HEALTH

C1 HEALTH STATISTICS

Tab. C1.1 Births, abortions, deaths

	2000	2001	2002	2003	2004	2005	2006
Births	9,472	9,703	9,718	10,080	11,160	11,966	12,556
Live births	9,453	9,681	9,690	10,057	11,131	11,943	12,530
Live births per 1,000 inhabitants	8.0	8.2	8.4	8.7	9.5	10.2	10.6
Total abortions	5,194	5,007	4,929	4,688	4,506	4,507	4,293
Spontaneous	878	821	835	891	967	1,002	1,023
Vacuum aspirations	3,479	3,326	3,190	2,911	2,761	2,692	2,533
Others	747	749	796	886	686	703	662
Abortions per 1,000 inhabitants	4.4	4.3	4.3	4.0	3.9	3.8	3.6
Abortions per 100 births	54.8	51.6	50.7	46.5	40.4	37.7	34.2
Total deaths	13,425	13,210	13,333	13,488	12,849	12,673	12,274
Deaths per 1,000 inhabitants	11.3	11.3	11.5	11.6	11.0	10.8	10.4
Infant mortality [‰]	2.3	3.1	3.9	2.5	3.1	1.9	2.6
Neonatal mortality [‰]	1.6	2.0	1.8	1.9	1.7	0.8	1.5

Source: ČSÚ

Tab. C1.2 Death rates by cause

	2000	2001	2002	2003	2004	2005	2006
Deaths by selected cause per 100,000 inhabitants							
Neoplasm	313.2	298.3	311.2	312.7	330.8	295.7	300.0
Endocrine and metabolic diseases, allergies	8.4	8.2	5.9	5.6	8.3	7.1	9.8
Diseases of the circulatory system	602.8	613.1	623.1	609.8	546.8	526.6	478.7
Diseases of the respiratory system	41.6	48.9	50.8	60.2	51.0	78.0	68.1
Diseases of the digestive system	46.4	44.0	42.2	44.2	40.6	47.5	46.7
Diseases of the genitourinary and reproductive systems	12.8	13.1	13.3	15.1	15.8	14.7	16.7
Injury, poisoning and suicide	72.8	67.8	67.9	71.7	65.9	56.0	59.6
Other causes of death	36.0	40.8	36.2	41.6	43.1	51.9	57.4
Prague total	1,134.0	1,134.2	1,150.6	1,160.9	1,102.3	1,077.5	1,037.0

Source: ÚZIS

Tab. C1.3 Hospital admissions by cause

	Classification (ICD 10)	2004		2005		2006	
		males	females	males	females	males	females
I.	Certain infectious and parasitic diseases	3,887	3,866	4,427	4,443	3,514	3,591
II.	Neoplasm	19,543	21,901	21,416	24,535	17,378	20,369
III.	Diseases of blood, blood-forming organs & immune mech.	941	1,064	969	1,221	874	1,009
IV.	Endocrine, nutritional and metabolic diseases	3,411	5,702	3,854	6,902	3,229	4,651
V.	Mental and behavioural disorders	2,986	3,075	2,851	3,117	2,548	2,638
VI.	Diseases of the nervous system	5,441	5,463	6,130	5,710	4,899	4,637
VII.	Diseases of eye and adnexa	4,289	6,707	4,003	6,090	3,332	4,815
VIII.	Diseases of ear and mastoid process	1,413	1,364	1,416	1,342	1,162	1,143
IX.	Diseases of the circulatory system	35,475	27,061	36,988	28,454	30,397	24,042
X.	Diseases of the respiratory system	9,852	7,799	11,548	9,174	9,718	7,725
XI.	Diseases of the digestive system	15,104	14,913	17,133	16,818	13,923	13,818
XII.	Diseases of the skin and subcutaneous tissue	1,705	1,534	1,768	1,671	1,529	1,420
XIII.	Diseases of the musculoskel. system & connective tissue	11,485	13,949	12,435	15,451	9,569	11,779
XIV.	Diseases of the genitourinary system	8,125	18,849	9,065	19,433	7,181	17,212
XV.	Pregnancy, childbirth and the puerperium	x	21,327	x	23,949	x	22,742
XVI.	Certain conditions orig. in the perinatal period	2,441	2,078	2,956	2,559	3,489	2,839
XVII.	Congen. malformations, ... chromos. abnormalities	2,843	2,353	4,019	3,002	2,441	1,925
XVIII.	Symptoms, signs and ... findings, NEC	4,646	6,220	5,512	7,068	4,161	5,418
XIX.	Injury, poisoning & consequences of external causes	13,498	10,361	15,159	11,951	11,329	9,001
XXI.	Factors infl. health status & contact with health service	10,613	16,423	11,762	17,038	9,951	16,165
	Total	157,698	192,009	173,411	209,928	140,624	176,939

Source: ÚZIS

Tab. C1.4 Occurence of carcinoms and in-situ neoplasm in the Prague region

	C00-D09						
	Total number			Per 100,000 inhabitants			Average
	males	females	total	males	females	total	males and females 100,000
1995	2,852	3,290	6,142	498.7	513.4	506.5	506.1
1996	3,070	3,357	6,427	538.6	526.7	532.3	532.7
1997	3,255	3,602	6,857	572.9	567.8	570.2	570.3
1998	3,442	3,872	7,314	608.2	613.6	611.1	610.9
1999	3,666	4,002	7,668	651.1	638.4	644.4	644.7
2000	3,776	4,063	7,839	673.4	652.0	662.1	662.7
2001	3,781	4,283	8,064	685.2	698.9	692.4	692.0
2002	4,019	4,186	8,205	731.5	686.9	697.1	709.2
2003	4,089	4,311	8,400	739.9	707.7	723.0	723.8
2004	4,209	4,320	8,529	757.3	708.4	731.7	732.8

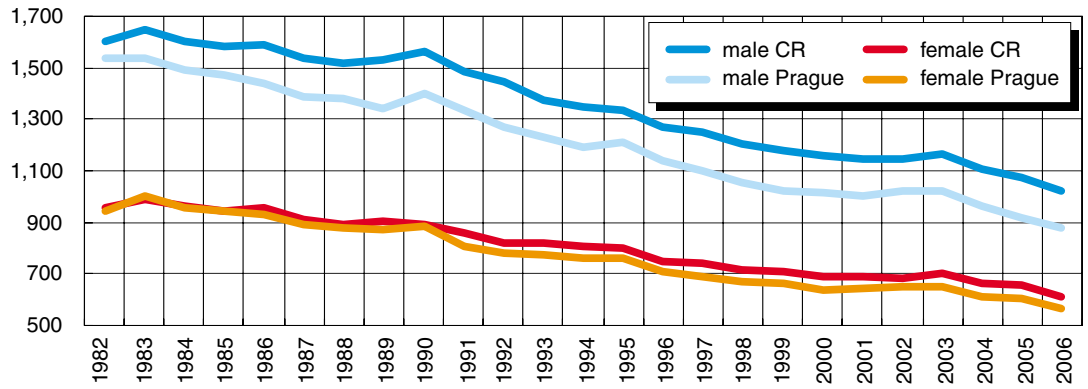
Source: ÚZIS, Czech Cancer Registry

Tab. C1.5 Number of deaths due to carcinoms and in-situ neoplasm

	Total number		Per 100,000 inhabitants	
	males	females	males	females
1995	1,966	1,938	343.8	302.4
1996	1,923	1,800	337.4	282.4
1997	1,828	1,805	321.8	284.5
1998	1,869	1,828	330.2	289.7
1999	1,839	1,827	326.6	291.4
2000	1,917	1,753	341.9	281.3
2001	1,740	1,709	315.3	278.9
2002	1,825	1,754	332.2	287.8
2003	1,897	1,731	343.3	284.2
2004	1,974	1,865	355.2	305.8
2005	1,758	1,701	312.2	277.5
2006	1,808	1,712	318.3	278.1

