the treatment of the chronic diseases. Dissemination of well documented information on availability and relative price to medicine consumers in all residential areas may enhance consumer demand for lower price medicine and thus may serve to enhance the availability of demanded medicine in all the areas of Bhiwani district. The present study is perhaps the only study that compares the availability and relative price of essential medicines used for the treatment of chronic diseases in a single district of any state.

This study covers those retail pharmacy outlets of Bhiwani district who gave response and showed interest in said practice and serve to document the overall availability, availability of most common low priced sold brand, availability of number of brands and relative price paid by consumers for medicines used for the treatment of chronic diseases in different geographical areas and shall be source of information; which medicine is available in cheapest price in which area of Bhiwani district. From this study, People of Bhiwani will come to know about the availability and relative price of each medicine in their area which is usually not known and people pay, what is asked by chemists to pay. This information is definitely important in those cases, where medicine are taken for longer periods of time and out-of-pocket expenditure is high and moreover, price money goes directly from the pocket of medicine consumer. This data would serve as reference for consumers, policy makers or non-governmental organizations interested to take up such projects.

Overall availability and relative price

The availability of most of medicines was found to be suboptimal; for many medicines, only one version of the product was available that

Cumulative % Availability in (%)	Name of medicine (with cumulative % availability)	Availability location/area
00 – 05	Sodium Nitroprusside inj. (0%) Hydrochlor thiazide (1.11%) Imipramine (3.07%)	N.A. Tosham Dadri, Tosham, BA3
05 – 10	N.A.	
10 – 15	Amitriptyline (11.40%) Insulin Injection (soluble) (13.14%) Fluoxetine (13.83%)	Dadri, Siwani, Tosham, Bhiwani Dadri, Loharu, Bhiwani, Bawanikhera Dadri, Tosham, Bhiwani
15 – 20	Glibenclamide (16.60%) Methyldopa (18.13%)	All over except Loharu, Siwani All over except Loharu
20 – 25	Metformin (24.21%)	All over except Loharu
25 - 30	Nifedipine (26.11%)	All
30 – 35	Losartan Potassium (30.90%)	All
35 – 40	Enalapril (39.15%)	All
40 – 45	Premix Insulin 30:70 (44%)	All-over except BA2
45 – 50	Famotidine (49.32%)	All
50 – 55	Intermediate acting (lente/NPH) Insulin (54.75%)	All-over except BA4
55 – 60	N.A.	
60 – 65	N.A.	
65 – 70	Pantoprazole (68.55%)	All
70 - 75	N.A.	
75 - 80	Amlodipine (78.29%)	All
80 – 85	N.A.	
85 – 90	Atenolol (87.50%)	All
90 – 95	N.A.	
95 - 100	Omeprazole (95.96%) Ranitidine (99.31%)	All All

Table 1: "Cumulative percent availability and availability location/area of each surveyed medicine in Bhiwani District."

Medicine	Bhiwani city	Dadri	Siwani	Loharu	Tosham	Bawani khera	BA1	BA2	BA3	BA4	BA5	Bhiwani district
Omeprazole	90.810	100.0	100.0	91.66	93.33	100.0	96.00	85.00	90.00	80.00	100.0	95.9666
Pantoprazole	67.340	86.66	81.81	33.33	53.33	88.88	76.00	50.00	75.00	60.00	72.22	68.5583
Ranitidine	95.910	100.0	100.0	100.0	100.0	100.0	92.00	95.00	100.0	93.33	100.0	99.3183
Famotidine	41.820	46.66	63.63	41.65	46.66	55.55	16.00	45.00	55.00	13.33	83.33	49.3283
Amitriptyline	19.380	26.64	09.09	00.00	13.33	00.00	04.00	25.00	30.00	20.00	22.22	11.4066
Fluoxetine	16.320	40.00	00.00	00.00	26.66	00.00	16.00	10.00	30.00	20.00	05.55	13.8300
Imipramine	05.100	06.66	00.00	00.00	06.66	00.00	00.00	00.00	25.00	00.00	00.00	03.0700
Amlodipine	69.380	89.91	72.72	66.54	93.33	77.77	80.00	65.00	70.00	33.33	88.88	78.2916
Atenolol	81.600	93.33	81.81	74.97	93.33	100.0	80.00	80.00	85.00	73.33	88.88	87.5066
Enalapril	42.840	46.62	45.45	33.33	33.33	33.33	48.00	20.00	40.00	40.00	66.66	39.1500
Losartan Pot.	34.680	46.62	36.36	16.66	40.00	11.11	48.00	15.00	45.00	20.00	38.88	30.9050
Methyldopa	29.590	43.29	18.18	00.00	06.66	11.11	32.00	20.00	50.00	26.66	16.66	18.1383
Nefidipine	34.680	46.62	18.18	08.33	26.66	22.22	36.00	25.00	45.00	13.33	50.00	26.1150
Sod. Nitroprusside	00.000	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.0000
Hydrochlorthiazide	00.000	00.00	00.00	00.00	06.66	00.00	00.00	00.00	00.00	00.00	00.00	01.1100
Glibenclamide	28.560	39.96	00.00	00.00	20.00	11.11	36.00	25.00	45.00	20.00	11.11	16.6050
Insulin injection (Soluble)	37.740	13.33	00.00	16.66	00.00	11.11	68.00	15.00	55.00	13.33	22.22	13.1400
Intermediate acting (lente/NPH) insulin injection	26.520	60.00	90.90	33.33	73.33	44.44	44.00	25.00	35.00	00.00	16.66	54.7533
Premix insulin 30:70 injection	18.360	40.00	54.54	33.33	73.33	44.44	16.00	00.00	45.00	06.66	22.22	44.0000
Metformin	67.340	46.62	09.09	00.00	33.33	22.22	40.00	65.00	75.00	40.00	72.22	24.2116

