6. Summary results

The five environmental exposures and their outcomes, as well as the attributable fractions and burden of disease estimates, are summarized by WHO European subregion and age group in Tables 6.1–6.5. Based on the results of our estimates, approximately 100 000 deaths and 6 million DALYs[1] in the European Region are attributable to the five main environmental risk factors in children. Among children 0–4 years of age, the five risks contributed to 21.9–26.5% of all deaths and to 19.8% of all DALYs. Among those 5–14 years of age, the risk factors contributed to 42.1% of all deaths and to 30.8% of all DALYs. In the 15–19 year age group, they were responsible for 59.9% of all deaths and for 27.1% of all DALYs. The risk factors for the European Region are broken down by age group in Figures 6.1–6.6.

[1] The total estimate does not include the burden of DALYs due to outdoor air pollution, which was not estimated.

Table 6.1 Burden of disease for outdoor air pollution in children 0–4 years old, by EUR subregion

Subregion	Age group (years)	Outcome	Exposure (%)		Attributable fraction[a] (%)	Attributable deaths		
						Lower estimate	Central estimate	Upper estimate
EUR A	0–4	Deaths from all causes	PM10 (μg/m^3)	24.84[b]	0.8	37	178	321
				35.96[c]	2.6	120	582	1 040
EUR B				67.01[b]	7.5	2 241	10 617	18 602
				53.86[c]	5.5	1 619	7 730	13 660
EUR C				55.67[b]	5.7	629	3 001	5 298
				61.00[c]	6.6	723	3 435	6 042
EUR A	0–4	Deaths from ARI[d]	PM10 (μg/m^3)	24.84[b]	0.8	3	1	6
				35.96[c]	2.6	11	2	20
EUR B				67.01[b]	7.5	3 387	715	5 934
				53.86[c]	5.5	2 466	516	4 358
EUR C				55.67[b]	5.7	471	99	831
				61.00[c]	6.6	539	113	948

[a] Defined as the proportion of the outcome attributable to the exposure, using 20 μg/m^{3}as the target PM10 concentration. Only the central estimate is reported.
[b] PM10 estimates from World Bank
[c] PM10 estimates from epidemiological studies
[d] Acute respiratory infections.

Table 6.2 Burden of disease for indoor air pollution in children 0–14 years old, by EUR subregion

Subregion	Age group (years)	Outcome	Exposure (%)		Attributable fraction[a] (%)	Attributable deaths			Attributable DALYs		
						Lower estimate	Central estimate	Upper estimate	Lower estimate	Central estimate	Upper estimate
EUR A	0–4	Acute lower respiratory infections	Population exposed to smoke from solid fuels	0	0	0	0	0	0	0	0
EUR B				20.5	21.0	6 876	9 289	11 409	237 973	321 483	394 837
EUR C				6.4	8.0	394	556	710	13 710	19 335	24 700
EUR A	5–14	Asthma	Population exposed to smoke from solid fuels	0	0	0	0	0	0	0	0
EUR B				20.5	11.0	0	8	16	0	10 164	21 824
EUR C				6.4	4.0	0	1	2	0	1 634	3 870

[a] Defined as the proportion of the outcome attributable to the exposure. Only the central estimate is reported.

Table 6.3 Burden of disease for water, sanitation, and hygiene in children 0–14 years old, by EUR subregion

Subregion	Age group (years)	Outcome	Exposure		Attributable fraction[a] (%)	Attributable deaths			Attributable DALYs		
						Lower estimate	Central estimate	Upper estimate	Lower estimate	Central estimate	Upper estimate
EUR A	0–4	Diarrhoeal disease	% of population in scenarios I–VI[b]	100% in II	60.0	-	60	-	-	20 768	-
EUR B				12% in VI 1% in Vb 8% in Va 79% in IV	87.0	10 201	11 681	12 618	371 828	425 645	459 892
EUR C				1% in VI 5% in Va 94% in IV	86.0	1 322	1 537	1 680	59 918	69 635	76 113
EUR A	5–14	Diarrhoeal disease	% of population in scenarios I–VI	100% in II	60.0	-	3	-	-	5 178	-
EUR B				12% in VI 1% in Vb 8% in Va 79% in IV	87.0	197	172	213	18 449	21 119	22 818
EUR C				1% in VI 5% in Va 94% in IV	86.0	61	71	78	6 536	7 596	8 303

[a] Defined as the proportion of the outcome attributable to the exposure. Only the central estimate is reported.
[b] See Annex 4 for a definition of the scenarios.