Source: ČSÚ

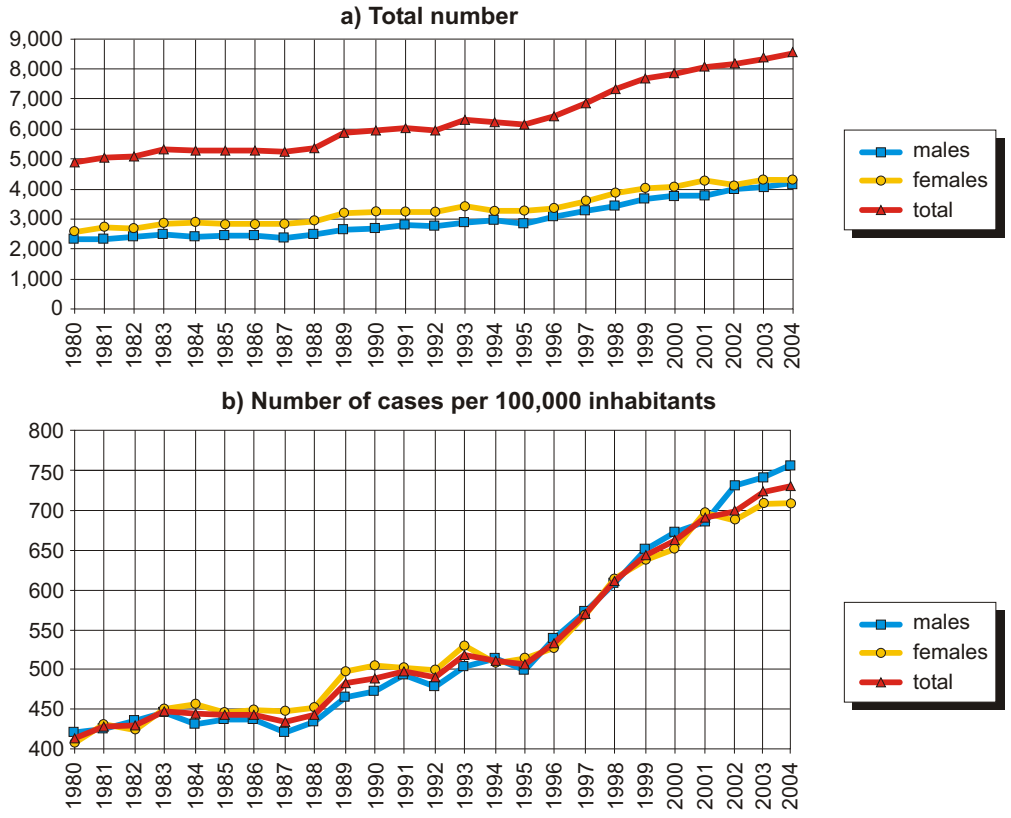
Fig. C1.1 Development in standardized mortality* by sex



* per 100,000 European standard population

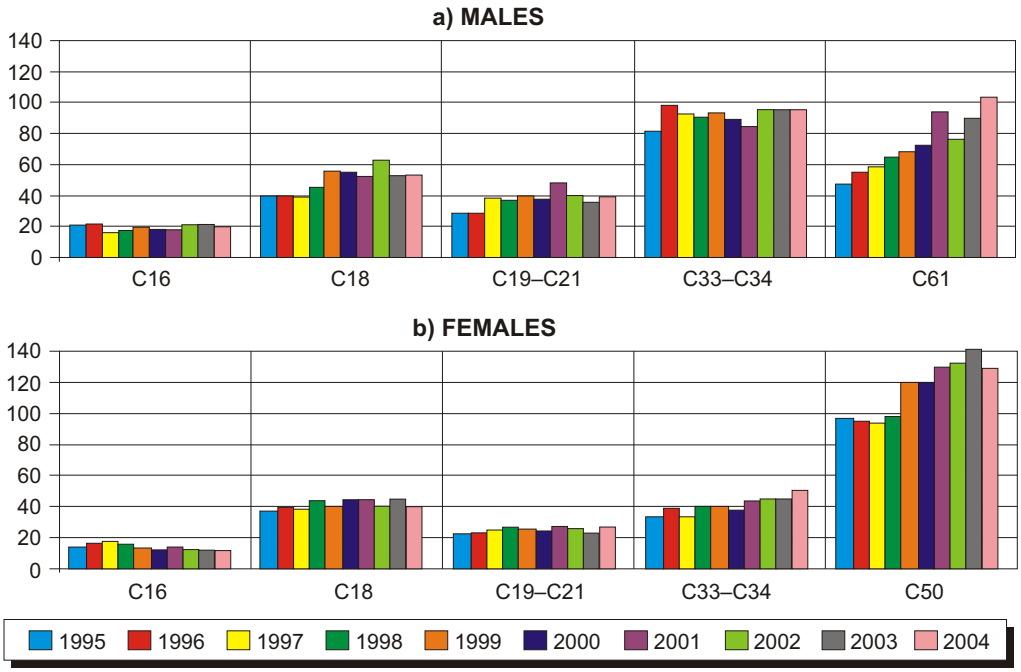
Source: ÚZIS, ČSÚ

Fig. C1.2 Number of reported carcinoms and in-situ neoplasms



Source: ÚZIS, Czech Cancer Registry

Fig. C1.3 Number of reported cases of selected malignant tumours per 100,000 inhabitants



C16 Malignant tumors of the stomach
C18 Malignant tumors of the intestine
C19–C21 Malignant tumors of the recto-sigmoidal connection, rectum, rectal passage
C33–C34 Malignant tumors of the trachea, bronchi and lungs
C50 Malignant tumors of the breast
C61 Malignant tumors of the prostatic gland

