

Estimated deaths attributable to water, sanitation and hygiene ('000), by disease and region, 2004

DISEASE OR INJURY	DEATHS							
	AFRO							
	737,536		Afr D 344,816		Afr E 392,720		LMIC 737,536	
	('000)	(%)	('000)	(%)	('000)	(%)	('000)	(%)
Population ('000)	737,536		344,816		392,720		737,536	
Total deaths	11,248		5,087		6,161		11,022	
Total WSH-related	1,631		852		780		1,631	
% of total deaths	15%		17%		13%		15%	
Diarrhoeal diseases ^a	895	55%	461	54%	434	56%	895	55%
Intestinal nematode infections ^b	0.4	0.0%	0.3	0%	0.1	0%	0.4	0%
Protein-energy malnutrition ^{a,c}	38	2%	15	1.7%	23	3%	38	2%
Consequences of malnutrition ^{a,c}	213	13%	114	13%	99	13%	213	13%
Trachoma ^b	-	-	-	-	-	-	-	0%
Schistosomiasis ^b	36	2%	19	2%	17	2%	36	2%
Lymphatic filariasis ^b	0.0	0%	0.0	0%	-	-	0.0	0%
Subtotal water supply, sanitation and hygiene	1,183	73%	609	72%	574	74%	1,183	73%
Malaria ^c	335	21%	191	22%	145	19%	335	21%
Dengue ^c	0.2	0%	0.0	0%	0.2	0%	0.2	0%
Onchocerciasis ^c	0.0	0%	0	0%	0	0%	0	0%
Japanese encephalitis ^c	-	-	-	-	-	-	-	-
Subtotal water resources management	336	21%	191	22%	145	19%	336	21%
Drownings ^c	46	3%	20	2%	26	3%	46	3%
Subtotal safety of water environments	46	3%	20	2%	26	3%	46	3%
Other infectious diseases ^{c,d}	67	4%	32	4%	36	5%	67	4%

a Data further validated by Comparative Risk Assessment methods (4)

b Comparative Quantification of Health Risks (4)

c Data based on literature review and expert opinion (1,9); not a formal WHO estimate

d Not attributable to one disease group alone; approximate estimate based on limited evidence

DALYs are a weighted measure of deaths and disability

LMIC: Low and middle income countries; HIC: high income countries; same grouping as in Global Burden of disease: 2004 update report

Estimated deaths attributable to water, sanitation and hygiene ('000), by disease and region, 2004

DISEASE OR INJURY	DEATHS											
	AMRO											
	Population ('000)		Amr A		AmrB		AmrD		HIC		LMIC	
	('000)	(%)	('000)	(%)	('000)	(%)	('000)	(%)	('000)	(%)	('000)	(%)
Total deaths	6,158		2,775		2,856		528		2,695		3,464	
Total WSH-related	108		13		67		28		12		95	
% of total deaths	2%		0%		2%		5%		0%		3%	
Diarrhoeal diseases ^a	59	55%	3.3	26%	38.4	57%	18	62%	3	25%	56	84%
Intestinal nematode infections ^b	1	1%	0	0%	0	0%	1	3%	0	0%	1	2%
Protein-energy malnutrition ^{a,c}	8	7%	0	0%	5	8%	3	9%	0	0%	8	12%
Consequences of malnutrition ^{a,c}	2	2%	0	0%	0.7	1%	1	3%	-	-	2	2%
Trachoma ^b	0.0	0%	-	-	0.0	0%	-	-	-	-	0	0%
Schistosomiasis ^b	1	1%	0	0%	0.8	1%	0	0%	0	0%	1	1%
Lymphatic filariasis ^b	0.0	0%	-	-	0.0	0%	-	-	-	-	0	0%
Subtotal water supply, sanitation and hygiene	71	66%	3	26%	45	68%	22	78%	3	25%	68	101%
Malaria ^c	1	1%	0	0%	1	1%	0	1%	0	0%	1	2%
Dengue ^c	2	2%	-	-	1	1%	1	3%	-	-	2	3%
Onchocerciasis ^c	0.0	0%	-	-	0	0%	-	-	-	-	0	0%
Japanese encephalitis ^c	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal water resources management	3	3%	0	0%	2	3%	1	5%	0	0%	3	0
Drownings ^c	16	14%	2	17%	11	17%	2	7%	2	16%	14	20%
Subtotal safety of water environments	16	14%	2	17%	11	17%	2	7%	2	16%	14	20%
Other infectious diseases ^{c,d}	18	17%	7	57%	8	12%	3	10%	7	58%	11	17%

a Data further validated by Comparative Risk Assessment methods (4)

b Comparative Quantification of Health Risks (4)

c Data based on literature review and expert opinion (1,9); not a formal WHO estimate

d Not attributable to one disease group alone; approximate estimate based on limited evidence

