

Ukraine

Palliative care

Medicine prices, availability, affordability & price components

Medicine prices matter

Rapidly rising costs of health care and high medicine prices are a growing concern worldwide, especially in transitional countries where patients often have to pay the full price of medicines. This report about palliative care medicine prices and availability in Ukraine is one of a series of papers summarizing the results of medicine price and availability surveys carried out around the globe using a standard survey methodology developed by the World Health Organization and Health Action International¹.

This survey was conducted in 2007 by the Open Public Health Institute, (Kiev) and studied 38 medicines for palliative care and 24 other important medicines. This report presents the findings for the palliative care medicines; a separate summary report presents the other medicines.

This survey found that in Ukraine:

- The range of the (internationally) recommended medicines for palliative care available was limited.
- The overall availability of medicines for palliative care was low; marginally lower in the private sector with narcotic analgesics and psychotropic medicines for anxiety being widely unavailable.
- Basic palliative medicine needs were not affordable to those on low incomes.
- Patient prices in the public sector were high – often being higher than in the private pharmacies – primarily as a result of high procurement prices.
- Originator brands were being sold to patients at very high prices compared to their generic equivalent – up to 28 times more for diclofenac tabs/caps (2,700%).
- Compared to other countries, the prices of originator brands were very high across all sectors; the prices of generic equivalents varied from being similar to being many times higher².
- Basic analgesics such as paracetamol and ibuprofen are very high price in international terms³ – up to 18 times more than necessary (1,700%).

Palliative care

Palliative care^{4,5} is an approach that improves the quality of life of patients and their families facing the problem associated with life-threatening illness, through the prevention and relief of suffering by means of early identification and assessment and treatment of pain and other problems, physical, psychosocial and spiritual. Palliative care is largely associated with cancer patients, but also for patients with HIV and AIDS.

Palliative care can be provided relatively simply and inexpensively and includes both pain relief and the symptomatic relief of conditions including dyspnoea, restlessness and confusion, anorexia, constipation, pruritus, nausea and vomiting, and insomnia.

Pain relief can be achieved with medicines and neurosurgical, psychological and behavioural approaches adapted to individual patient needs. If carried out correctly, most patients can obtain effective pain relief. Pain is best treated with a combination of medicines and other measures. Some types of pain respond well to a combination of a non-opioid and an opioid analgesic. Other types of pain are relieved by combining a corticosteroid and an opioid. Neuropathic pains often show little response to non-opioids and opioids, but may be eased by tricyclic antidepressants and anticonvulsants. Patients often have many fears and anxieties, and may become depressed and may need an appropriate psychotropic drug in addition to an analgesic.

Ukraine

Ukraine⁶ regained its independence in 1991, and is a parliamentary republic. It covers 603 700 km² and borders the Black Sea, the Sea of Azov, Belarus, Hungary, Moldova, Poland, Romania, the Russian Federation and Slovakia. There are 27 major administrative units including the Autonomous Republic of Crimea, 24 regions or oblasts, and 2 cities with the status of oblasts: Kyiv and Sevastopol. The population was over 46.3 million in 2007. Ukraine is rich with iron ore, coal and manganese, and the gross domestic product (GDP) per capita was \$7,832 in 2007. The unemployment rate was 6.9% in 2007.

Ukraine's health status has been changeable, due to the country's unstable socioeconomic situation, with periods of improvement followed by periods of drastic deterioration. Some of the key health demographics are:

¹ WHO/HAI, Measuring medicine prices, availability, affordability and price components <http://haiweb.org/medicineprices/>

² www.haiweb.org/GlobalDatabase/Main.htm

³ www.haiweb.org/GlobalDatabase/Main.htm

⁴ www.who.int/cancer/palliative/en/; www.who.int/cancer/palliative/definition/en/

⁵ World Health Organisation Model Formulary 2008; www.who.int/entity/selection_medicines/list/WMF2008.pdf