Source: ÚZIS, Czech Cancer Registry

C2 SYSTEM OF MONITORING OF ENVIRONMENTAL IMPACTS ON POPULATION HEALTH

C2.1 POPULATION HEALTH

The environment and nutrition are one of the most important factors determining human health. There it is important to monitor their health impacts in human organism. Since 1994 the main monitoring programme in the Czech Republic has been the "System of monitoring of environment-related health status of the Czech Republic population", which has been implemented on the basis of the Decision of the Government of the Czech Republic No. 369/1991 is incorporated on the act on public health No. 258/2000 Code and has been one of the priorities of the Action programme for health and the environment of the Czech Republic, which was approved by the Decision of the Government of the Czech Republic No. 810/1998. The monitoring system represents a complete system for data collection, processing and evaluation of information on status of environmental compartments and their impacts on the health status of the Czech Republic's population. In 2006 the System of Monitoring was implemented in eight subsystems as follows:

- health consequences and risks of air pollution (subsystem I);
- health consequences and risks of drinking water contamination (subsystem II);
- health consequences and disturbance effects of noise (subsystem III);
- health consequences of human organism load with chemicals from food chains, dietary exposure (subsystem IV);
- health consequences of human organism exposure to toxic substances from external environment, biological monitoring (subsystem V);
- health status and selected indicators of demographic and health statistics (subsystem VI);
- health risks of working conditions and their consequences (subsystem VII);
- health risks of soil contamination in urban agglomerations (subsystem VIII).

Results have been every year published in the Summary Reports and the Scientific Reports published by the Monitoring Centre located at the National Institute of Public Health (SZÚ), Prague. These Reports are available to professionals at the Internet pages: **http://www.szu.cz/publikace/monitoring-zdravi-a-zivotniho-prostredi.**

The System of Monitoring is implemented in thirty cities and the Capital City of Prague has been among them. Majority of subsystems, except the soil contamination, monitoring were implemented in Prague in 2006. Only the projects are mentioned in this yearbook, which were carried out in Prague in 2006. The data acquired were analysed separately for the entire territory of Prague at the same time.

Air

Data on the air pollution evaluated within the framework of the System of Monitoring come from 22 Prague monitoring stations[1] operated by the Public Health Service and the ČHMÚ. They measure concentrations of pollutants stratum of the atmosphere. In order to be able to compare measurements results in 2006 to those of previous years the original division into respective districts of Prague 1–10 was retained.

Values of annual arithmetic average of sulphur dioxide fell within the range from the detectable limit (2 $\mu g.m^{-3}$) to 9.6 $\mu g.m^{-3}$. The value of 125 $\mu g.m^{-3}$ of daily arithmetic average of sulphur dioxide was not exceeded in 2006. (For limits see the Order of the Government of the Czech Republic No. 350/2002 Code as amended in the wording of Order of the Government of the Czech Republic No. 597/2006 Code.) But the daily averages rarely exceeded 50 $\mu g.m^{-3}$ concentration at the Prague periphery.

[1] There has been monitored concentrations of sulphur dioxide, sum of the nitrogen oxides, nitrogen dioxide, at all automatic stations of AIM network, which is operated by the ČHMÚ. Fourteen stations measure concentrations of carbon monoxide and eight stations measure concentration of ozone. Suspended particulate matters of fraction PM_{10} are measured at 19 measuring points, five Prague stations completed the suspended matters measuring with fraction $PM_{2.5}$ monitoring. Nine stations monitor content of selected elements (lead, cadmium, chromium, nickel, manganese, and arsenic) on samples of dusty aerosol of fraction PM_{10}. PAHs (polycyclic aromatic hydrocarbons) are monitored at three stations. In the monitoring part of volatile organic compounds (VOCa) the processing includes except for the station No. 457 in Prague 10, operated by the Public Health Service, also results form the four ČHMÚ stations (one of them is the traffic loaded station at Legerova Street in Prague 2), which use BTX analysers.

Values of annual arithmetic average of nitrogen dioxide were within the detectable margin 26.3–74 $\mu g.m^{-3}$ at Prague's stations. However, at the traffic most loaded and measured localities (Prague 2 - Legerova, Prague 5 - Svornosti), values of the annual arithmetic average measured exceeded 70 $\mu g.m^{-3}$. Values of the annual arithmetic average measured exceeded 50 $\mu g.m^{-3}$ at other stations of the traffic most loaded and measured localities (Prague 1 - The Museum and Republiky Square, Prague 8 - Sokolovská Street). In 2006 the valid annul value of the ground-level concentration limit of NO_2 (40 $\mu g.m^{-3}$) was exceeded at fourteen monitoring stations (over a half of all stations) in Prague, at other stations monitored the measured values reached 50 % of the limit value as minimum.

Values of the annual arithmetic average of the concentration of suspended particulate matters of the fraction PM_{10} were within the range 23.7–61.1 $\mu g.m^{-3}$ – criterion for the exceedance of annual immission limit (over 40 $\mu g.m^{-3}$, or over 35 cases of exceedance of 24-hour concentration value above 50 $\mu g.m^{-3}$) was fulfilled at 16 stations in every Prague District. Trends in the values are not descending and the values increases compare to those of 2005. The long-term development in the reaching of the annual immission limit, as percentage of suspended particulate matter of the fraction PM_{10}, in respective Prague's districts is demonstrated in Figure.

Values of the carbon monoxide concentration have been slowly decreasing yet at traffic loaded localities in Prague (so-called hot spots) values measured for a long time fall in between 1 and 2 $mg.m^{-3}$.

Measurements of the ground-level concentrations of certain polyaromatic hydrocarbons (PAHs) (within the scope of US EPA TO-13) in 2006 continued at all three Prague's Stations (Station No. 457 in Prague 10, at the premises of the National Institute of Public Health (SZÚ), No. 774 in Prague 4 in Libuš – ČHMÚ, and No. 1459 in Prague 5 at the Smíchovský Tunnel). They monitored hydrocarbons important from the potential health hazard point of view as follows: benzo[a]anthracene, benzo[b]fluoranthene, benzo[k]fluoranthene, benzo[g,h,i]perylene, benzo[a]pyrene, chrysene, dibenz[a,h]anthracene, phenanthrene, anthracene, fluoranthene, pyrene, and indeno[c,d]pyrene. In 2006 the annual arithmetic ground-level concentration averages of benzo[a]pyrene (1.86 to 2.47 $ng.m^{-3}$) exceeded the limit for benzo[a]pyrene (1 $ng.m^{-3}$), established by the Order of the Government of the Czech Republic No. 350/2002 Code as amended by the Order of the Government of the Czech Republic No. 579/2006 Code, by over 100 % at all three stations mentioned. The reference value determined by the SZÚ for benzo[a]anthracene concentration (10 $ng.m^{-3}$) was reached approximately from 26 to 33 %.