Bhiwani – Bhiwani city

BA1 - Opposite Civil Hospital, Ghantaghar/ Bapura chowk, Krishna colony, Dinod Gate

BA2 - Hansi gate/ road, Opp. Old Bus stand, Sec -13, Friends colony, Chiriyagar road, old housing board

BA3 - Meham Gate, Meham Road / Vidyanagar

BA4 - Rohtak gate/ road, M.C. Colony, New Bharat Nagar, Opp. New Bus Stand, Vikas Nagar

BA5 – Dadri Gate, Bawari Gate, Hanuman Gate

Dadri, Siwani, Loharu, Tosham, Bawanikhera – 5 Surveyed administrative areas of Bhiwani district as per WHO/HAI Methodology.

Table 2: "Percent availability of each surveyed medicine in different geographical areas of Bhiwani district."

Name Of Medicine	Brands/Generics available for each medicine in Bhiwani district
Omeprazole	Ocid, Omitome, Omez-insta, Ometac, Nogacid, Omesecc, Omecip, Pikloz, Lomak, Omecid, Ometab, O.D.
Pantoprazole	P-PPI, Pantin, Pantocid, Panta G, Pantodex, Pan i.v., Pantodac, Panto- i.v., Pentab, Pantowok, Panver, Pantosec, Makoos, Pantocip, Nicopenta, Pentome
Ranitidine	Rantac, Zinetac, Aceloc, Histak, Monorin, Zantac, Ranitidine, Peloc
Famotidine	Famocid, Famonext, Topcid, Famotec
Amitriptyline	Tryptomer, Amitome, Elavil, Sarotena
Fluoxetine	Fludac, Prodep, Flunil, Fluty
Imipramine	Dapsonil, Tencodep
Amlodipine	Amlovas, Amlopress, Amodep, Amlokind, Amlodac, Amtas, Aginal
Atenolol	Aten-50, Atecard, Cardules, Tenoric, Tenolol, Hipres, Hipress
Enalapril	Envas, Dilvas
Losartan Potassium	Losar, Losakind, Loram- H, Omnitran
Methyldopa	Alphadopa
Nifedipine	Nicardia, Depin, Nefidine
Sod. Nitroprusside inj.	Not available
Hydrochlorothiazide	Altem
Glibenclamide	Daonil, Glinil, Glibet, Glynase
Insulin inj. (soluble)	Human Actrapid, Lupisulin, Wosulin, Huminsulin- R, Insugen, Lantus, Lupinsulin-M-30, Human insulin
Intermediate acting insulin inj.	Human mixtard, Lupinsulin- N, Huminsulin- N, Human insulin
Premix insulin 30:70 inj.	Huminsulin 30/70, Lupisulin 30/70, Insugen 30/70
Metformin	Glycomet, Metatime, Walaphage, Glyciphage, Gluformin, Carbophage, Gluconorm, Exermet, Sugarmet

Table 3: "List of Brands/Generics available for each surveyed medicine in Bhiwani district."

MEDICINE		MOST SELLING / AVAILABLE BRANDS/ GENERICS	LOWEST PRICED BRANDS/ GENERICS	LEAST AVAILABLE BRANDS/GENERICS
Omeprazole	Brands/generics % availability	Ocid - 89.79	Omesecc - 28.57	5% > ometab, lomak, omecid, omitome, omez insta, omecip, pikloz
	Avg. unit price	3.3333	1.9750	
Pantoprazole	Brands/generics % availability	P-PPI - 36.72	Pentab – 19.38	40%> all brands/ generics. 5%>pantin,panver,makoos, pantosec, pentowok
	Avg. unit price	51	45.352	
Ranitidine	Brands/generics % availability	Rantac- 88.74	Monorin – 16.32	40%> all brands/ generics. 5%> Zantac, Ranitidine, Histac
	Avg. unit price	0.6399	0.4000	
Famotidine	Brands/generics % availability	Famocid – 36.72	Famonext – 13.26	Topcid – 1.02%
	Avg. unit price	0.3348	0.2574	
Amitriptyline	Brands/generics % availability	Tryptomer – 19.38	Amitome – 3.06	Amitome
	Avg. unit price	2.90	1.20	
Fluoxetine	Brands/generics % availability	Fludac – 15.30	Fludac – 15.30	Prodep
	Avg. unit price	3.385	3.385	
Imipramine	Brands/generics % availability	Dapsonil – 4.08	Dapsonil – 4.08	Tencodep- 1.02%
	Avg. unit price	0.7000	0.7000	
Amlodipine	Brands/generics % availability	Amodep – 40.80	Amodep – 40.80	25%>all brands/ generics. Amlovas, Amlopress, Amlokind, Amlodac, Amtas
	Avg. unit price	0.9500	0.9500	
Atenolol	Brands/generics % availability	Aten-48.96 Atecard-41.82	Hipres-15.30	Cardules-1.02% Hipress-11.22% Hipres-15.30%
	Avg. unit price	2.21 2.98	0.7142	
Enalapril	Brands/generics % availability	Envas-42.84	Envas-42.84	
	Avg. unit price	3.51	3.51	
Losartan potassium	Brands/generics % availability	Losar-31.62	Losakind-4.08	Losakind-4.08
	Avg. unit price	2.79	2.40	