Table 6.4 Burden of disease for lead in children 0–4 years old, by EUR subregion[a]

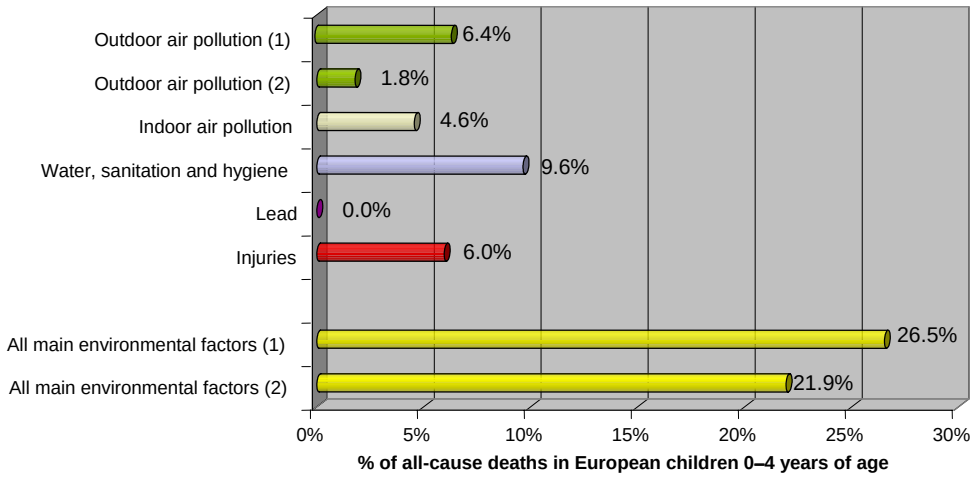
Subregion	Age group (years)	Outcome	Exposure[b]		Attributable DALYs: Lower estimate	Central estimate	Upper estimate
EUR A	0–4	Mild mental retardation	BLL[c] (µg/dl)	2.9 (1.5)	1 177	14 092	36 640
EUR B				3.9 (1.6)	25 076	54 711	79 788
EUR C				4.3 (2.4)	87 816	87 816	152 599

[a] The attributable fraction was not calculated because a direct method was used to calculate the burden of disease.
[b] Mean (standard deviation).
[c] BLL = Blood lead levels.

Table 6.5 Burden of disease for all injuries in children 0–19 years old, by EUR subregion

Subregion	Age group (years)	Deaths from injury	DALYs from injury
EUR A	0–4	1 591	128 705
EUR B		5 524	368 149
EUR C		5 759	308 566
EUR A	5–14	2 366	298 916
EUR B		5 087	639 858
EUR C		8 125	732 282
EUR A	15–19	9 492	467 325
EUR B		8 322	520 031
EUR C		28 892	1 329 725

Figure 6.1 Proportion of all-cause deaths attributable to environmental factors among European children 0–4 years of age



(1) Applying relative risk to all-cause deaths for outdoor air pollution.
(2) Applying relative risk t respiratory infections for outdoor air pollution.

Figure 6.2 Proportion of all-cause deaths attributable to environmental factors among European children 5–14 years of age