The mixture of PAHs comprises of numerous compounds of different seriousness of health effects, which include compounds classified as proven or probable carcinogenic compounds to humans (IARC, WHO). The carcinogenic potential of found concentrations of various representatives of PAHs, and their airborne mixture, may be expressed by means of the toxic equivalent of benzo[a]pyrene (TEQ BaP) by comparing carcinogenic effects of measured concentrations of various representatives of polyaromatic hydrocarbons to that of benzo[a]pyrene, one of the most toxic and best investigated carcinogenic polyaromatic hydrocarbons. The comparison of the TEQ BaP of the PAHs mixture measured at the Station in Prague 10 and measuring points in other cities monitored revealed the carcinogenic potential of PAHs is three to five times lower in Prague than in Ostrava-Karviná locality and at about the same value as in Hradec Králové, Plzeň, and in Ústí nad Labem. The time development of concentrations of polyaromatic hydrocarbons in respective months of 2006 at the station Prague 10 - Šrobárova Street is demonstrated in Figure.

The next Figure presents the measured values of benzo[a]pyrene, benzo[a]anthracene, and the sum of PAHs at three Prague's stations.

The regular monitoring of volatile organic compounds (VOCs) in 2006 included the station on the SZÚ. The evaluation also encompassed values obtained from automated stations operated by the ČHMÚ in Prague 1 (Republiky Square), in Prague 2 (Street Legerova – traffic hot spot), Prague 4 (Station Libuš), and in Prague 5 (the station near the Strahovský Tunnel). Among the most important compounds monitored there are aromatic hydrocarbons (benzene, toluene, xylene, styrene, trimethylbenzene), further chloric aliphatic hydrocarbons and aromatic hydrocarbons (trichloromethane, tetrachloromethane, trichloroethene, tetrachloroethene, chlorobenzene, dichlorobenzene) and freons. The established annual immission limit for benzene is of 5 $\mu g.m^{-3}$ pursuant the Order of the Government of the Czech Republic No. 350/2002 Code as amended by the Order of the Government of the Czech Republic No. 597/2006 Code). In 2006 the immission limit value for benzene in ambient air was not exceeded at any of the measuring stations in Prague, the maximum annual average was measured at the Station Prague 10 - Šrobárova Street (3.17 $\mu g.m^{-3}$).

The level of air pollution with heavy metals in the fraction PM_{10} of airborne particulate matter measured at the Public Health Service stations in the period 1995 to 2006 has been already stable, more or less missing any fluctuations. The good coincidence of values of annual arithmetic and geometric averages in majority of areas proves measured values of immission values have been relatively stable and homogeneous without any great seasonal, climate, or other way induced fluctuations. Immission limit values established (in the Order of the Government of the Czech Republic No. 350/2002 Code as amended by the Order of the Government of the Czech Republic

No. 597/2006 Code) for arsenic, cadmium, lead, and nickel were not exceeded at any of the stations in 2006. The rate of the annual ground-level concentration of arsenic was reached in respective Prague's districts, as an indicator of fossil fuel combustion in domestic fireplaces, is depicted in Figure.

Besides the stable situation of the Prague air pollution with sulphur dioxide and certain elements, in which the development in air pollution has been favourable over a long term, air quality in Prague was in 2006 worse to that of 2005, while reasons for potential oscillations is not only effects of meteorological factors.

Thus the permanent problem represent the substances, which emissions into air are directly related to the traffic load – as values measures at traffic loaded stations (Street Legerova, Strahovský Tunnel, Street Svornosti, Street Sokolovská and the Museum) have been giving proof for. These substances are first of all suspended particulate matter of the fraction PM_{10}, NO_2, and benzo[a]pyrene, for which their immission limit values were exceeded at Prague's stations, and benzene. For these substances their immission limit values (potentially their exposure limits) are attained at the most significant percentage and they form the most serious pollutants monitored from the hygiene point of view in ambient air.

It is proved, that short time increase of daily concentration of particulate matters PM_{10} causes the diseases and mortality increase (above all diseases of circulatory system, the natimortality increase, cough and respiratory diseases among asthmatics especially). Decrease of bellow function, increase of respiratory diseases, symptoms of asthma bronchitis and the longevity decrease fall into proved impacts of long-term increased concentrations. It may be estimated, according the evaluation of the pollution impact on Prague's citizens health, that PM_{10} suspended matter pollution contributes to increase of bronchitis and other respiratory diseases. Children suffer from this diseases in 3 % among so called unaffected population and in 5.9 to 14.9 % among others. The air pollution with PM_{10} particulate matters spawn respiratory diseases to Prague's children, that suffer from respiratory diseases two times or five times more often than children from unpolluted environment. In Prague in 2006 12,274 is the number of the early deaths, out of the number 200 to 2,300 are deaths due to air pollution with PM_{10} particulate matters.

The estimate outcome is the theoretical increase in probability of a tumour and neoplasm disease, the impact was evaluated for carcinogenic agents (arsenic, nickel, polyaromatic hydrocarbons) for lifetime - long exposure (70 years) in Prague air. It can be caused by the given level of exposure of the substance evaluated above the general occurrence level in the population over 70 years of the lifetime-long exposure. Estimated cancer risk is about 3.5 to 260 cases per one million of inhabitants of the Prague agglomeration due to air pollution, benzo[a]pyrene makes the highest contribution. Presumptive number of tumour diseases increased due to air pollution about 0.4 to 26.6 cases for the total amount of inhabitants of Prague.

The figure compares theoretical estimation of tumour diseases increase due to air pollution with arsenic, neckel, benzene, benzo[a]pyrene, in 2006.

Drinking water

In Prague quality of drinking water in the distribution network of the public mains is also monitored with the System of the Population Health Status Monitoring. Quality of the water supplied is evaluated pursuant to Decree of the Ministry of Health of the Czech Republic No. 252/2004 Code. In 2006 over 57,000 values of drinking water quality indicators were acquired. Non-compliance with the maximum limit value (NMH) of a health adverse indicator was found in mere ten cases. These were four findings of the microbiological indicator of Escherichia coli, three findings of the indicator of NMH of nitrogen, 2 findings of vinyl chloride, and one case of the chemical indicator exceedance of trichloromethane. The limit value (MH) of organoleptic indicators of drinking water quality were not complied with in 374 findings, in most cases these were indicators of iron, number of colonies at 36 °C, number of colonies at 22 °C and the microscopic image-living organisms.

For selected contaminants, for which exposure limits are established (mostly ADI – acceptable daily intake, for manganese the US EPA limit as reference dose – RfD), the assessment of population load from drinking water intake was also carried out. The assessment was based on the assumption that an inhabitant daily drinks, on average, 1 litre of drinking water from the public mains[2]. Results of acceptable daily intake of selected contaminants are given in Figure. It is obvious that in 2006 the nitrate exposure clearly prevailed, which accounted for 12 % of the acceptable daily intake (ADI) for medium load of the Prague population. Exposure to other contaminants through drinking water was at very low level. Values found in the period from 1994 to 2006 demonstrate very similar results with no pronounced changes; potential differences must have been caused by common fluctuations in concentration.

[2] This data follows from the questionnaire survey on health, lifestyle, and the environment (HELEN).