Methyldopa	Brands/generics % availability	Alphadopa-29.58	Alphadopa-29.58	
	Avg. unit price	2.28	2.28	
Nifedipine	Brands/generics % availability	Nicardia-30.60	Depin-5.10	Depin-5.10
	Avg. unit price	3.42	0.80	
Sodium Nitroprusside	Brands/generics % availability	–	–	
	Avg. unit price	–	–	
Hydrochlorthiazide	Brands/generics % availability	–	–	
	Avg. unit price	–	–	
Glibenclami-de	Brands/generics % availability	Daonil-23.46	Glibet-3.06	Glinil-5.10%
	Avg. unit price	1.10	0.60	
Insulin injection (soluble)	Brands/generics % availability	Actrapid-26.52	Actrapid-26.52	Lupinsulin- 7.14% Wosulin-7.14% Huminsulin-R- 2.04%
	Avg. unit price	140	140	
Intermediate acting insulin	Brands/generics % availability	Mixtard-26.52	Mixtard-26.52	
	Avg. unit price	144.5	144.5	
Premix insulin 30:70 injection	Brands/generics % availability	Huminsulin 30/70-14.28	Huminsulin 30/70-14.28	Lupinsulin-30/70- 6.12%
	Avg. unit price	135	135	
Metformin	Brands/generics % availability	Glycomet-55.08	Walaphage-1.02 Glyciphage-3.06	Carbophage-1.02% Metatime-1.02% Gluformin-8.16%
	Avg. unit price	1.74	1.09 1.35	

Table 4: “Most selling, cheapest, lowest available brands/generics of each surveyed medicines in Bhiwani city.”

MEDICINE		MOST SELLING BRANDS/ GENERICS	LOWEST PRICED BRANDS/ GENERICS	LEAST AVAILABLE BRANDS/ GENERICS
Omeprazole	Brands/generics % availability	Ocid-100	Omecip-59.94	Omez-insta-10%
	Avg. unit price	3.33	3.13	
Pantoprazole	Brands/generics % availability	Pantodac-69.93	P-PPI-6.66	P-PPI-6.66% Panto-6.6% Pantocip-19.98%
	Avg. unit price	50	48	
Ranitidine	Brands/generics % availability	Rantac-79.92 Zinetac-73.26	Histac-9.9 Aceloc-19.98	Histac-9.9%
	Avg. unit price	0.66 0.66	0.60 0.60	
Famotidine	Brands/generics % availability	Famonext-29.97	Famocid-16.65 Famonext-29.97	Famocid-16.65
	Avg. unit price	0.21	0.21 0.21	
Amitriptyline	Brands/generics % availability	Tryptomer-13.32	Elavil-9.9	Amitome-3.33
	Avg. unit price	2.80	2.60	
Fluoxetine	Brands/generics % availability	Fludac-26.64	Fluty-3.33	Flunil-9.99% Fluty-3.33%
	Avg. unit price	3.86	2	
Imipramine	Brands/generics % availability	Dapsonil-6.66	Dapsonil-6.66	
	Avg. unit price	0.83	0.83	
Amlodipine	Brands/generics % availability	Amlopress-49.95	Amodep-36.63	Aginal-3.33% Amlodac-19.28%
	Avg. unit price	3.13	0.7857	
Atenolol	Brands/generics % availability	Aten-36.63 Atecard-36.63	Aten, Tenoric-19.98 Hipress-23.31	Tanalol-13.32%
	Avg. unit price	2.14 3.20	2.14	

Enalapril	Brands/generics % availability	Envas-39.96	Dilvas-6.66	Dilvas
	Avg. unit price	3.00	2.00	
Losartan potassium	Brands/generics % availability	Losar-36.63	Losar-36.63	Loram-H-16.65%
	Avg. unit price	4.46	4.46	
Methyldopa	Brands/generics % availability	Alphadopa-43.29	Alphadopa-43.29	
	Avg. unit price	2.00	2.00	
Nifedipine	Brands/generics % availability	Nicardia-29.97	Nifedine-19.98	Nifedine-19.98%
	Avg. unit price	2.50	0.50	
Sodium Nitroprusside	Brands/generics % availability	–	–	
	Avg. unit price	–	–	
Hydrochlorth-iazide	Brands/generics % availability	–	–	
	Avg. unit price	–	–	
Glibenclami-de	Brands/generics % availability	Daonil-19.98	Glynase-9.99 Gliinil-13.32	Glynase-9.99%
	Avg. unit price	1.00	0.46 0.510	
Insulin inj. (soluble)	Brands/generics % availability	Lupinsulin-M30- 9.99	Lupinsulin-M30- 9.99	Insugen-6.66% Actrapid-3.33%
	Avg. unit price	140	140	
Intermediate acting insulin	Brands/generics % availability	Mixtard-53.28	Mixtard-53.28	Huminsulin-N- 3.33% Lupinsulin-N- 6.66%
	Avg. unit price	140	140	
Premix 30:70 insulin inj.	Brands/generics % availability	Huminsulin 30/70-39.96	Huminsulin 30/70-39.96	Insugen30/70-6.66%
	Avg. unit price	140	140	
Metformin	Brands/generics % availability	Glyciphage 16.65	Sugarmet-3.33	Sugarmet Exermet-6.66% Glycomet-9.99%
	Avg. unit price	1.35	1.5	

Table 5: "Most selling, cheapest, lowest available brands/generics of each surveyed medicines of Dadri."