⁶ www.euro.who.int/Ukraine/20080123_1

- A person born in Ukraine in 2003 can expect to live 73 years if female and 67 years if male: on average, 11.76 years less than people in western European countries.
- Ukrainian population is constantly decreasing; in 2007 the population decreased by 6.0%.
- Premature mortality from diseases of the circulatory system and cancer are amongst the highest in the WHO European Region (1019,6 and 193,7 per 100 000 respectively); however there has been a downward trend in cancer between 1995 and 2000.
- The standardized death rate for infectious and parasitic disease for all ages was 35.1 per 100,000 in 2007. The morbidity rate from communicable diseases is substantially higher than the averages for the WHO European Region (14.75).
- Both the incidence and number of people living with HIV and AIDS are amongst the highest in the WHO European Region.
- Infant mortality rate was 10.4 per 1000 live births (2007).
- Ukraine's fertility rate (1.2 children per mother in 2007) is the lowest in the WHO European Region.
- Total expenditure on health was 3.6% of GDP in 2007⁷.

Medicine price & availability survey

The survey was designed to answer:

- What are the patient prices and public sector procurement price of a selection of medicines for use in palliative care?
- How does availability and patient prices vary between the public and private sectors?
- How affordable are the medicines?
- What is the difference in price of originator brands, the most sold generic and the lowest priced generic equivalent versions?
- How do these prices compare to international reference prices?
- What taxes and duties are levied on medicines and what is the level of the various mark-ups that contributes to the retail price of medicines?

A total of 38 medicines⁸ for palliative care were surveyed in September 2007; these were selected from the International Association for Hospice & Palliative Care List of Essential Medicines⁹ which contains 33 generic entities¹⁰. The number of medicines surveyed was relatively low as many important medicines and formulations for palliative care treatment were not on the market in Ukraine.

Prices and availability were recorded for the originator brand product (OB) and the most sold generic¹¹ (MSG) which were determined at the national level; and for the lowest priced generic equivalent (LPG) which was determined at each facility/outlet. Only 10 originator products were surveyed as the other 28 were not marketed in Ukraine.

The price and availability data was collected from a total of 6 public sector facilities¹² and 27 private pharmacies across 6 regions of Ukraine; procurement prices were collected from 5 of the public sector facilities¹³.

Table 1. Measurements in each sector.

Measurement	Public sector	Private sector
Price to patient	✓	✓
Availability	✓	✓
Affordability	✓	✓
Procurement price	✓	
No. of facilities	6 ¹⁴	27

Presentation of price information

The WHO/HAI survey methodology presents prices in local currency and as median price ratios (MPR). The MPR is calculated by dividing the local price by an international reference price (converted to local currency). An MPR of 1 means the local price is equivalent to the reference price whereas an MPR of 2 means the local price is twice the reference price. The international reference prices used for this survey were taken from the 2007 Management Sciences for Health (MSH) International Drug Price Indicator Guide¹⁵ (median prices of high quality multi-source medicines offered to developing and middle-income countries by different suppliers); the use of reference prices facilitates international comparisons.

MSH international reference prices were unavailable for 11 of the 38 palliative care medicines, and for these medicines the findings are only presented in terms of local currency, Ukrainian Hryvnia (UAH)¹⁶. Within this summary paper, some of the data is presented as findings across a group or basket of medicines – which is based on the 27 medicines for which there was a MSH international reference price; availability is based on all 38 medicines.

Interpretation of findings

Country specific factors such as pricing policies; market size; competition; national economic and other factors may influence prices. For the purposes of these surveys, in a low or middle income countries an MPR of less than or equal to 1 for public sector procurement and public sector patient prices are considered to indicate acceptable (not excessive) prices.

⁷ www.moz.gov.ua/ua/main/?docID=7813

⁸ 37 medicines were surveyed in the private pharmacies as morphine is not permitted (by law) to be sold in that sector

⁹ www.hospicecare.com/resources/emedicine.htm

¹⁰ 33 generic entities, a larger number of dosage form and strength permutations

¹¹ Determined by studying sales volume data

¹² 30 public sector facilities were visited - however data could only be collected from 6 public sector facilities

¹³ Despite a number of attempts, the investigators failed to collect prices from the centralized procurement at the Ministry of Health

¹⁴ Procurement prices were collected from 5 public facilities

¹⁵ <http://erc.msh.org>

¹⁶ 1 USD = 5.0300 (UAH); 10 September 2007 (first day of data collection)