It follows from the assessment of chemical load that the population could not suffer any direct harm from the consuming of drinking water from the public water supply system. It follows also from the analysis of epidemiological conditions that in no case there was clear evidence produced for an instance of a disease where drinking the potable water from the public water supply system was the reason of the onset of an infection.

The drinking water quality in the Prague public water supply system remained virtually at the same level as in the last years; there are no significant changes in quality of the water supplied.

Noise

At present noise belongs to the most widely spread pollutants of the working environment as well as the environment. Noise is any undesirable sound, which has disturbing or nuisance character, or which has harmful effects on human health. Long-term excessive noise has been proven to have effect on the auditory organs, to have negative impact on children speaking and reading. Furthermore the noise disturbs sleep and then causes chronic stress reactions, which contributes to the expansion of civilisation diseases.

Since 1994 the monitoring of health affects and disturbance effects of noise has been performed in Prague at three locations as follows: Vinohrady (Prague 2), Žižkov (Prague 3), and Vršovice (Prague 10). In 2003 the monitoring of noise level in Vinohrady, Prague 2 was terminated due to organisational reasons. On every remaining locality the measurement continues and the different noisy localities were selected[3]. 24-hour measurements are performed once a month. Except for Prague's localities the noise measurements are carried out in further cities in the Czech Republic.

Noise affects in population of the selected localities, where noise exposition is known in the residential environment, has been monitored by means of a questionnaire survey in five year intervals. Survey is focused on health status concentrated on occurrence of the selected, so-called civilisation diseases and assessment of the relation of the noise level and the occurrence of such diseases and disorders. Last questionnaire survey was carried out in period of March–June 2007. More than 1,000 inhabitants of Prague 3 were addressed. Over 43 % of questionnaires returned. Data evaluation is been carrying out now.

The Prague localities are placed in the top half of the noise level span of localities monitored. The measured average values expressed as equivalent for day-evening-night L_{dvn} for the year 2006 are summarised in Table. The usage of L_{dvn} equivalent for traffic noise evaluation results from the Order of the Government of the Czech Republic No. 523/2006 Code. The main reason for establishing the equivalent is ability of comparing noise situations in Member States of the European Union. The margin value of L_{dvn} equivalent is 70 dB for automotive traffic. This value was exceeded in noisy localities of Prague 3 and Prague 10 in 2006. No important changes were revealed in the average value of noise level L_{dvn} in course of measuring.

Tab. C2.1 The noisiness expressed by L_{dvn} equivalent for day-evening-night in monitored localities

Locality	L_{dvn} (dB)			
	Silent locality		Noisy locality	
	Year 2006	Range of values 1994–2005	Year 2006	Range of values 1994–2005
Prague 3	59.4	51.3–54.9	73.7	73.6–76.4
Prague 10	57.8	51.4–58.7	74.3	73.9–76.3

Source: SZÚ Prague

Biological monitoring

The biological monitoring that means monitoring of selected toxic chemicals in body liquids in the urban population has been carried out in the Czech Republic since 1994. Prague was included among the areas monitored newly in 2005. In 2006 the concentration of selected toxic elements and trace elements were monitored in blood and urine of children. Chromosomic changes were monitored by cytogenic analyses of lymphocytes in peripheral blood. These were first results obtained of children population of Prague. The levels of selected persistent chlorinated organic compounds (namely DDT, DDE, and PCB) were monitored in mother's milk of nursing mothers.

109 children joined the monitoring in total. The age spectrum was from 8 to 10 years, the average age was 9.7 years. Number of boys (N = 50) was nearly the same as the number of girls (N = 59). Samples of mother's milk were obtained from 63 nursing mothers (average age 29 years).

[3] Prague 3: silent locality – Pod Lipami Str., noisy locality – Koněvova Str., Prague 10: silent locality – Bečvářova Str., noisy locality – Vršovická Str.

The lead level was about 15–46 $\mu g.l^{-1}$ in blood (median value 30 $\mu g.l^{-1}$) in the Prague's children population. The concentrations are lower than the limit median value of 100 $\mu g.l^{-1}$ recommended by the WHO. Higher values were detected in males than in females (see Figure).

The mercury level falls within the range of 0.10 to 2.0 $\mu g.l^{-1}$ in blood in Prague's children population. Median value was 0.4 $\mu g.l^{-1}$. The creatinine level falls within the range of 0.09 to 3.9 $\mu g.g^{-1}$ (median value 3.0 $\mu g.g^{-1}$) in urine and within the range of 0.06 to 0.54 $\mu g.g^{-1}$ (median value 0.15 $\mu g.g^{-1}$) in hair. The concentration did not exceed important health values (see the figure).

The level of beneficial element of selenium reaches the medium value 108 $\mu g.l^{-1}$ in blood in Prague's children population. The concentration shows the possible increasing trend compared to the results of biological monitoring from years 1994–2003. This monitoring was held in different localities of the city.

Results of cytogenetic analysis correspond to usual finding in children population from other monitored localities and they do not signalize significant gene-toxic exposure.

The concentration of the indicating polychlorinated biphenyl (PCB) congeners and selected chlorinated pesticides in mother milk of selected Prague mothers does not differ from data from previous year and from that in other areas monitored. It will be able to evaluate the development trend after further number of monitoring. The level of polychlorinated biphenyl in blood serum and urine of Czech population is in higher compared to other Member States of EU. The reason is production of these substances in former Czechoslovakia and their tardy regulation.

Ascertained values conform to literally data and fall into the range of reference values, that were defined for Czech population in previous monitoring period (1994–2003).