MEDICINE		MOST SELLING BRANDS/ GENERIC	LOWEST PRICED BRANDS/ GENERIC	LEAST AVAILABLE BRANDS/ GENERIC
Omeprazole	Brands/generics % availability	Omesec-90.90 Ocid-81.81	Omesec-90.90	Nogacid-9.09%
	Avg. unit price	2.34 3.33	2.34	
Pantoprazole	Brands/generics % availability	Pantodac-63.63 Nicopenta45.45	Pantodac-63.63	Pantab-9.09%
	Avg. unit price	48.15 56.68	48.15	
Ranitidine	Brands/generics % availability	Rantac-90.90 Zinetac-72.72	Rantac-90.90 Zinetac-72.72	Aceloc-9.09%
	Avg. unit price	0.60 0.60	0.60 0.60	
Famotidine	Brands/generics % availability	Famonext-63.63	–	
	Avg. unit price	0.28	–	
Amitriptyline	Brands/generics % availability	Tryptomer-9.09	Tryptomer-9.09	
	Avg. unit price	2.20	2.20	
Fluoxetine	Brands/generics % availability	–	–	
	Avg. unit price	–	–	
Imipramine	Brands/generics % availability	–	–	
	Avg. unit price	–	–	
Amlodipine	Brands/generics % availability	Amlopress-63.63	Amodep-36.36	Amodep-36.36%
	Avg. unit price	3.33	0.80	
Atenolol	Brands/generics % availability	Atecard-72.72	Hipres-27.27	Hipres-27.27%
	Avg. unit price	3.20	0.714	
Enalapril	Brands/generics % availability	Envas-45.45	Envas-45.45	
	Avg. unit price	3.30	3.30	

Losartan potassium	Brands/generics % availability	Losar-36.36	Losar-36.63	
	Avg. unit price	2.74	2.74	
Methyldopa	Brands/generics % availability	Alphadopa-18.18	Alphadopa-18.18	
	Avg. unit price	2.30	2.30	
Nifedipine	Brands/generics % availability	Nicardia-18.18	Depin-9.09	Depin-9.09
	Avg. unit price	3.71	0.80	
Sodium Nitroprusside	Brands/generics % availability	–	–	
	Avg. unit price	–	–	
Hydrochlorthiazide	Brands/generics % availability	–	–	
	Avg. unit price	–	–	
Glibenclamide	Brands/generics % availability	–	–	
	Avg. unit price	–	–	
Insulin inj. (soluble)	Brands/generics % availability	–	–	
	Avg. unit price	–	–	
Intermediate acting insulin	Brands/generics % availability	Mixtard-90.90	Mixtard-90.90	
	Avg. unit price	140	140	
Premix 30:70 insulin inj.	Brands/generics % availability	Huminsulin 30/70-54.54	Huminsulin 30/70-54.54	
	Avg. unit price	135	135	
Metformin	Brands/generics % availability	Glycomet-9.09	Glycomet-9.09	
	Avg. unit price	1.74	1.74	

Table 6: “Most selling, cheapest, lowest available brands/generics of each surveyed medicines of Siwani.”

MEDICINE		MOST SELLING BRANDS/ GENERIC	LOWEST PRICED BRANDS/ GENERIC	LEAST AVAILABLE BRANDS/ GENERIC
Omeprazole	Brands/generics % availability	Ocid-83.30	O.D.-8.33	O.D.-8.33% Nogacid-8.33% Omecip33.33%
	Avg. unit price	3.29	2.00	
Pantoprazole	Brands/generics % availability	Panto-G-24.99	Pantome-8.33 Pentab-8.33	Pantome-8.33% Pentab-8.33%
	Avg. unit price	57	30 40	
Ranitidine	Brands/generics % availability	Zinetac-83.30	Zinetac-83.30	Rantac-8.33% Aceloc-33.33% Peloc-33.33%
	Avg. unit price	0.60	0.60	
Famotidine	Brands/generics % availability	Famocid-41.65	Famocid-41.65	
	Avg. unit price	0.398	0.398	
Amitriptyline	Brands/generics % availability	–	–	
	Avg. unit price	–	–	
Fluoxetine	Brands/generics % availability	–	–	
	Avg. unit price	–	–	
Imipramine	Brands/generics % availability	–	–	
	Avg. unit price	–	–	
Amlodipine	Brands/generics % availability	Amlodac-58.31	Amlodac-58.31	Amlopress-8.33%
	Avg. unit price	2.97	2.97	
Atenolol	Brands/generics % availability	Tanolol-49.98	Tanolol-49.98	Atecard-24.99%
	Avg. unit price	2.31	2.31	
Enalapril	Brands/generics % availability	Envas-33.33	Envas-33.33	
	Avg. unit price	3.33	3.33	
Losartan potassium	Brands/generics % availability	Losar-16.66		
	Avg. unit price	2.72		
Methyldopa	Brands/generics % availability	–	–	
	Avg. unit price	–	–	
Nifedipine	Brands/generics % availability	Nicadia-8.33	Nicadia-8.33	
	Avg. unit price	3.71	3.71	
Sodium Nitroprusside	Brands/generics % availability	–	–	
	Avg. unit price	–	–	
Hydrochlor-thiazide	Brands/generics % availability	–	–	
	Avg. unit price	–	–	
Glibenclami-de	Brands/generics % availability	–	–	
	Avg. unit price	–	–	
Insulin injection (soluble)	Brands/generics % availability	Actrapid-16.66	Actrapid-16.66	Huminsulin-8.33%
	Avg. unit price	140	140	

