

The cost of managing cases of hepatitis A in an outpatient setting relative to the hospital setting in Kazakhstan

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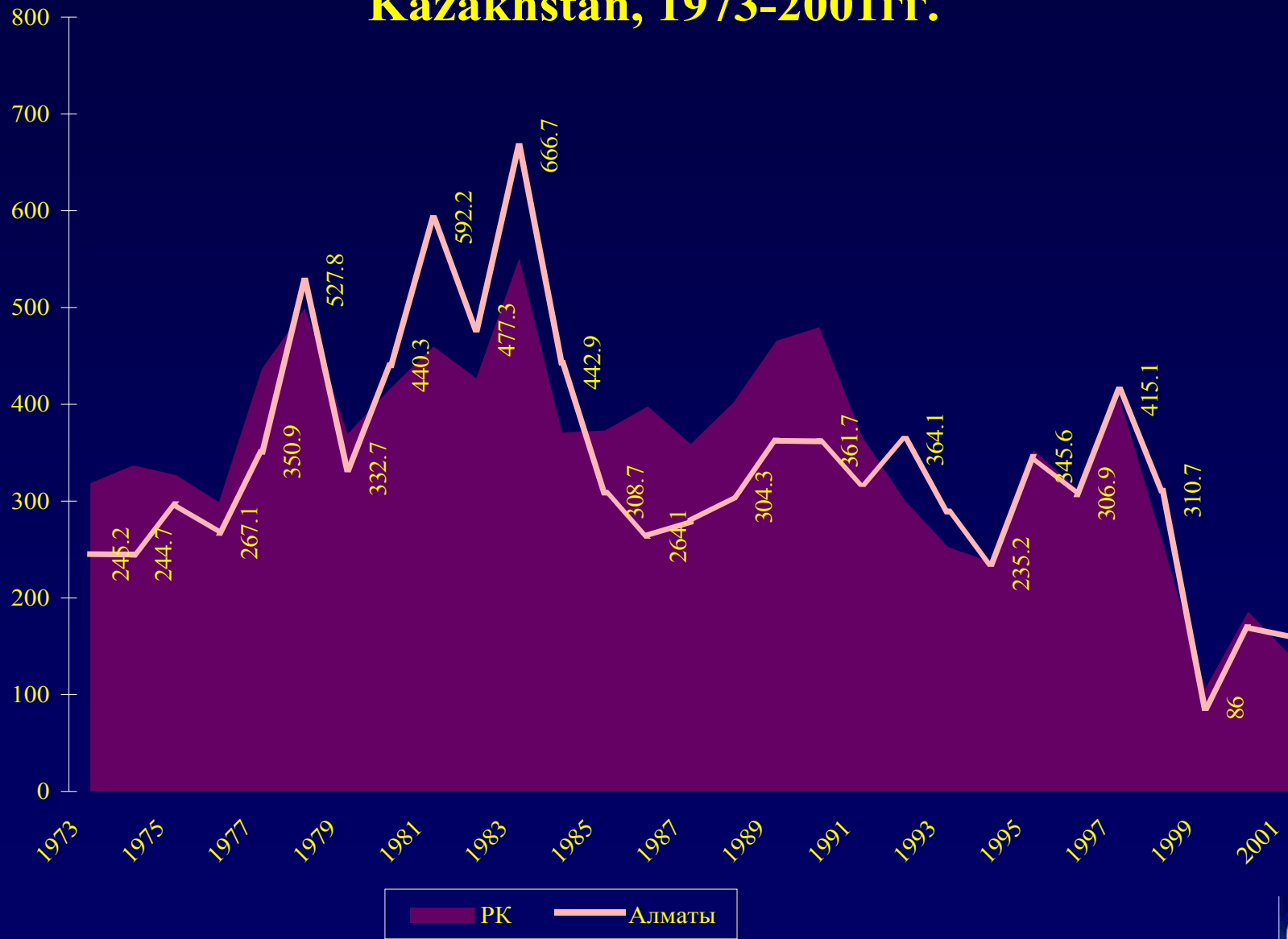
Central Asia Region