DALYs are a weighted measure of deaths and disability

LMIC: Low and middle income countries; HIC: high income countries; same groupings as in Global Burden of disease: 2004 update report

Estimated deaths attributable to water, sanitation and hygiene ('000), by disease and region, 2004

DISEASE OR INJURY	DEATHS									
	EMRO									
	Population ('000)		EmrB		EmrD		HIC		LMIC	
	('000)	(%)	('000)	(%)	('000)	(%)	('000)	(%)	('000)	(%)
Population ('000)	519,688		145,753		373,934		31,086		488,602	
Total deaths	4,306		706		3,600		113		4,194	
Total WSH-related	363		19		345		4		360	
% of total deaths	8%		3%		10%		3%		9%	
Diarrhoeal diseases ^a	224	62%	11	57%	214	62%	2	44%	222	62%
Intestinal nematode infections ^b	1	0%	0	0%	1	0%	0	0%	1	0%
Protein-energy malnutrition ^{a,c}	10	3%	1	6%	9	2%	-	-	10	3%
Consequences of malnutrition ^{a,c}	69	19%	1	4%	68	20%	0	3%	69	19%
Trachoma ^b	0.0	0%	-	-	0	0%	-	-	0	0%
Schistosomiasis ^b	4	1%	1	6%	3	1%	0	6%	3	1%
Lymphatic filariasis ^b	0.0	0%	0	0%	0	0%	-	-	0	0%
Subtotal water supply, sanitation and hygiene	307	85%	14	73%	294	85%	2	54%	305	85%
Malaria ^c	14	4%	0	0%	14	4%	0	0%	14	4%
Dengue ^c	1	0%	0	1%	1	0%	0	4%	1	0%
Onchocerciasis ^c	-	-	-	-	-	-	-	-	-	-
Japanese encephalitis ^c	0.0	0%	-	-	0	0%	-	-	0	0%
Subtotal water resources management	15	4%	0	1%	14	4%	0	4%	14	4%
Drownings ^c	22	6%	3	19%	18	5%	1	34%	20	6%
Subtotal safety of water environments	22	6%	3	19%	18	5%	1	34%	20	6%
Other infectious diseases ^{c,d}	20	5%	1	7%	18	5%	0	8%	19	5%

a Data further validated by Comparative Risk Assessment methods (4)

b Comparative Quantification of Health Risks (4)

c Data based on literature review and expert opinion (1,9); not a formal WHO estimate

d Not attributable to one disease group alone; approximate estimate based on limited evidence

DALYs are a weighted measure of deaths and disability

LMIC: Low and middle income countries; HIC: high income countries; same groupings as in Global Burden of disease: 2004 update report

Estimated deaths attributable to water, sanitation and hygiene ('000), by disease and region, 2004

DISEASE OR INJURY	DEATHS											
	EURO											
	883,311		Eur A 422,026		Eur B 223,210		Eur C 238,074		HIC 417,486		LMIC 465,824	
	('000)	(%)	('000)	(%)	('000)	(%)	('000)	(%)	('000)	(%)	('000)	(%)
Total deaths	9,493		3,968		1,897		3,628		3,916		5,577	
Total WSH-related	68		8		38		22		8		61	
% of total deaths	1%		0%		2%		1%		0.2%		1%	
Diarrhoeal diseases ^a	30	44%	0	1%	26	69%	4	17%	0	1%	30	50%
Intestinal nematode infections ^b	0.0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
Protein-energy malnutrition ^{a,c}	0.2	0%	0.0	0%	0.1	0%	0.0	0%	0.0	0%	0.2	0%
Consequences of malnutrition ^{a,c}	6	8%	-	-	5	13%	0.8	3.6%	-	-	6	10%
Trachoma ^b	-	-	-	-	-	-	-	-	-	-	-	-
Schistosomiasis ^b	0.0	0%	0	0%	0	0%	-	-	0	0%	0	0%
Lymphatic filariasis ^b	0.0	0%	-	-	0	0%	-	-	-	-	0	0%
Subtotal water supply, sanitation and hygiene	36	53%	0	2%	31	82%	5	21%	0	1%	36	60%
Malaria ^c	0.0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
Dengue ^c	-	-	-	-	-	-	-	-	-	-	-	-
Onchocerciasis ^c	-	-	-	-	-	-	-	-	-	-	-	-
Japanese encephalitis ^c	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal water resources management	0.0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
Drownings ^c	24	35%	2	31%	5	13%	17	76%	2	30%	22	36%
Subtotal safety of water environments	24	35%	2	31%	5	13%	17	76%	2	30%	22	36%
Other infectious diseases ^{c,d}	8	12%	5	67%	2	5%	1	4%	5	68%	3	4%

a Data further validated by Comparative Risk Assessment methods (4)

b Comparative Quantification of Health Risks (4)

c Data based on literature review and expert opinion (1,9); not a formal WHO estimate

d Not attributable to one disease group alone; approximate estimate based on limited evidence