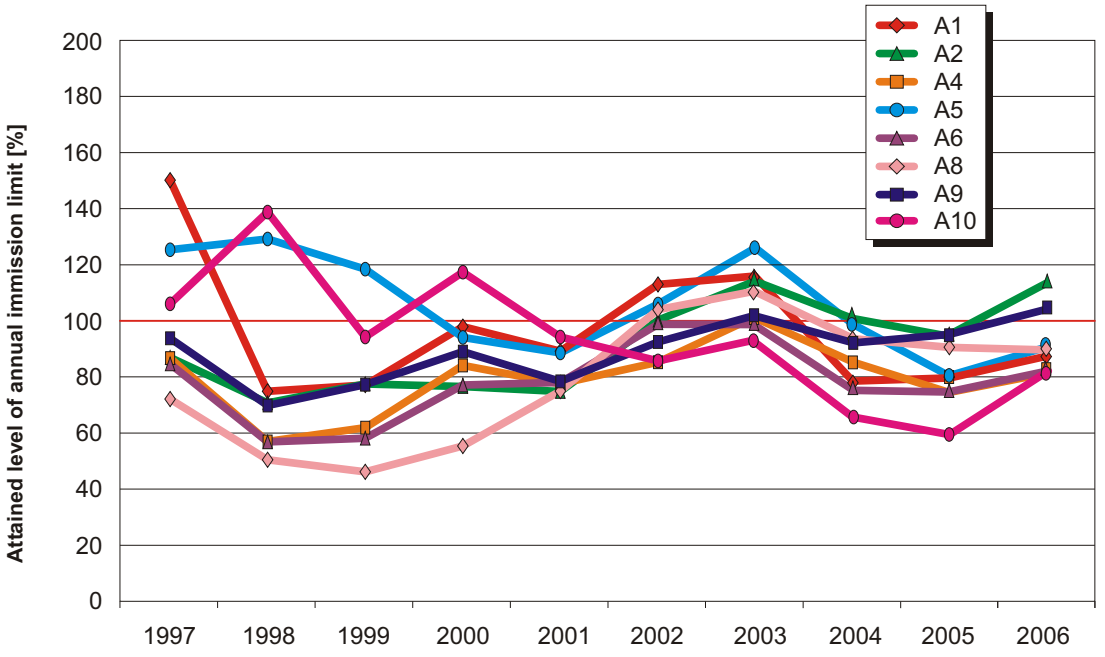
Working conditions

In 2006 there were 1,216 occupational diseases (1,150 occupational diseases and 66 treats of occupational diseases) reported in the Czech Republic. The trend of ever decreasing frequency of occurrence as well as the total number of reported occupational diseases. In 2006 the occurrence rate of such diseases was 27.5 cases per 100,000 insured. The highest number of reported occupational diseases occurred in branches of health and social care and veterinary care. In 2006 there were 36 such diseases registered in Prague, and out them 40 % belonged to physical factors and 25 % belonged to transmittable and parasitic occupational diseases.

The Act No. 258/2000 Code on the public health protection imposes the obligation on the employer, once the level of exposure is assessed, to classify jobs into four categories[4]. In April 2007 37.8 % of all employees, that means 19,342/100,000 employees, registered in job categories of 2, 2R, 3, and 4 8.8 % of all employees (i.e. 4,519/100,000 employees) were registered at hazardous jobs (categories 2R, 3, and 4). The highest number of employees registered in risky job categories was exposed to the risk factor of "noise". In Prague almost 45,000 employees were registered at jobs falling into the risky categories, out of that almost 11,000 were women. Compared to other regions there is the least number of employees exposed such a way per 100,000 employees in Prague, the number is 1,402.

[4] Works of *category 1* do not pose, according to current knowledge, probably any risk to the worker. Works of *category 2* are such jobs, in which harm to human health due to working conditions cannot be excluded, in persons of increased susceptibility for instance. Works of *category 3* are jobs in which personal exposure to factors of working environment cannot be reliably reduced by technical measures down to the level established in public health protection limits and personal protective equipment or other protective measures must be employed to provide for the workers' health protection. Works of *category 4* are jobs, in which there is high risk of harm to health, which cannot be excluded even if the available and applicable protective measures are applied. Jobs classified as No. 3 and No. 4 categories and the category 2R (following independent decision of public health protection authorities) are risky works within the meaning of Section 39 (1) of the act.

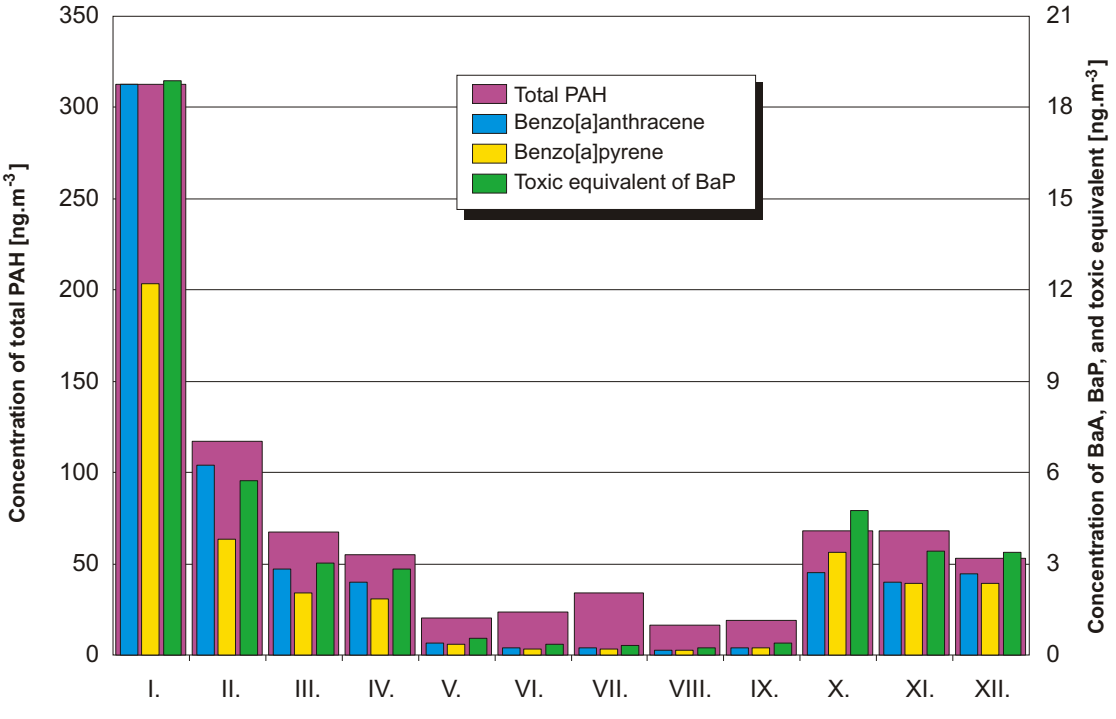
Fig. C2.1 Coincidence with the yearly immission limit (40 µg.m^{-3}) for suspended particulate matter fraction PM_{10} in 1997–2006