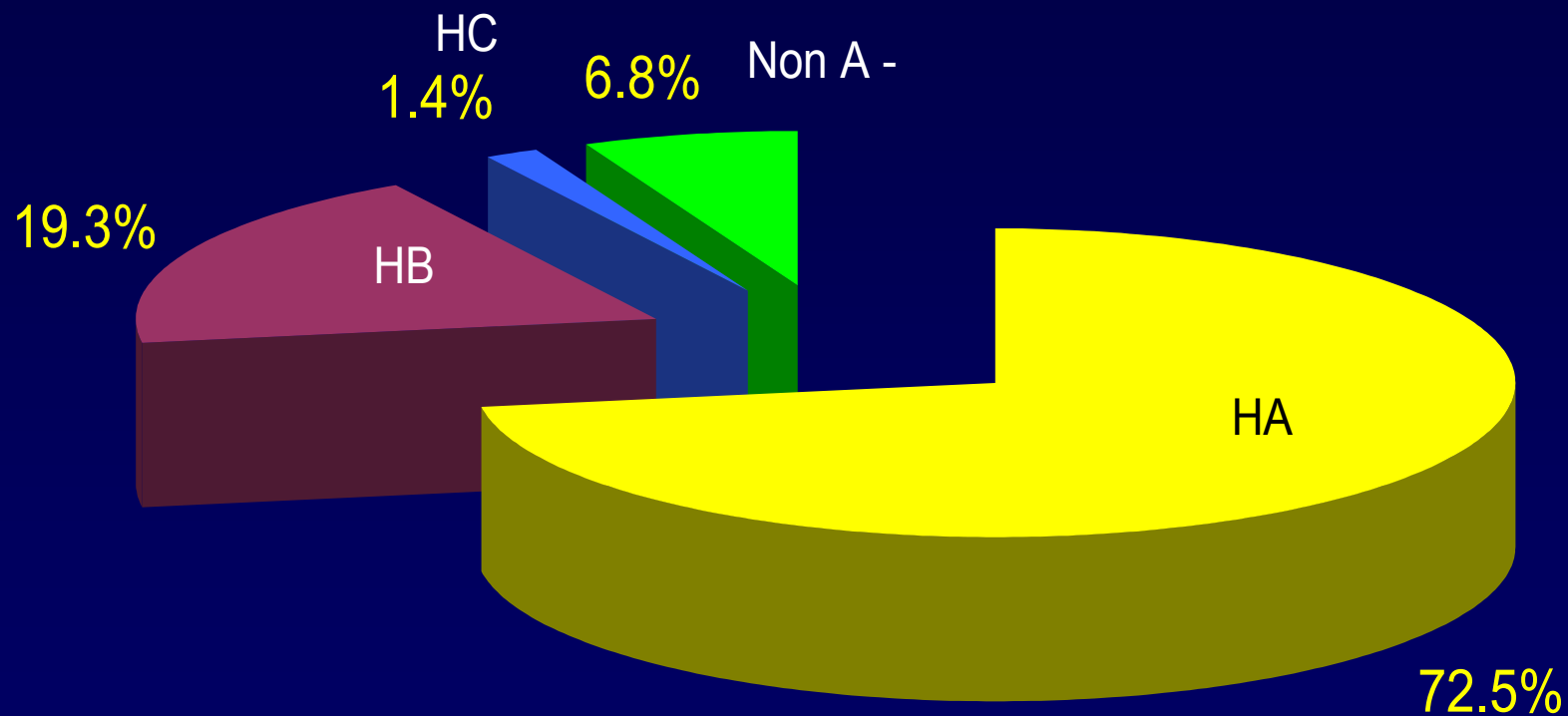
Kazakhstan Republic

- Population about 16 mil
- one of middle-income countries in the former Soviet Union. *Per capita* gross domestic product (GDP) in 1997 was US\$1,415 (US\$ 1997)
- *per capita* health expenditures in 1998 were US\$ 58 (US\$ 1998)
- The adult literacy rate is 97.5
- Life expectancy at birth is 70.0 years for women and 58.5 for men

Viral hepatitis Incidence Rate in Almaty, Kazakhstan, 1973-2001гг.



Etiology of Viral Hepatitis in Almaty, 2001г.