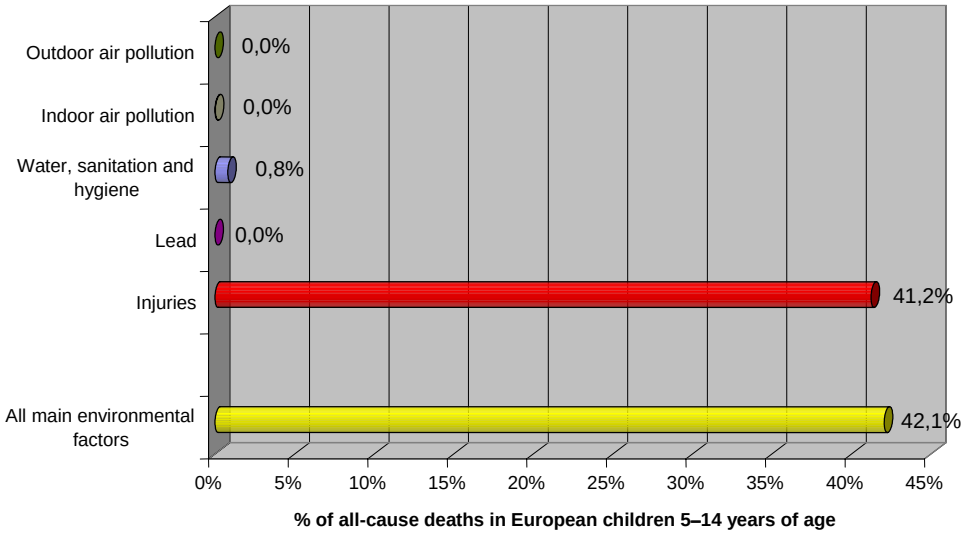


Figure 6.3 Proportion of all-cause deaths attributable to environmental factors among European children 15–19 years of age

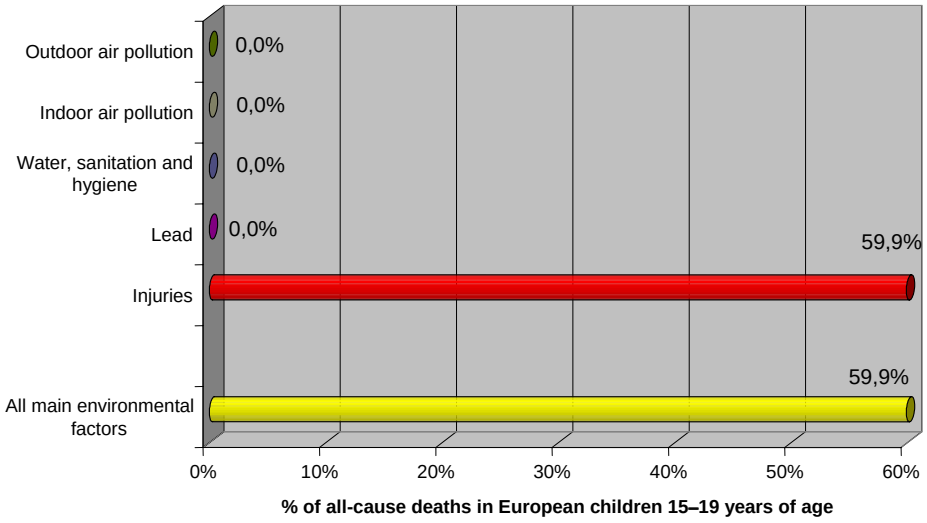


Figure 6.4 Proportion of all-cause DALYs attributable to environmental factors among European children 0–4 years of age