Note: By the original City Districts of Prague 1–Prague 10

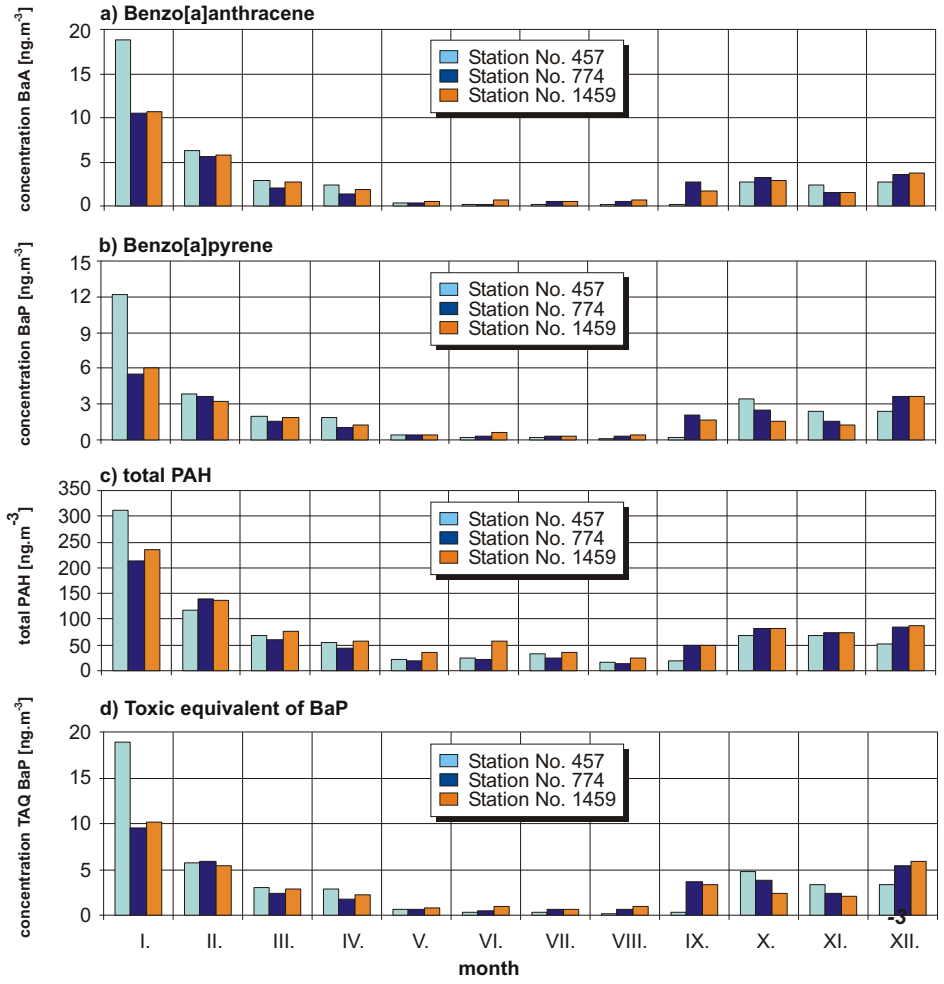
Source: SZÚ

Fig. C2.2 Airborne polyaromatic hydrocarbons, Station at SZÚ in Prague 10, No. 457, 2006



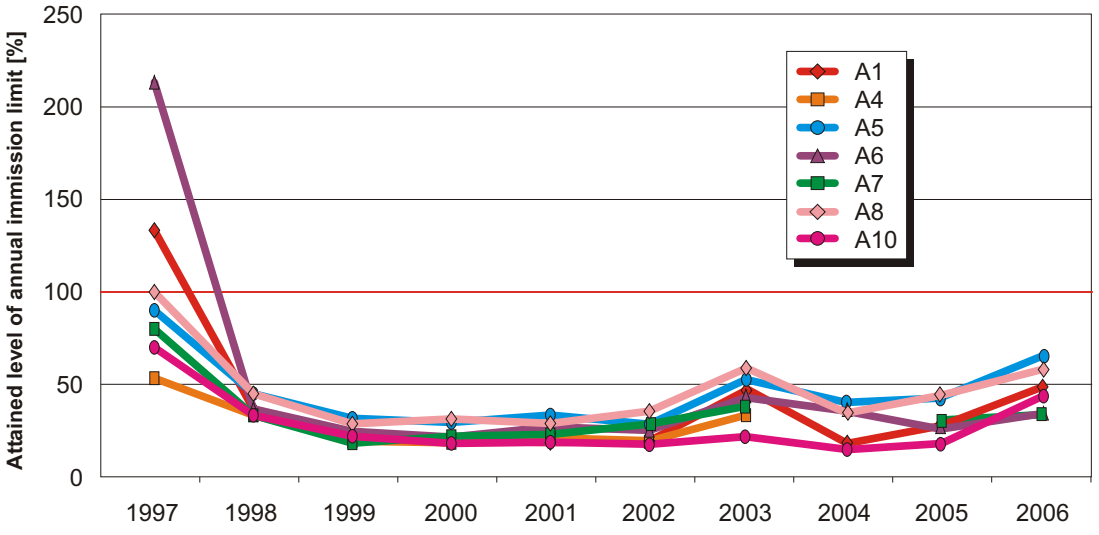
Source: SZÚ

Fig. C2.3 Airborne polyaromatic hydrocarbons, Station at SZÚ in Prague 10, 2006



Source: SZÚ

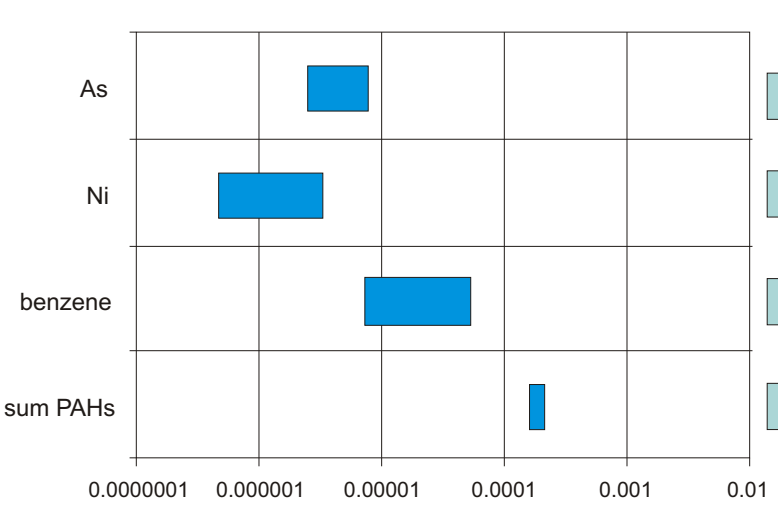
Fig. C2.4 Concidence with the yearly target immission limit (0.006 μg.m^{-3}) for arsenic in 1997–2006



Note: By the original City Districts of Prague 1–Prague 10

Source: SZÚ

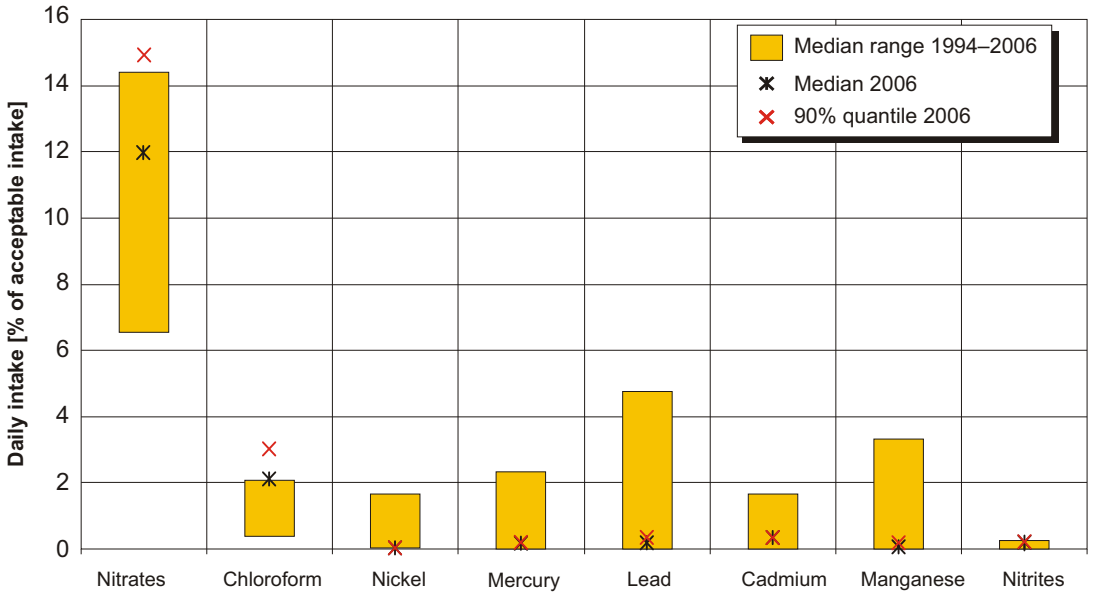
Fig. C2.5 Comparison of potential health effects estimates of health risks caused by exposure to As, Ni, BaP and benzene from ambient air in Prague, 2006