Intermediate acting insulin	Brands/generics % availability	Mixtard-24.99	Mixtard-24.99	Huminsulin- 8.33%
	Avg. unit price	144.33	144.33	
Premix insulin 30:70 injection	Brands/generics % availability	Huminsulin30/70-33.33	Huminsulin30/70-33.33	
	Avg. unit price	145	145	
Metformin	Brands/generics % availability	—	—	
	Avg. unit price	—	—	

Table 7: Most selling, cheapest, lowest available brands/generics of each surveyed medicines of Loharu.

MEDICINE		MOST SELLING BRANDS/ GENERICS	LOWEST PRICED BRANDS/ GENERICS	LEAST AVAILABLE BRANDS/ GENERICS
Omeprazole	Brands/generics % availability	Ocid-93.33	O.D.-20 Omesecc-33.33	O.D.-20%
	Avg. unit price	3.33	2.00 2.20	
Pantoprazole	Brands/generics % availability	Pantodac-40	Panta-40- 20	Pan-i.v.-6.66%
	Avg. unit price	52.50	45.00	
Ranitidine	Brands/generics % availability	Zinetac-100 Rantac-93.33	Zinetac-100 Rantac-93.33	Aceloc-13.33%
	Avg. unit price	0.60 0.60	0.60 0.60	
Famotidine	Brands/generics % availability	Famocid-46.66	Famocid-46.66	Topcid-26.66
	Avg. unit price	0.21	0.21	
Amitriptyline	Brands/generics % availability	Sarotena-6.66 Tryptomer-6.66	Sarotena-6.66 Tryptomer-6.66	
	Avg. unit price	1.80 3.40	1.80 3.40	
Fluoxetine	Brands/generics % availability	Fludac-26.66	Fludac-26.66	
	Avg. unit price	3.80	3.80	
Imipramine	Brands/generics % availability	Dapsonil-6.66	Dapsonil-6.66	
	Avg. unit price	1.10	1.10	
Amlodipine	Brands/generics % availability	Amodep-93.33 Amlopress-80.00	Amodep-93.33	
	Avg. unit price	0.80 3.33	0.80	
Atenolol	Brands/generics % availability	Atecard-93.33	Hipres-53.33	Aten-20%
	Avg. unit price	3.20	0.71	
Enalapril	Brands/generics % availability	Envas-33.33	Envas-33.33	
	Avg. unit price	3.33	3.33	
Losartan potassium	Brands/generics % availability	Losar-40	Losar-40	
	Avg. unit price	2.79	2.79	
Methyldopa	Brands/generics % availability	Alphadopa-6.66	Alphadopa-6.66	
	Avg. unit price	2.33	2.33	
Nifedipine	Brands/generics % availability	Depin-26.66	Depin-26.66	
	Avg. unit price	0.80	0.80	
Sodium Nitroprusside	Brands/generics % availability	—	—	
	Avg. unit price	—	—	
Hydrochlorthiazide	Brands/generics % availability	Altem-6.66	Altem-6.66	
	Avg. unit price	2.00	2.00	
Glibenclami-de	Brands/generics % availability	Daonil-13.33	Glynase-6.66%	Glynase-6.66%
	Avg. unit price	1.10	0.70	
Insulin inj. (soluble)	Brands/generics % availability	—	—	
	Avg. unit price	—	—	
Intermediate acting insulin	Brands/generics % availability	Mixtard-73.33	Mixtard-73.33	
	Avg. unit price	140	140	
Premix 30:70 insulin inj.	Brands/generics % availability	Huminsulin-73.33	Mixtard-73.33	
	Avg. unit price	135	140	
Metformin	Brands/generics % availability	Glycomet-33.33	Glysiphage-26.66	
	Avg. unit price	1.74	1.35	

Table 8: Most selling, cheapest, lowest available brands/generics of each surveyed medicines of Tosham.