Affordability

Affordability is calculated as the number of days the lowest paid unskilled government worker would have to work to pay for one month's treatment for the medicines for use in palliative care; at the time of the survey, the lowest paid government worker earned 14.67 UAH (US\$ 2.92) per day. Table 2 demonstrates how many days this worker would have to work for a month's supply of pain control, nausea, constipation and diarrhoea. The lowest paid unskilled government worker would need to work:

- For pain control using oral treatments, between 0.5 - 0.6 days for the generic equivalents of oral diclofenac to 5 - 8 days for paracetamol, tramadol or ibuprofen; to 13 - 17 days for the originator brand diclofenac.
- For pain control using injectable diclofenac, between 2 - 35 days wages depending on whether generic or originator brand was used.
- For treatment of nausea using oral metoclopramide, 2 day's wages.
- For treatment of constipation using oral or rectal bisacodyl, 0.3 - 0.9 days.
- For diarrhoea using loperamide, between 0.6 - 14 days depending on whether generic or originator brand was used.

Table 2. Affordability: number of days' wages for one month's treatment¹⁷.

Pain		Public	Private
paracetamol tab/cap 500mg [8 per day]	OB	7.9	7.6
	LPG	6.7	6.8
diclofenac tab/cap 50mg [3 per day]	OB	17.2	13.2
	MSG/LPG	0.6	0.5
ibuprofen tab/cap 400mg [3 per day]	MSG/LPG	7.9	5.9
tramadol tab/cap 50mg [4 per day]	MSG/LPG		5.2
gabapentin 300mg tab/cap [3 per day] [neuropathic pain]	MSG/LPG		11.2
diclofenac injection 25mg/ml [150mg (6ml) per day]	OB	35.5	31.5
	MSG	15.1	12.7
	LPG	2.7	2
Nausea			
metoclopramide tab/cap 10mg [6 per day]	MSG/LPG	2.4	2.2
Constipation			
bisacodyl tab/cap 5mg [2 per day]	LPG	0.3	0.3
bisacodyl suppository 10mg [1 per day]	MSG/LPG	0.8- 0.9	0.8
Diarrhoea			
loperamide tab/cap 2mg [4 per day]	OB	14.0	12.7
	MSG/LPG	0.6	0.6

For the multiple treatment needs of a palliative care patient, 3¹⁸ - 20.5¹⁹ day's (of the lowest paid government worker) wages would be required every month for an illustrative patient needing medicines for oral pain control, nausea and constipation – depending upon the choice of medicine and source of purchase. Needing to spend even 3 days wages every month on medicines is probably unaffordable considering the other demands on those wages including food, transport, education, other health expenditure for this patient, plus health and medicine needs for other family members.

Public sector procurement prices

Public sector procurement prices were collected from 5 public sector facilities²⁰. Overall generic equivalent medicines were procured at more than double (2.3 - 2.4) the international reference price; and the six originator brand medicines were being procured for the public sector at 22.9 times the international reference price (table 3).

Table 3. Number of times more expensive: public sector procurement prices compared to international reference prices.

	OB	MSG	LPG
Median MPR (interquartile range)	22.9 (10.1 - 39.8)	2.4 (1.6 - 4.7)	2.3 (1.1 - 3.8)
Minimum	5.5	0.3	0.2
Maximum	66.8	19.6	24.4
No. of medicines	6	23	26

The overall prices paid for the lowest priced generic and most sold generics equivalents are similar, and just over double the international reference price – with some medicines ranging from much lower than the international reference price (0.24 times for bisacodyl suppositories) and others much higher (up to 24.4 times for ibuprofen 400mg). Originator brands are being procured at much higher prices – up to 66.8 times the international reference price for diclofenac tabs/caps. Table 4 presents some examples where prices achieved were low and very high in terms of the international reference price.

¹⁷ Illustrative examples as dosing in palliative care varies widely

¹⁸ Private sector: LPG diclofenac tab/cap 50mg, MSG/LPG metoclopramide; LPG bisacodyl tab/cap

¹⁹ Public sector: OB diclofenac tab/cap 50mg; MSG/LPG metoclopramide; MSG bisacodyl suppository

²⁰ Attempts failed to collect prices from the centralized procurement at the MOH

Table 4. Number of times more expensive: public sector procurement prices compared to international reference prices.