N= 1859

Goal:

The purpose of this study was to determine the relative cost of managing cases of mild viral hepatitis A in an inpatient versus outpatient setting.

Objectives:

- We estimated the total cost of management, including treatment, laboratory support and general hospitalization costs for patients admitted to hospital for mild hepatitis A infection, as well as indirect costs.
- We compared the total cost of managing cases of hepatitis A infection under mandatory hospitalization with the cost of managing cases in primary care setting.
- We assessed the reduction in cost of services by changing the treatment setting for the same level of health outcome.
- Finally, we estimated whether the difference in the cost associated with treating hepatitis A in inpatient versus outpatient settings is significant.

Case Definition

- **Cases of hepatitis A were defined as all cases of hepatitis A diagnosed on a laboratory basis in patients treated on an inpatient or outpatient basis at the selected study sites and reported to the appropriate hospital or outpatient clinic from November 2000 to February 2001.**

Materials

- The study was carried out in Almaty, Kazakhstan, population about 1.2 mil
- Before beginning this study, an institutional review board approval was obtained (protocol No. 2708) from the CDC Assurances-Human Subjects office and the ethics committee review from the Ministry of Health, Kazakhstan.
- Data were collected from a convenience sample of 2 inpatient settings and 19 outpatient clinics in the Almaty, Kazakhstan.
- Data on medical services and practices in inpatient and outpatient settings were obtained from November 2000 to February 2001 (N=451 patients)

Methods

- A standardized structured questionnaire was used (38 questions overall).
- We used a sample size of 451 subjects (200 inpatients and 251 outpatients) to conduct a cost analysis and to detect differences in percent change of the total cost with over 90% power. We also estimated the size of the difference of total costs of treating mild cases of hepatitis A between inpatient and outpatient groups, and calculated confidence intervals, on the basis of the sample data.
- Data were entered by EPI-INFO 6.04 and analyzed by SAS software

Cost comparison between inpatient and outpatient, Almaty, Kazakhstan, 2001

Cost items	Inpatient		Outpatient	
	Mean	95% CI*	Mean	95% CI*
Hospital cost	92,0	89,0-96,0	-	-
Doctors' time	186,0	176,0-196,0	32,0	30,0-34,0
Nurses' time	134,0	129,0-139,0	25,0	23,0-27,0
Non-health staff	32,0	31,0-33,0	-	-
Laboratory cost	11,0	10,0-12,0	8,0	7,8-8,2
Medication & vitamins	66,0	61,0-71,0	83,0	74,0-92,0
Hospital meals	30,0	29,0-31,0	-	-
Transport cost	-	-	4,0	3,6-4,4
Total cost (US\$)	551,0	531,0-571,0	152,0	143,0-161,0

*: 95% CI for the mean value indicates that given the confidence mean of 95 percent, in the long run, in 95 out of 100 cases intervals will contain the true population mean.

Inpatient and Outpatient Treatment - Mean of Viral Hepatitis Disease Duration, Almaty, Kazakhstan, 2001