MEDICINE		MOST SELLING BRANDS/ GENERIC	LOWEST PRICED BRANDS/ GENERIC	LEAST AVAILABLE BRANDS/ GENERIC
Omeprazole	Brands/generics % availability	Ocid-100	Omesec-33.33	
	Avg. unit price	3.33	2.20	
Pantoprazole	Brands/generics % availability	Pantodex-88.88	Pentab-22.22	Pentowok-11.11%
	Avg. unit price	53.50	40	
Ranitidine	Brands/generics % availability	Rantac-100	Rantac-100	Aceloc-55.55%
	Avg. unit price	0.60	0.60	
Famotidine	Brands/generics % availability	Famotec-44.44	Famocid-22.22	Famocid-22.22%
	Avg. unit price	0.27	0.22	
Amitriptyline	Brands/generics % availability	–	–	
	Avg. unit price	–	–	
Fluoxetine	Brands/generics % availability	–	–	
	Avg. unit price	–	–	
Imipramine	Brands/generics % availability	–	–	
	Avg. unit price	–	–	
Amlodipine	Brands/generics % availability	Amlopress-66.66	Amodep-22.22	Amlokind-11.11%
	Avg. unit price	3.33	0.80	
Atenolol	Brands/generics % availability	Atecard-100	Aten-11.11	Aten-11.11
	Avg. unit price	3.20	2.28	
Enalapril	Brands/generics % availability	Envas-33.33	Envas-33.33	
	Avg. unit price	3.33	3.33	
Losartan potassium	Brands/generics % availability	Losar-11.11 Omnitan-11.11	Losar-11.11	
	Avg. unit price	2.39 6.60	2.39	
Methyldopa	Brands/generics % availability	Alphadopa-11.11	Alphadopa-11.11	
	Avg. unit price	2.30	2.30	
Nifedipine	Brands/generics % availability	Depin-11.11 Nicardia-11.11	Depin-11.11	
	Avg. unit price	0.90 3.80	0.90	
Sodium Nitroprusside	Brands/generics % availability	–	–	
	Avg. unit price	–	–	
Hydrochlor-thiazide	Brands/generics % availability	–	–	
	Avg. unit price	–	–	
Glibenclamide	Brands/generics % availability	Daonil-11.11 Glinil-11.11	Glinil-11.11	
	Avg. unit price	1.00 0.60	0.60	
Insulin injection (soluble)	Brands/generics % availability	Actrapid-11.11	Actrapid-11.11	
	Avg. unit price	145	145	
Intermediate acting insulin	Brands/generics % availability	Mixtard-44.44	Mixtard-44.44	
	Avg. unit price	140	140	
Premix insulin 30:70 injection	Brands/generics % availability	–	–	
	Avg. unit price	–	–	
Metformin	Brands/generics % availability	Glycomet-22.22	Glyciphage-11.11	
	Avg. unit price	1.74	1.35	

Table 9: "Most selling, cheapest, lowest available brands/generics of each surveyed medicines of Bawanikhera."

Name Of Medicine	Highest Priced Brands/Generics with Avg. Unit Price in Rs. (available in area)	Lowest Priced Brands/Generics with Avg. Unit Price in Rs. (available in area)
Omeprazole	Omitome-4.5(BA1), Lomak-4.28(BA1), Pikloz-4.0(BA2,BA5), Ocid-3.71(All), Omez-insta-3.71(BA1), Omecip-3.3(BA5), Nogacid-3.37(BA1) and 3.0(BA5), Omecid-3.30(BA1)	Omesec-1.50(BA2),2(BA1),2.20(BA3,BA5), Ometac-2.00(BA5) and 3.00(BA1), Ometab-2.20(BA1)
Pantoprazole	Pantocid-75(BA2,BA3,BA4,BA5),50(BA1) Pantin-54.45(BA2,BA5) and 50(BA3), Makoos-54(BA4), Pantocip-53(BA1), Pentab-53.35(BA5), Pantosec-50(BA1), Pentowok-50.70(BA1), P-PPI-50(BA2,BA3,BA4,BA5), 51(BA1)	Pentab-40(BA1,BA2,BA3,BA4), Panver-47(BA1),
Ranitidine	Rantac-0.60(BA1,BA4) and 0.66(BA2,BA3,BA5) Zinetac- 0.60(All), Aceloc-0.66(All), Histac-0.65(BA5)	Monorin-0.4(BA1,BA2,BA3,BA5), Zantac-0.5(BA2), Ranitidine-0.49(BA1)
Famotidine	Famocid-0.40(BA2,BA3), 0.30(BA1), 0.28(BA4,BA5)	Famonext-0.22(BA3,BA5), 0.32(BA2), Topcid-0.28(BA1) Famocid-0.30(BA1),0.28(BA4,BA5)
Amitriptyline	Tryptomer-2.60(BA2), 2.66(BA3), 2.36(BA5) and 3.4(BA4)	Amitome-1.2(BA3), Tryptomer-1.74(BA1)
Fluoxetine	Prodep-4.90(BA3), Fludac-3.80(BA1,BA5)	Fludac-3.00(BA2,BA4) and 3.32(BA3)
Imipramine	Tencodep-0.95(BA3)	Dapsonil-0.70(BA3)
Amlodipine	Amlopress-3.30(All), Amlovas-3.14(BA3,BA5), Amlodac-2.97(BA1), Amtas-2.94(BA2)	Amodep-0.80(BA1,BA5) and 1.00(BA2,BA3,BA4) Amlokind-1.15(BA1,BA5)
Atenolol	Cardules-3.8(BA3), Atecard-3.2(All), Aten-2.17(BA2,BA3,BA4), 2.3(BA5) and 2.82(BA1), Hipress-2.30(BA1) and 2.17(BA3,BA5)	Hipres-0.71(BA1,BA2,BA3,BA5)
Enalapril	Envas-3.81(BA2,BA3,BA4)	Envas-2.93(BA1) and 3.30(BA5)
Losartan Potassium	Losar-2.8(BA1,BA3,BA4,BA5),2.66(BA2)	Losakind-2.40(BA1)
Methyldopa	Alphadopa-2.33(BA1,BA5), 2.30(BA4), 2.26(BA3)	Alphadopa-2.22(BA2)
Nifedipine	Nicardia-3.70(BA1,BA3,BA4), 3.11(BA5) and 2.84(BA2)	Depin-0.80(BA1)
Sodium Nitroprusside	Not Available	Not Available
Hydrochlorothiazide	Not Available	Not Available
Glibenclamide	Daonil- 1.10(All)	Glibet-0.60(BA1), Glinil-0.63(BA1)
Insulin inj. (soluble)	Human-Actrapid-140(BA1,BA3,BA4,BA5), Lupisulin-140(BA2,BA3), Wosulin-140(BA2,BA3,BA4), Huminsulin R-140(BA2,BA3,BA5)	Human-Actrapid-140(BA1,BA3,BA4,BA5), Lupisulin-140(BA2,BA3), Wosulin-140(BA2,BA3,BA4), Huminsulin R-140(BA2,BA3,BA5)
Intermediate acting insulin inj.	Human Mixtard-149(BA3)	Human Mixtard-140(BA1,BA2,BA5)
Premix insulin 30:70 inj.	Huminsulin-30/70-135(BA1,BA3,BA4,BA5) Lupisulin 30/70-135(BA3)	Huminsulin-30/70-135(BA1,BA3,BA4,BA5) Lupisulin 30/70-135(BA3)
Metformin	Carbophage-3.3(BA4), Gluformin-2.0(BA1), Metatime-1.50(BA3)	Walaphage-1.09(BA3), Glycomet-1.17(All), Glyciphage-1.35(BA1)