Medicine		Median MPR
bisacodyl suppository	LPG	0.24
tramadol	MSG/LPG	0.43
gabapentin 300mg	MSG/LPG	0.49
haloperidol 1.5mg	MSG	0.53
paracetamol 500mg	MSG/LPG	18.3
diclofenac injection	OB	20.3
ibuprofen 400mg	LPG	24.4
paracetamol 500mg	OB	25.4
loperamide	OB	44.6
diclofenac	OB	66.8

tab/cap unless otherwise stated

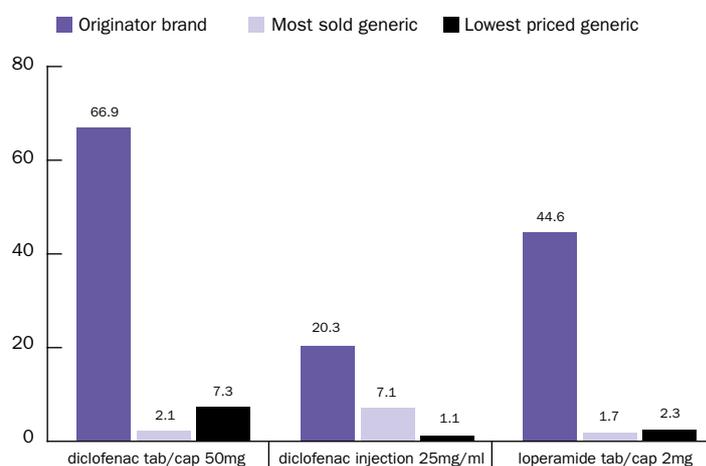
The most sold generic equivalents were on average 1.3 times (30%) more than the price of the lowest priced generics; and originator brands were on average 7.6 times (660%) more expensive than those of the lowest priced generics (table 5).

Table 5. Ratio matched pairs of the different types of medicines, public procurement prices.

	Ratio
Originator brand: most sold generic (n=5 matched pairs)	10.4
Most sold generic: lowest priced generic (n=23 matched pairs)	1.3
Originator brand: lowest priced generic (n=6 matched pairs)	7.6

Both originator and generic versions of the same medicines were being procured, even in the same institution at very different prices; figure 1 presents 3 examples where there are large price variations between the originator and generic versions of the same medicine, where for example originator brand diclofenac tabs/caps was purchased at 31 times the price of the most sold generic equivalent (figure 1).

Figure 1. Number of times more expensive: public sector procurement prices compared to international reference prices.



Public sector patient prices

Patient price and availability data was collected from 6 public sector facilities; the prices of originator brands were 28.3 times the international reference price compared to 3.1 times for the lowest priced generic equivalent and 4.0 times for the most sold generic equivalent (table 6).

Table 6. Number of times more expensive: public sector patient prices compared to international reference prices.

	OB	MSG	LPG
Median MPR (interquartile range)	28.3 (25.7-54.2)	4.0 (2.6-7.4)	3.1 (2.2-5.4)
Minimum	7.7	0.4	0.3
Maximum	97.5	33.1	33.1
No. of medicines	5	18	19

Lowest priced and most sold generic equivalents were 3-4 times the international reference price – with some medicines ranging from much lower than the international reference price (0.31 for bisacodyl suppositories) and others much higher (up to 33.1 times for ibuprofen 400mg). For originator brands, patients were paying up to 97.5 times the international reference price for diclofenac tabs/caps. Table 7 presents some examples where patient prices were low and high in terms of multiples of the international reference price.

Table 7. Number of times more expensive: public sector patient prices compared to international reference prices.