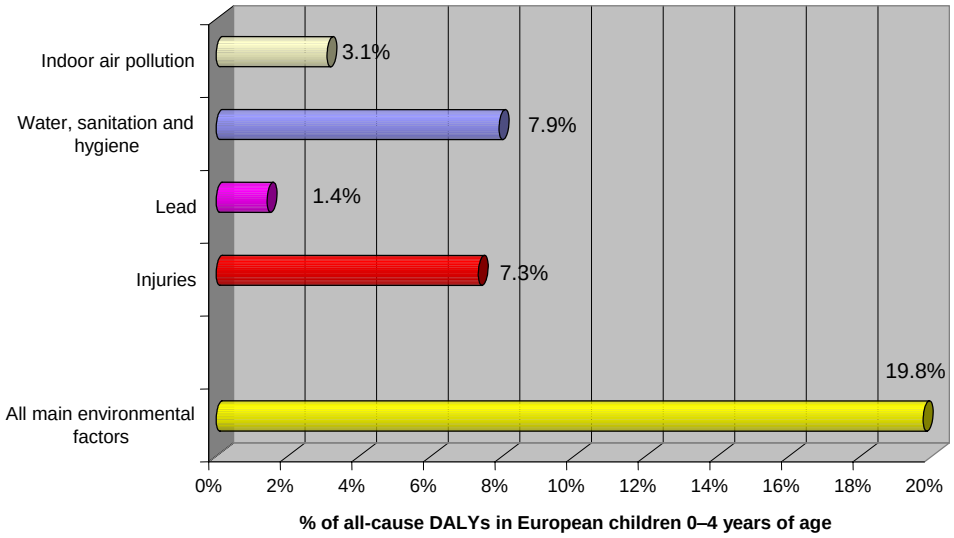


Figure 6.5 Proportion of all-cause DALYs attributable to environmental factors among European children 5–14 years of age

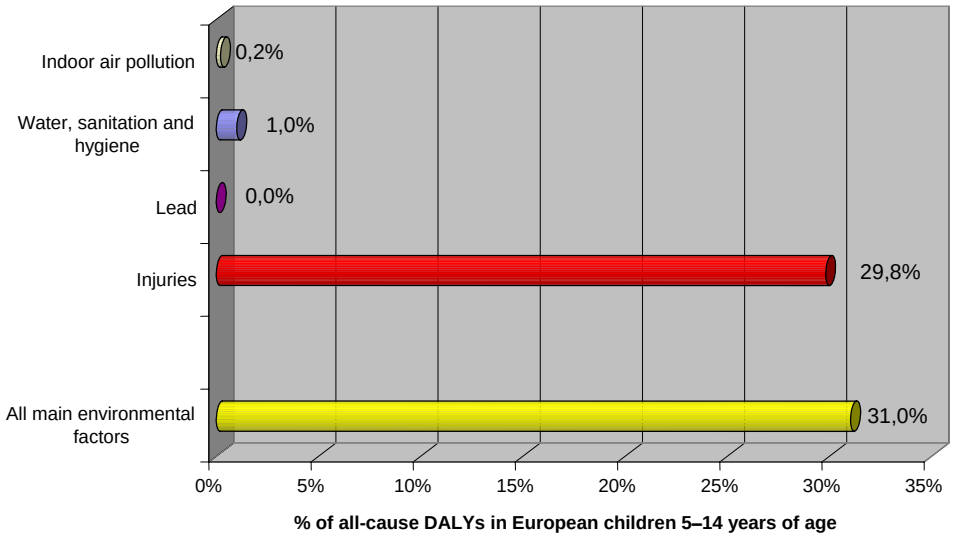
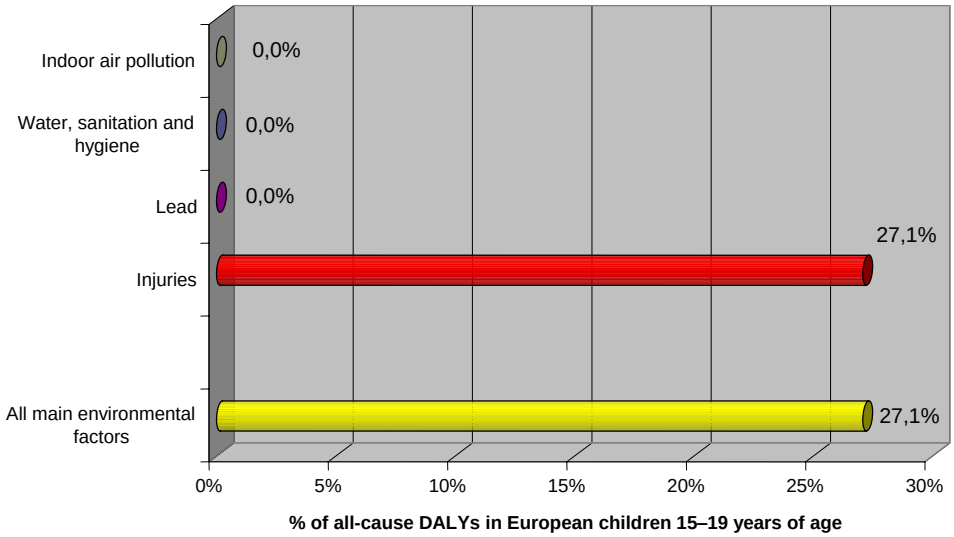