Areas: BA1, BA2, BA3, BA4, BA5

Table 10: "Relative prices of different types of brands/generics of each surveyed medicine available in Bhiwani city."

Name Of Medicine	Highest Priced Brands/Generics with Avg. Unit Price in Rs. (available in area)	Lowest Priced Brands/Generics with Avg. Unit Price in Rs. (available in area)
Omeprazole	Omitome- 4.5 (BH) Omez-insta- 5.3333 (D) Lomak- 4.2840 (BH) Nogacid- 4.00 (D, S, L, T, BK)	Omesec- 1.975 (BH) Ometac- 2.000 (BH) O.D.- 2.000(L,T)
Pantoprazole	Pantocid- 70 (BH) Nicipenta- 56.68 (S) Panta-G- 57.00 (L) Panto-i.v.- 58.00 (D)	Pentome- 30 (L) Pentab- 40 (L, BK)
Ranitidine	Rantac- 0.6666 (D, L) Zinetac- 0.6666 (D) Aceloc- 0.6666 (BK)	Monorin- 0.4000 (BH) Zantac- 0.5000 (BH) Ranitidine- 0.4933 (BH) Peloc- 0.6000(L) Rantac, Zinetac, Aceloc- 0.6000

Famotidine	Famocid- 0.3980 (L) Famonext- 0.2857(S) Topcid- 0.3571 (T)	Famocid- 0.2142 (D, T), 0.2285 (BK) Famonext- 0.2142 (D)
Amitriptyline	Tryptomer- 2.90 (BH), 3.4- (T)	Tryptomer-2.2 (S) Amitome- 1.2 (BH) Sarotena- 1.8 (T)
Fluoxetine	Fludac- 3.8667 (D), 3.8- (T) Prodep- 4.9 (BH)	Fluty- 2.0 (D) Flunil- 2.9 (D)
Imipramine	Tencodep- 0.95 (BH)	Dapsonil- 0.7 (BH)
Amlodipine	Amlopress- 3.3333 (S, L, T, BK) Amlovas- 3.1466 (BH)	Amodep- 0.7857 (D),0.8- (S, T, BK), 0.95 (BH) Amlokind- 1.15 (BH),Aginal- 1.9 (D)
Atenolol	Cardules- 3.80 (BH) Atecard- 3.2 (D, S, L, T, BK)	Hipres- 0.7142 (BH, T) Hipress, Tenoric, Aten- 2.1428 (D)
Enalapril	Envas- 3.513 (BH)	Dilvas- 2 (BH), Envas- 3 (D)
Losartan Potassium	Losar- 4.4 (D) Loram-H- 5.2 (D) Omnitan- 6.6 (BK)	Losar- 2.3953 (BK) Losakind- 2.4 (BH)
Methyldopa	Alphadopa- 2.33 (T)	Alphadopa- 2.00 (D)
Nifedipine	Nicardia- 3.8 (BK), 3.718 (L, T)	Depin- 0.8 (BH, T), 0.94 (BK) Nefidine- 0.5 (D), 0.8 (S) Nicardia- 2.5 (D)
Sodium Nitroprusside	-	-
Hydrochlorothiazide	Altem- 2.0 (T)	Altem- 2.0 (T)
Glibenclamide	Daonil- 1.10 (BH, T)	Glynase- 0.460 (D), 0.7 (T) Glinil- 0.51 (D), 0.6 (BK), 0.63 (BH) Glibet- 0.6 (BH), Daonil- 1.0 (D, BK)
Insulin inj. (soluble)	Human Actrapid-145 (BK) Lantus- 493 (D)	Human Actrapid-140 (BH, D, L) Lupisulin, Wosulin, Huminsulin-R- 140 (BH) Insugen- 140 (D) Lupinsulin-M-30- 140 (D)
Intermediate acting insulin inj.	Huminsulin- 166.65 (L) Human Mixtard- 144.50 (BH, L)	Human Mixtard- 140 (D, S, T) Lupinsulin- N- 140 (D) Huminsulin- N- 140 (D)
Premix insulin 30:70 inj.	Huminsulin30/70- 140 (D), 145 (L) Insugen 30/70- 141.90 (D)	Huminsulin30/70- 135(BH, S, T, BK) Lupinsulin 30/70- 135 (BH)
Metformin	Carbophage- 3.3 (BH) Gluformin- 2.0 (BH)	Glycomet- 1.6 (D), Walaphage- 1.09 (BH) Metatime- 1.5 (BH) Glyciphage- 1.35 (BH, T, BK), 1.45(D) Sugarmet- 1.5 (D)