Medicine		Median MPR
bisacodyl suppository	LPG	0.31
haloperidol 1.5mg	MSG/LPG	0.7
paracetamol 500mg	MSG/LPG	23.9
diclofenac injection	OB	25.7
ibuprofen 400mg	MSG/LPG	33.1
loperamide	OB	54.2
diclofenac	OB	97.5

tab/cap unless otherwise stated

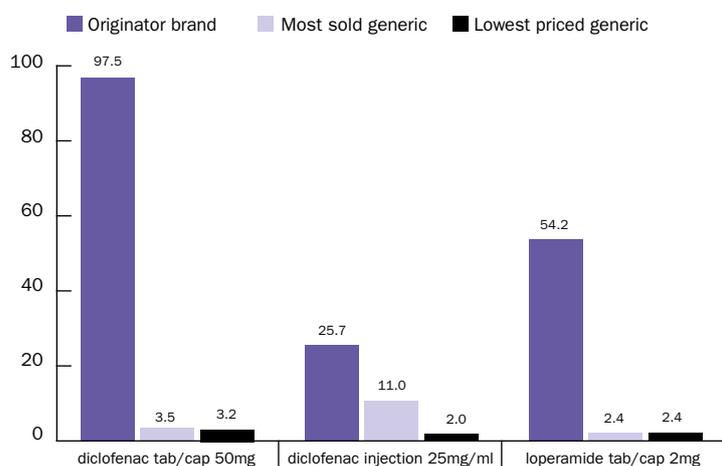
The most sold generic equivalents were on average 30% more than the price of the lowest priced generic equivalents; and originator brands were almost 15 times more expensive than those of the lowest priced generic equivalents (table 8).

Table 8. Ratio matched pairs of the different types of medicines, public sector patient prices.

	Ratio
Originator brand: most sold generic (n=4 matched pairs)	5.7
Most sold generic: lowest priced generic (n=18 matched pairs)	1.3
Originator brand: lowest priced generic (n=4 matched pairs)	14.8

Figure 2 presents 3 examples where there are large price variations between the originator and generic versions of the same medicine - where for example originator brand diclofenac tabs/caps were 28-30 times the price of the most sold and lowest priced generic equivalents.

Figure 2. Number of times more expensive: public sector patient prices compared to international reference prices.



Public sector availability

The mean availability of the 10 originator brands surveyed was 58.3%; and the availability of the 38 most sold generic and lowest priced generic equivalents surveyed was 61% and 68% respectively (table 9).

Table 9. Availability in public facilities (n=6).

	OB	MSG	LPG
Median availability (standard deviation)	58.3% (36.2%)	61% (31.1%)	68% (28.0%)

Table 10 presents the availability of the surveyed medicines (originator or generics) in the public sector.

Table 10. Availability in public facilities (n=6).

Availability	Medicine
0%	zolpidem
1 – 24%	citalopram, levomepromazine inj
25 – 49%	octreotide inj
50 – 79%	diazepam 5mg/inj, gabapentin 300mg/400mg, haloperidol 1.5mg/ 5mg/ inj, mirtazapine, morphine inj, bisacodyl, ibuprofen 400mg, levomepromazine, paracetamol 200mg, tramadol 50mg/inj
80%+	amitriptyline, bisacodyl suppos, dexamethasone 0.5mg/inj, diphenhydramine 50mg /inj, ibuprofen 200mg, metoclopramide inj, paracetamol 325mg/500mg/susp, carbamazepine, diclofenac 50mg/inj, loperamide, metoclopramide, prednisolone, senna 13.5mg/70mg

tab/cap unless otherwise stated

Figure 2 demonstrates some large price discrepancies between the price of the originator brand and generic versions of the same medicine; table 11 presents the availability of the same medicines. It can be seen that the availability of the much higher priced originator brands is high – including diclofenac injection which despite being up to 13 times more expensive, was more available.

Table 11. Availability in public facilities (n=6 facilities).

Medicine	OB	MSG	LPG
diclofenac	100%	83.3%	100%
diclofenac inj	100%	66.7%	66.7%
loperamide	83.3%	100%	100%

tab/cap unless otherwise stated

Private sector patient prices

Patient price and availability data was collected from 27 private pharmacies; the prices of originator brands were 25 times the international reference price compared to 2.7- 3 times for the generic equivalent versions.

Table 12. Number of times more expensive: patient prices in the private sector compared to international reference prices.