	arithmetic average CR	background CR
As	4.37E-06	1.88E-06
Ni	1.36E-06	2.33E-07
benzene	2.50E-05	–
sum PAHs	1.79E-04	7.51E-05

Source: SZÚ

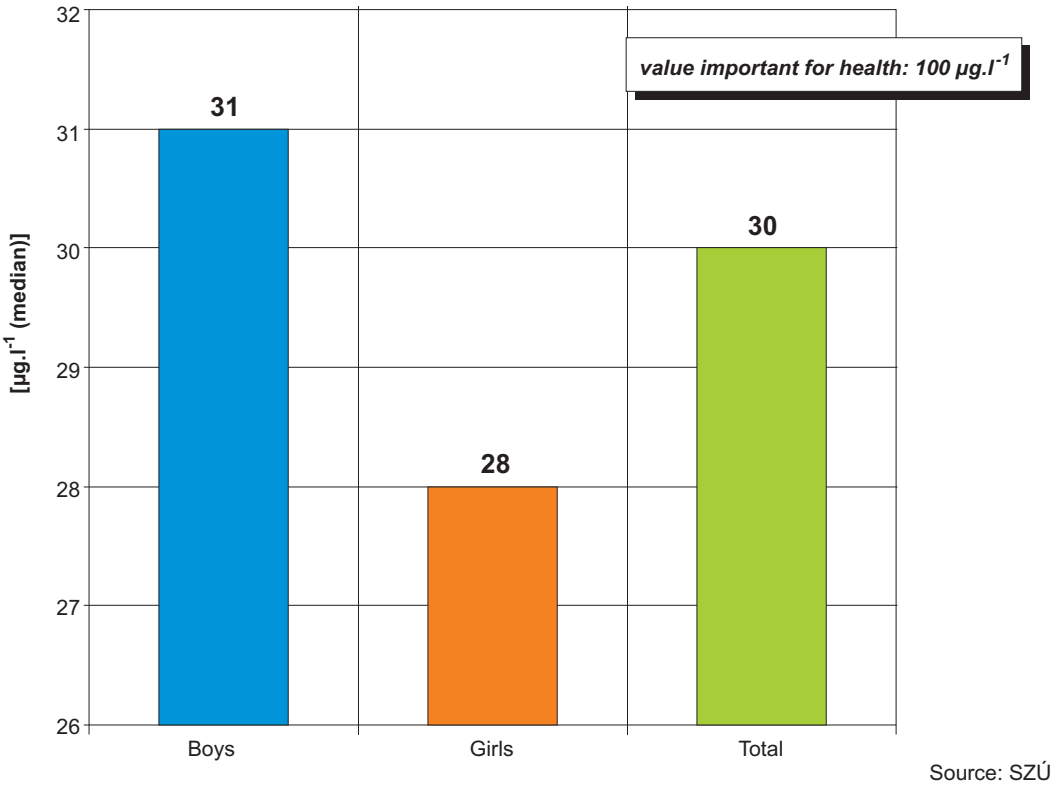
Fig. C2.6 Prague's population exposure to selected contaminants in drinking water, 2006



Note: At daily intake of 1 litre of drinking water from the public water mains.

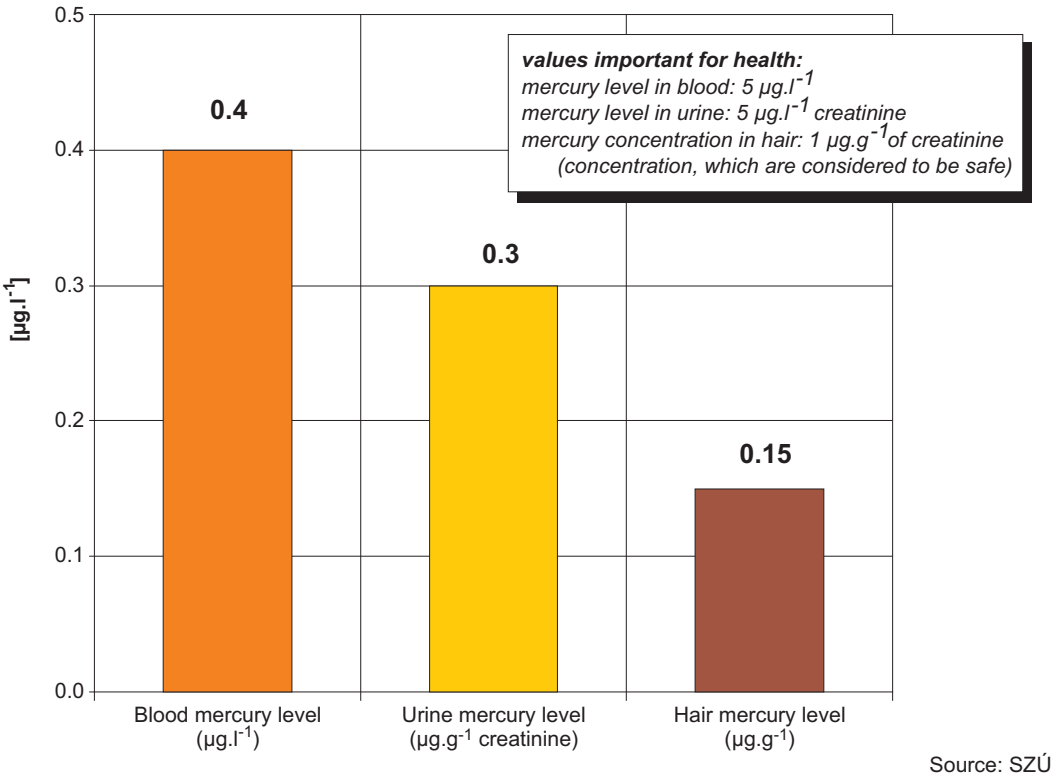
Source: SZÚ

Fig. C2.7 Blood lead levels in children, Prague, 2006



Source: SZÚ

Fig. C2.8 Blood, urine and hair mercury levels in children, Prague, 2006



Source: SZÚ