

## Policy Brief

# Costing of medicines to control arterial hypertension in the Kyrgyz Republic

### Background

Arterial hypertension is a significant factor of mortality and disability from cardio-vascular diseases (CVD). Combined with hyperlipidemia and coronary heart disease, the arterial hypertension's input to CVD attributed mortality and disability reaches 80 percent<sup>1</sup>.

Prevalence of the arterial hypertension is growing, with rates ranging from 30,1% in adults (according to standardized data in the Kyrgyz Integrated Household Survey, KIHS for 2007) to 34,1% in over 18 y.o. (according to 'Interepid' study of 2012-2013).

This study focuses on costs for procurement of medicines to manage arterial hypertension in Kyrgyzstan. Results of the calculations can build a basis for development of the mechanism to ensure free of charge supply of anti-hypertension medicines in order to promote better diagnostics and management.

### Study Objective

To calculate the costs of treatment of the arterial hypertension, with account to prevalence and risks of cardio-vascular complications, and in accordance to clinical guidelines for arterial hypertension management.

### Methodology

The study used the following approaches to the costing exercise:

- Based on prevalence, three scenarios of costing were calculated

Coverage of 4,1% of adults (which corresponds to the number of registered patients, see in this Policy Brief).

Coverage of 6,1% of adults (which is a target figure in Den Sooluk health reform program)

Coverage of patients using prevalence estimates under 'Interepid' study – 34,1 % of adults

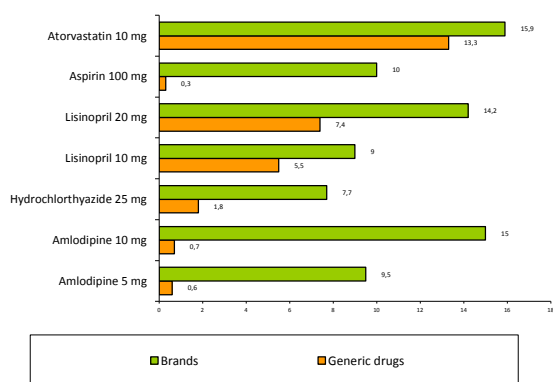
- Stratification of arterial hypertension patients by additional risk of cardio-vascular complications (CVC).
- The standardized treatment regimens for costing were used and they were based on i) risk of CVC which is the main indication for administering drugs, and ii) level of BP, the secondary indication for administering drugs.
- Optimal drug combinations were used. They were composed of 5 medicines, of them 3 first-line medicines as defined by national clinical guidelines: Hydrochlorothiazide, Amlodipine, and Lisinopril. Treatment regimens for managing patients with 'high risk' and 'very high risk' of CVC included additionally Atorvastatin and Acetylsalicylic acid.

<sup>1</sup> Jumagulova A.S., Mirrahimov E.M. Primary and secondary prevention of arterial hypertension and hypercholesterolemia in the Kyrgyz Republic. CAMJ, 1997; 1: 35-39

- The costing exercise utilized prices of medicines that were retrieved from Database of wholesale prices run by the Department of Pharmaceuticals and Medical Equipment, as of September 2013.
- Costing was made based on i) prices of generic drugs with international non-patented names that had the least prices and ii) prices of generic drugs with brands, all produced by manufacturers audited by WHO and certified in accordance to GMP standards of WHO and EC. The review of the selected prices found rather wide variations. Considerable variations were found for Amlodipine, with price variation ranging 15 folds.

The most expensive drugs were the so called statins, e.g. Atorvastatin. Price difference between generic non-patented drugs and branded drugs was inconsiderable. This suggests that these drugs are not used in large scales, and competition in the market to promote cost reduction is weak.