Areas: BH- Bhiwani city, D- Dadri, S- Siwani, L-Loharu, T- Tosham, BK- Bawanikhera

Table 11: Relative prices of different types of brands/generics of each surveyed medicine available in Bhiwani district.

was the costly or branded medicine (popular name) or the availability of cheaper options was very low. Therefore, the consumer has no option to buy that costly branded product. Retail pharmacy outlets stock those medicines that are mostly prescribed by doctors; indicates that doctors tend to prescribe branded medicines to consumers and also people are suffering as they don't know exactly what is the difference between cheaper brands/generics and expensive brands/generics they prefer only the prescribed brands/generics.

There was a huge difference in price in case of insulin injections, Amitriptyline, Omeprazole, Pantoprazole, Nifedipine, Atenolol and Amlodipine. In India, for most of the medicines government does not fix the prices so only a few essential medicines are under price control. Government must intervene and regulate the prices of essential medicines that are expensive.

Policy options to improve availability and relative price

Awareness about the medicine brands/generics options in community could be beneficial to people in selecting a cheaper medicine

and therefore availability of that product may enhance in market as the consumer would demand for that option at retail pharmacy outlets. Lower availability of few medicines is due to inefficient purchasing or distribution in the retail pharmacy outlets [11]. For improving availability of essential medicines various recommendations such as Government to increase the budget of medicines, prepare Standard treatment guidelines (STGs) and EML on the basis of essential medicine concept; separate EML for primary care and hospitals; procurement and distribution of medicines on the basis of EML; prescription according to STGs and EML and regular monitoring and evaluating system [2]. Government should run programme to aware the society about the rational use of medicine and importance of cost: benefit in selection of a medicine.

Conclusion

From observations in the present study, overall percent availability of the maximum of the surveyed medicines was found to be less than 50% and for many medicines only one version of the product was

available which was costly. Therefore, the consumers have no options instead of buying that costly branded product. Also, for the available medicines there is a difference in the price of most selling and cheapest brands/generics, i.e., most selling brands/generics are not always the cheapest available brands/generics. As the patients suffering from chronic diseases have to use the medicines for a longer period of time and also the expenditure is more, they should be aware about cheaper options. The availability of cheaper options in market can be increased if the consumers always demand for the cheaper options. Government must intervene and regulate the prices of essential medicines that are expensive. Retail pharmacy outlets usually stocks those branded medicines that are mostly prescribed by doctors, indicating that doctors tend to prescribe costly branded products to consumers. Government and regulatory bodies should have a tight control over such type of blunders made by doctors. During the course of the study it was seen that on many pharmacy outlets pharmacists were absent and the person who was dealing at that time did not provide any information regarding medicines even when they were shown a permission letter from District Drug Controller Officer and Municipal Council, Bhiwani, reflecting that there is not a proper tight hold on pharmacy outlets and they shows interest in such type of activities according to their own will, not as per the rules and directions. Medicines must be used rationally. People should be aware by government through various programmes on rational use of medicine (RUM). Consumers must check cost: benefit profile of each product before its use as medicine's price are oftenly unaffordable in low and middle income countries. We must think about health and economic impacts of irrational prescribing. Doctors are not following standard treatment guidelines and they tend to prescribe those branded medicines to consumers on which they got more margins/money from the companies. It directly makes the products unaffordable to medicine consumers in low and middle income countries like India. Irrational prescribing also leads to drug resistance as during course of treatment unnecessary medicines are being prescribed by physicians. The overuse of such medicinal product leads to drug tolerance and resistance- the main challenges towards modern healthcare system. So, for improving access and affordability Government should increase the budget of medicines, prepare standard treatment guidelines and essential medicines list on the basis of essential medicine concept, separate lists for PHC, CHC's and hospitals; procurement and distribution of medicines on the basis

of essential medicines list; prescribing according to standard treatment guidelines and essential medicine list and regulate monitoring and evaluating systems. This type of study could be useful to government health policy makers in providing a broad picture of existing availability and relative price of the essential medicines used for the treatment of chronic diseases and provide opportunity for the improvement of future plannings regarding pharmacy and healthcare systems.

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