Figure 6.6 Proportion of all-cause DALYs attributable to environmental factors among European children 15–19 years of age



Tables 6.6–6.11 show the deaths and DALYs per 10 000 children that are attributable to the main environmental risk factors, by age group and European subregion. In all subregions, injuries account for the greatest number of deaths and DALYs per 10 000 children for children in the 5–14 and 15–19 year age groups. In contrast, the greatest difference between subregions is in the disease burden for children 0–4 years of age, where factors other than injury are significant. In EUR B, in particular, water, sanitation and hygiene appears to be the most important problem for children 0–4 years old.

Table 6.6 Deaths per 10 000 children 0–4 years of age attributable to five environmental risk factors, for 2001

Risk factor	EUR A	EUR B	EUR C	Totals
Outdoor Air Pollution[a]	0.08	5.91	2.64	2.68
Outdoor Air Pollution[b]	0	1.88	0.42	0.74
Indoor Air Pollution	0	5.17	0.49	1.91
Water Sanitation and Hygiene	0.03	9.79	2.72	4.02
Lead[c]	0	0	0	0
Injuries	0.72	3.07	5.07	2.50
Totals[a]	0.82	23.94	10.93	11.11
Totals[b]	0.74	19.98	8.70	9.20

[a] Considering all-cause deaths as the outcome for outdoor air pollution.
[b] Considering deaths from acute lower respiratory infection as the outcome for outdoor air pollution.
[c] Deaths attributable to lead were not estimated.

Table 6.7 Deaths per 10 000 children 5–14 years of age attributable to five environmental risk factors, for 2001

Risk factor	EUR A	EUR B	EUR C	Totals
Outdoor Air Pollution	0	0	0	0
Indoor Air Pollution	0	0	0	0
Water Sanitation and Hygiene	0	0.04	0.04	0.02
Lead[a]	0	0	0	0
Injuries	0.50	1.24	2.39	1.27
Totals	0.50	1.28	2.43	1.29

[a] Deaths attributable to lead were not estimated.

Table 6.8 Deaths per 10 000 children 15–19 years of age attributable to five environmental risk factors, for 2001

Risk factor	EUR A	EUR B	EUR C	Totals
Outdoor Air Pollution	0	0	0	0
Indoor Air Pollution	0	0	0	0
Water Sanitation and Hygiene	0	0	0	0
Lead[a]	0	0	0	0
Injuries	3.78	4.08	14.80	7.19
Totals	3.78	4.08	14.80	7.19

[a] Deaths attributable to lead were not estimated.

Table 6.9 DALYs per 10 000 children 0–4 years of age attributable to four[a] environmental risk factors, for 2001

Risk factor	EUR A	EUR B	EUR C	Totals
Indoor Air Pollution	0	178.90	17.04	66.16
Water Sanitation and Hygiene	10.58	386.09	134.03	168.70
Lead	6.34	30.45	77.38	30.39
Injuries	57.93	204.87	271.91	156.28
Totals	74.85	800.30	500.30	421.50

[a] DALYs attributable to outdoor air pollution were not calculated.

Table 6.10 DALYs per 10 000 children 5–14 years of age attributable to four[a] environmental risk factors, 2001.

Risk factor	EUR A	EUR B	EUR C	Totals
Indoor Air Pollution	0	2.47	0.48	0.96
Water Sanitation and Hygiene	1.28	6.77	6.60	4.59
Lead	0	0	0	0
Injuries	62.68	155.64	215.63	136.10
Totals	63.95	164.89	222.63	141.66

[a] DALYs attributable to outdoor air pollution were not calculated.

Table 6.11 DALYs per 10 000 children 15–19 years of age attributable to four[a] environmental risk factors, for 2001

Risk factor	EUR A	EUR B	EUR C	Totals
Indoor Air Pollution	0	0	0	0
Water Sanitation and Hygiene	0	0	0	0
Lead	0	0	0	0
Injuries	186.31	255.09	681.04	356.51
Totals	186.31	255.09	681.04	356.51

[a] DALYs attributable to outdoor air pollution were not calculated.