**Figure 1. Prices of selected medicines (in Som per tablet)**



Source: Database of wholesale prices of drugs, Department of Pharmaceuticals and Medical Equipment

## Findings

### 1. Estimated cost of treatment regimens for arterial hypertension per patient/year

For patients with moderate CVC risk the annual cost of therapy widely varied:

Monotherapy in I and II degree Hypertension varied from 230 Som (the cheapest generic drugs) to 5,475 Som per patient/year (branded drugs), combined regimen therapy in II degree Hypertension varied from 2,227 Som

(cheapest generic drugs) to 6,753 Som per year (branded drugs).

**Table 1. Annual cost of therapy per one patient with HTN of moderate CVC risk**

Treatment regimen	Costs per person/ year, Generic drugs (Som)	Costs per person/ year, branded drugs (Som)
<b>Hypertension with moderate risk of CVC, I degree</b>		
1. Amlodipine 5 mg	230	3 468
2. Hydrochlorothiazide 25 mg	650	2 811
3. Lisinopril 10 mg	1 997	3 285
<b>II degree hypertension, moderate risk of CVC</b>		
1. Amlodipine 10 mg	267	5 475
2. Lisinopril 20 mg	3 990	5 201
3. Lisinopril 10 mg + Amlodipine 5 mg	2 227	6 753

For patients with high and very high risk of CVC the annual cost of therapy with use of statins varied from 7,154 Som per patient (with generic drugs) to 15,294 Som (branded drugs).

**Table 2. Annual cost of therapy per one patient with HTN of moderate risk of CVC**

Treatment regimen	Costs per person / year, generic drugs (Som)	Costs per person / year, branded drugs (Som)
<b>Hypertension with high and very high risk of CVC (I, II, III degrees)</b>		
Amlodipine 10 mg + Lisinopril 10 mg + Acetylsalicylic acid 100 mg + Atorvastatin 10 mg	7154	15294

## 2. Estimated cost of therapy of arterial hypertension with coverage of 4.1 % of adults (registered patients)<sup>2</sup>

For patients with moderate CVC risk the annual cost of monotherapy in I and II degree hypertension ranged from 1,240,000 Som to 22,870,000 Som when cheap generics were used. The annual cost of combined regimen therapy in II degree Hypertension ranged from 2,760,000 Som (cheap generics) to 19,050,000 Som (branded drugs). For patients with high and very high risk of CVC the annual cost varied between 975,080,000 Som (cheap generics) to 2,080,000 Som (branded drugs).

**Table 3. Costs of moderate, high and very high risk hypertension. Coverage of 4,1% of adults (equals number of officially registered patients)**

Medicines	Annual costs with coverage of 4,1% of adults	
	Cheapest generics (Som)	Brand drugs (Som)
<b>I degree hypertension</b>		
1. Amlodipine 5 mg	1 241 166,3	18 714 628,8
2. Hydrochlorothiazide 25 mg	3 507 643,8	15 169 210,4
3. Lisinopril 10 mg	10 776 561,1	17 727 092,2
<b>II degree hypertension of moderate risk</b>		
1. Amlodipine 10 mg	1 530 869,4	31 391 423,0
2. Lisinopril 20 mg	22 877 037,1	29 820 418,5
3. Lisinopril 10 mg + Amlodipine 5 mg	12 768 712,2	38 718 955,2
<b>High and very high risk hypertension (I, II, III degrees)</b>		
Amlodipine 10 mg + Lisinopril 10 mg + Acetylsalicylic acid 100 mg + Atorvastatin 10 mg	975 080 552,1	2 084 551 574,5

## 3. Options of drug supply for hypertension therapy

### ▪ Inclusion of statins in the Additional Package of Mandatory Health Insurance

Estimates show that inclusion of Atorvastatin into the Additional Package of the Mandatory Health Insurance with 50 % compensation the amount for level 1 would

<sup>2</sup> 4,1% adults in Kyrgyzstan is the number of registered hypertension patients in 2013 and is a baseline figure for indicators package of Den Sooluk health reform program

equal 12.91 Som per tablet (from estimate of average basic prices). Amount of compensation by the Mandatory Health Insurance Fund (MHIF) will equal 4,712 Som per year.