Mean of incapacity for work among hospitalized VH patients

Mean of incapacity for work among non-hospitalized VH patients

26 ± 9.2 days

15 ± 8.5 days

$P > 0.1$

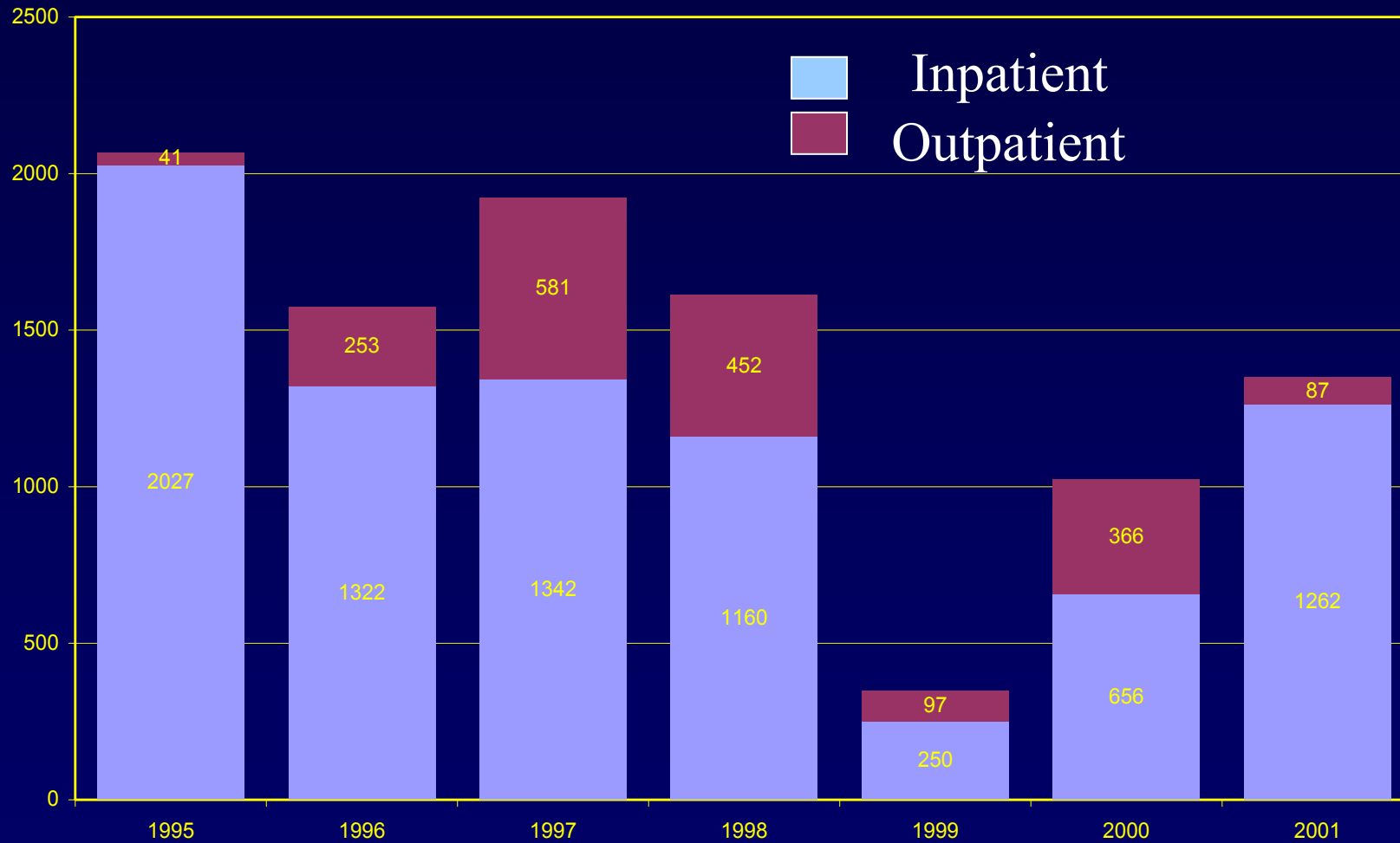
All patients treated Inpatient and Outpatient recovered completely

Conclusions

Cost-comparison analysis showed that a change in current policy of mandatory hospitalization for patient with hepatitis A could produce significant savings of US\$399 per patient and a total savings of more than US\$7 million per year at the national level

Considering the societal perspective, the additional costs (including indirect costs) ranged from US\$ 713 to US\$ 743 per patient. The potential total savings at the national level were estimated at US\$12 million per year. This would represent significant savings that could be readily reallocated in the resource-constrained environment of each of the republics of the former Soviet Union.

Inpatient and outpatient treatment for Viral Hepatitis, Almaty, Kazakhstan, 1995-2001



Recommendations

- **Policy modification for allowing medical professionals, especially primary care physicians, to perform outpatient treatment for VH**
- **Regulatory document established for cancellation of mandatory hospitalization**
- **Training of primary care physicians on VH diagnostics and treatments**

Acknowledgements

We would like to thank the following for their assistance in conducting the research for this presentation:

- The Center for Disease Control, USA**
- Kazakhstan National Infectious Disease Reference Laboratory**
- Our colleagues in the infectious disease control facilities of Almaty.**