



## Economic Impact of Revised Arterial Hypertension Care: Tula, the Russian Federation

**Summary review:** A revised program for treating arterial hypertension (AH) was introduced in Tula Oblast, the Russian Federation, in 1999; it corrected two inefficiencies.<sup>1</sup> First, under the old system, many patients were admitted to the hospital needing emergency AH care who were not previously known by their health care providers to have an AH problem. Identifying these problems sooner through better screening and providing appropriate outpatient care prevented many emergency admissions. Second, when an AH problem was identified under the old system, many patients who could have been successfully treated with evidenced-based outpatient care were admitted to the hospital. The average cost of an inpatient stay was about ten times that of an outpatient visit. Better identification and better outpatient care reduced the total cost of AH care (figure). AH hospital admissions dropped by 17% and the associated costs by 32%. The cost reduction was partially offset by a 61% increase in outpatient AH care: the overall cost decrease was 11%.

**The new program:** The new program for managing AH included:

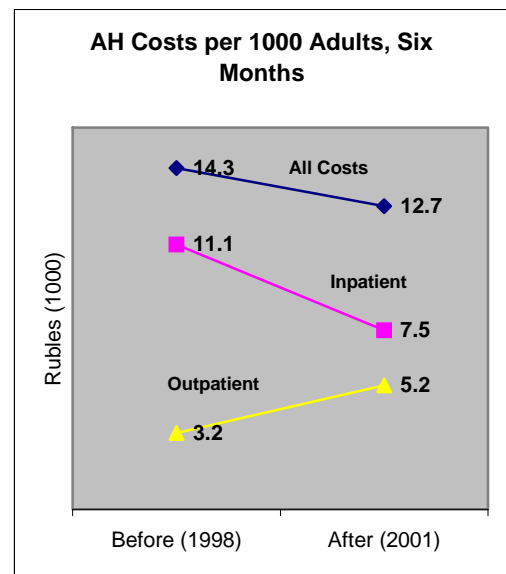
- More aggressive screening of people at risk,
- Application of evidence-based guidelines, and
- A health promotion program.

The screening and health promotion led to the registration of more people with potential AH problems and more outpatient management of AH, while better control of blood pressure resulted in fewer AH admissions.

### Cost study methods

General practitioners (GPs) in the Russian Federation are assigned a “service population.” This study included the adult service populations of five GPs in Tula who treated patients in three clinics and one hospital. The study compared the AH-related costs of all adults (10,312) in these populations during six months in 1998, before program implementation, to the AH-related costs of all adults (8,880) in the same populations during six months in 2001, after implementation.

Hospital and clinic records were searched to identify all AH hospitalizations and outpatient visits during the study periods. Also searched were records of adults who were registered as AH outpatients who had not received AH care during the study: most were registered because they had previously received AH care. Costs were obtained from financial records and included the costs of a day in the hospital, different medical procedures, an outpatient visit, lab tests, and drugs. This information was used to estimate the costs of inpatient and outpatient care for each patient; estimates were adjusted for inflation.



## Results

Usage patterns changed after program implementation. AH admissions decreased from 3.78 to 3.15 (17%) per 1000 adults over six months. The number of registered AH patients increased 47%, from 27.9 to 41.1 per 1000 adults; the average number of visits for these patients also increased, from 2.23 to 2.42.

Patient care also changed. Inpatient stays were shorter and involved fewer procedures, drugs, and lab tests, resulting in an 18% drop in the average cost of a hospitalization. Meanwhile, the cost of outpatient care rose 61%, due primarily to a large increase in the number of AH outpatients, but also to small increases in the cost per visit and number of visits per patient. The table shows the costs for AH inpatients and outpatients before and after the new system.

Cost of AH Care per 1000 Adults, in Rubles						
	Inpatients			Outpatients		
	Cost/ Stay	Number of Hospitalizations	Six Months' Cost	Cost/Registered Patient	Number of Registered Patients	Six Months' Cost
Before (1998)	2,925	3.78	11,062	114.8	27.9	3,206
After (2001)	2,387	3.15	7,529	125.9	41.1	5,177
Percent change	- 18.4%	- 16.7%	- 32.0%	9.7%	47.2%	61.5%

Unregistered patients accounted for most AH inpatient costs: 80% before and 63% after implementation of the new system. The cost per stay of unregistered patients was 83% higher than for registered patients in 1998, but in 2001 it was nearly the same, underscoring the importance of registering patients for AH care.

<sup>1</sup> This is a summary of a Quality Assurance Project (QAP) operations research study carried out by QAP's office in Moscow, Russia. The citation for the full report is: Abdallah H. 2002. Assessing the Economic Impact of the New System of Care for Arterial Hypertension in Tula Oblast, Russia. *Operations Research Results* 2(13). Published for USAID by the Quality Assurance Project, University Research Co., LLC, Bethesda, MD. QAP publications are available at [www.qaproject.org](http://www.qaproject.org).