The number of registered patients with hypertension of I, II, III degrees with high and very high risk of CVC and who need obligatory statin therapy is estimated to be 136,279. If all these patients are provided with statins through the MHI ADP, the annual amount of compensation will be 642,170,000 Som.

*Note: Plan for 2014 of the MHI ADP financing is app. 182,800,000 Som*

### ▪ Inclusion of hypertension of all 3 degrees of high and very high risk of CVC into the Medicines Package under State Guarantee Program (SGP)

Considering that the first option of subsidized drugs provision can be utilized only by health insured citizens, it is possible to consider including the hypertensive patients with high and very high risk of CVC into the category of privileged patients at outpatient level under the SBP. This would ensure provision of medicines through the SBP that currently covers four diseases regardless of the insurance status.

The above estimates of the combined regimen using cheapest generics of high and very high risk hypertension, with coverage of 4.1 % of adults (corresponds to number of registered patients) equaled 975,080,000 Som per year.

*\*Note: Subsidized drug provision under the SBP is planned to be financed from the republican budget in 2014 with 23,270,000 Som.*

In order to include this category of patients into the drugs package under SBP, it is essential to envisage additional resources in the Single Payer budget 2015. The SBP should amended by adding the high and very high hypertension to the list of five monitored diseases. In addition, it is essential to define medicines and preparations per patient/year that would be compensated free of charge through the drug package of the SBP.

## Conclusions

- The calculation of HTN therapy costs with account to degree and risk of cardiovascular complications (CVC), found that cost strongly dependent on price of the used type of medicine (generic vs branded drugs) and regimen that reflects clinical aspects of the disease.
- Estimated cost of drug provision for therapy is rather high when coverage is confined to the number of registered patients, 4,1% of adults. Cost of therapy of high and very high risk CVC patients was app. 975,080,000 Som per year when cheap generics are utilized.
- Estimated cost of drug provision to high and very high risk hypertension patients at coverage of 6, 1%<sup>3</sup> of adults is 1, 45 billion Som. Coverage of 34,1%<sup>4</sup> of adults arrives to 8,1 billion Som per year if cheapest generics are utilized.
- The costing exercise of drug provision for therapy of hypertension, which uses regimens that account for CVC risk and simulating three scenarios of coverage, demonstrate that the cost of treatment is rather high even in case of coverage confined to registered patients. Any mechanisms of free or subsidized drugs provision for therapy of hypertension will require additional funding.
- Price review of drugs for hypertension management found presence of numerous generic drugs. From one side, this could promote more choice and better adhesion to using the generic drugs. From other side, it is essential to facilitate access to the drugs for hypertension management with proved clinical effectiveness, as well as to strengthen price regulation.
- Use of statins in hypertension management is worth attention, as the costing exercise found statins increase significantly the cost of therapy. Annual amounts of compensation under the Additional Drug Package of the Mandatory Health Insurance (MHI ADP) to provide drugs to registered patients with indicated use of statins were equal to 642,170,00 Som, which 3,5 folds exceeds the financing plan for the MHI ADP.
- Inclusion of high and very high risk hypertension in the drug package of the State Benefits Program (SBP) is unable to meet this requirement either. This is true even if only statins are provided on subsidized basis, as the financing plan for 2014 from the republican budget for drug provision under the SBP is 23,20,000 Som.
- It is obvious that lower utilization of statins is associated to higher prices and marketing of statins in central regions, mainly in Bishkek. Additionally, doctors rarely administer statins.
- There is a need to explore the extent to which doctors are aware of statins' role in hypertension management, in particular in patients with higher risks of cardiovascular complications. Actions should be explored on how to improve access to and affordability of statins.

<sup>3</sup> 6,1 % adults is a target figure for indicators of registered hypertension patients in Indicator Package of Den Sooluk health reform program

<sup>4</sup> According to 'Interepdi' study, the prevalence of hypertension in Kyrgyzstan was 34,1% of adults in 2012.