	OB	MSG	LPG
Median MPR (interquartile range)	25.0 (14.1 - 43.5)	3.0 (2.2 - 5.2)	2.7 (1.4 - 4.3)
Minimum	6.8	0.3	0.3
Maximum	75.2	24.7	24.6
No. of medicines	6	22	24

The median MPRs for the lowest priced generic equivalent and most sold generic are 2.7-3 times the international reference price – with some medicines ranging from much lower than the international reference price (0.3 for bisacodyl suppositories) and others much higher (up to 24.7 times for ibuprofen 400mg). Patients were paying prices up to 75.2 times the international reference price for originator brand diclofenac tabs/caps. Table 13 presents some examples where prices were low (much lower than the international reference price) and high in terms of multiples of the international reference price.

Table 13. Number of times more expensive: private sector patient prices compared to international reference prices.

Medicine		Median MPR
bisacodyl suppos	MSG/LPG	0.3
tramadol	MSG/LPG	0.5
haloperidol 1.5mg	MSG/LPG	0.6
gabapentin 300mg	MSG/LPG	0.6
diclofenac inj	OB	22.8
paracetamol 500mg	MSG/LPG	24.1/24.2
ibuprofen 400mg	MSG/LPG	24.7/24.6
paracetamol 500mg	OB	27.3
loperamide	OB	48.9
diclofenac	OB	75.2

tab/cap unless otherwise stated

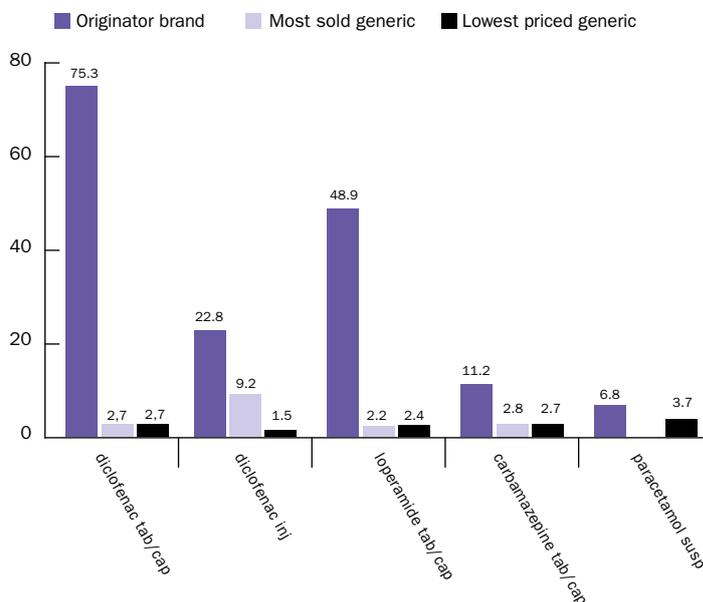
Most sold generics were on average 10% more than the price of the lowest priced generics; and originator brands were 9.3-9.8 times more than those of the lowest priced generic and most sold generic equivalents (table 14).

Table 14. Ratio matched pairs of the different types of medicines, private sector patient prices.

	Ratio
Originator brand: most sold generic (n=5 matched pairs)	9.8
Most sold generic: lowest priced generic (n=22 matched pairs)	1.1
Originator brand: lowest priced generic (n=6 matched pairs)	9.3

Figure 3 presents 5 examples where there are large price variations between the originator and generic versions of the same medicine, where for example originator brand diclofenac tabs/caps was purchased at 28 times the price of the most sold generic equivalent.

Figure 3. Number of times more expensive: private sector patient prices compared to international reference prices.



Private sector availability

The mean availability of the 10 originator brands surveyed was 48.1%; and the availability of the 37²¹ most sold and lowest priced generic equivalents surveyed was 49.4% and 58.2% respectively (table 15).

²¹ Morphine was not surveyed in the private pharmacies - as it is not permitted (by law) to be sold in this sector; 38 medicines were surveyed in the public sector

Table 15. Availability in private pharmacies (n=27).

	OB	MSG	LPG
Mean availability (standard deviation)	48.1% (32.3%)	49.4% (32.6%)	58.2% (35.5%)

Table 16 presents the availability of the surveyed medicines (originator or generics) in the private sector. The range of medicines found in the private pharmacies was less than in public sector facilities (table 10).

Table 16. Availability in private facilities (n=27).

Availability	Medicine
0%	zolpidem
1 – 24%	diazepam 5mg/inj, levomepromazine inj, gabapentin 400mg, haloperidol 5mg, tramadol 50mg/inj
25 – 49%	mirtazapine, octreotide inj, citalopram gabapentin 300mg, haloperidol 1.5mg/inj, levomepromazine, diphenhydramine
50 – 79%	diphenhydramine inj, bisacodyl suppos, carbamazepine, diclofenac inj
80%+	ibuprofen 200mg/400mg, amitriptyline, paracetamol 325mg/500mg/susp, dexamethasone 0.5mg/inj, bisacodyl, loperamide, senna 13.5mg/70mg, diclofenac, prednisolone, metoclopramide 10mg/inj

tab/cap unless otherwise stated

Figure 3 demonstrates some large price discrepancies between the price of the originator brand and generic versions of the same medicine, table 17 presents the availability of the same medicines. For diclofenac, it can be seen that the availability of the much higher priced originator brands is high; similarly for loperamide, which despite being up to more than 20 times more expensive, was equally or more available.

Table 17. Availability in private pharmacies (n=27).

Medicine	OB	MSG	LPG
carbamazepine	26%	74%	78%
diclofenac inj	56%	67%	78%
diclofenac	63%	96%	100%
loperamide	93%	78%	93%
paracetamol susp	96%	4%	41%

tab/cap unless otherwise stated

Comparison of the public sector patient price to the public sector procurement price

The public sector mark-up (the difference between the patient price and the procurement price) was 11.1 - 48.1% for matched pairs of medicines (table 18).

Table 18. Percentage difference public sector patient prices to public sector procurement prices for matched pairs of medicines.

	Ratio
Originator brands (n=5 matched pairs)	+11.1%
Most sold generic (n=18 matched pairs)	+48.1%
Lowest priced generic (n=19 matched pairs)	+30.6%

Comparison of the private sector patient price to the public sector patient price

The private sector patient price was 3.4 - 18.4% less than the public sector patient price (table 19); the median price was lower in the private sector than in the public sector for 38 out of 53 occasions. For some medicines these differences were much greater - up to half for the lowest priced generic metoclopramide injection (table 20). A month's course of originator brand diclofenac tablet would require an additional UAH 57.6 (U\$11.45) in the public sector compared to the private sector [or an additional 3.9 days hours work for the lowest paid unskilled government worker].

Table 19. Percentage difference private sector patient prices to public sector patient prices for matched pairs of medicines.

	Ratio
Originator brands (n=5 matched pairs)	-3.4%
Most sold generic (n=18 matched pairs)	-18.4%
Lowest priced generic (n=19 matched pairs)	-10.7%

Table 20. Percentage difference private sector patient prices to public sector patient prices.

Medicine	OB	MSG	LPG
amitriptyline		-23%	-11%
diclofenac	-23%	-25%	-17%
diclofenac inj	-11%	-16%	-24%
ibuprofen 400mg		-25%	-26%
loperamide	-10%	-7%	0%
metoclopramide inj		-1%	-51%
paracetamol 500mg	-3%	+1%	+1%

tab/cap unless otherwise stated

Price components

The collection of information on the components of price (mark-ups, taxes, other charges in the supply chain) was met with reluctance of both private and public providers to reveal information. However during meetings with representatives of both sectors, the following was described:

- no taxes or customs fees are applied to medicines;
- the distributor's mark-up is 10 - 12% and the pharmacy mark-up (regulated by the state) is up to 35%. For some medicines the maximum pharmacy mark-up is 25%, but this did not apply to the palliative care medicines studied.
- some pharmacies provide discounts for pensioners, which vary across medicines and pharmacy networks.
- at the time of the study there was a special procedure for state procurements where, in order to participate in state tenders, the company had to pay a fixed fee of 4,000 UAH (approximately 800 USD).

Recommendations of the investigators

There is an urgent need for revision of the national medicines policy regarding access to narcotic analgesics and anti-anxiety medicines which are not allowed to be supplied from private retail pharmacies.

Lower prices could be achieved through public procurements and cooperation of state and non-governmental agencies responsible for programmes for elderly and others needing access to these medicines.

Further information, contact the survey managers:

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The full survey report and data can be found at:
www.haiweb.org/medicineprices