DALYs are a weighted measure of deaths and disability

LMIC: Low and middle income countries; HIC: high income countries; same groupings as in Global Burden of disease: 2004 update report

Estimated deaths attributable to water, sanitation and hygiene ('000), by disease and region, 2004

DISEASE OR INJURY	DEATHS							
	SEARO							
	1,671,904		Sear B 304,830		Sear D 1,367,074		LMIC 1,671,904	
	('000)	(%)	('000)	(%)	('000)	(%)	('000)	(%)
Population ('000)	1,671,904		304,830		1,367,074		1,671,904	
Total deaths	15,279		2,741		12,539		15,279	
Total WSH-related	994		77		917		994	
% of total deaths	7%		3%		7%		7%	
Diarrhoeal diseases ^a	599	60%	41	53%	558	61%	599	60%
Intestinal nematode infections ^b	3	0%	0	0.1%	3	0.3%	3	0%
Protein-energy malnutrition ^{a,c}	7	1%	1	1%	6	1%	7	1%
Consequences of malnutrition ^{a,c}	171	17%	6	8%	165	18%	171	17%
Trachoma ^b	0.1	0%	-	-	0.1	0%	0.1	0%
Schistosomiasis ^b	0.0	0%	0	0%	-	-	0	0%
Lymphatic filariasis ^b	0.1	0%	0	0%	0.1	0%	0.1	0%
Subtotal water supply, sanitation and hygiene	780	78%	48	62%	733	80%	780	78%
Malaria ^c	15	2%	2	2%	14	1%	15	2%
Dengue ^c	10	1%	2	3%	8	1%	10	1%
Onchocerciasis ^c	-	-	-	-	-	-	-	-
Japanese encephalitis ^c	8	1%	1	1%	7	1%	8	1%
Subtotal water resources management	33	3%	5	6%	28	3%	33	3%
Drownings ^c	73	7%	11	14%	62	7%	73	7%
Subtotal safety of water environments	73	7%	11	14%	62	7%	73	7%
Other infectious diseases ^{c,d}	107	11%	14	18%	94	10%	107	11%

a Data further validated by Comparative Risk Assessment methods (4)

b Comparative Quantification of Health Risks (4)

c Data based on literature review and expert opinion (1,9); not a formal WHO estimate

d Not attributable to one disease group alone; approximate estimate based on limited evidence

DALYs are a weighted measure of deaths and disability

LMIC: Low and middle income countries; HIC: high income countries; same groupings as in Global Burden of disease: 2004 update report

Estimated deaths attributable to water, sanitation and hygiene ('000), by disease and region, 2004

DISEASE OR INJURY	DEATHS										Total	
	WPRO										All regions	
	1,738,457		Wpr A 156,569		Wpr B 1,581,888		HIC 204,253		LMIC 1,534,204		6,425,275	
	('000)	(%)	('000)	(%)	('000)	(%)	('000)	(%)	('000)	(%)	('000)	(%)
Total deaths	12,191		1,196		10,995		1,478		10,714		58,676	
Total WSH-related	244		5		239		7		237		3,409	
% of total deaths	2%		0.5%		2%		0.4%		2%		5.8%	
Diarrhoeal diseases ^a	94	39%	0	1%	94	39%	0	2%	94	40%	1,902	56%
Intestinal nematode infections ^b	1	0%	0	0%	1	0%	0	0%	1	0%	6	0%
Protein-energy malnutrition ^{a,c}	3	1%	0	0%	3	1%	0	0%	3	1%	66	2%
Consequences of malnutrition ^{a,c}	11	5%	0	0%	11	5%	0	0%	11	5%	472	14%
Trachoma ^b	0.0	0%	-	-	0	0%	-	-	0	0%	0.1	0%
Schistosomiasis ^b	0.5	0%	0.0	0%	0.5	0%	0.0	0%	0.5	0%	41	1%
Lymphatic filariasis ^b	0.0	0%	-	-	0	0%	-	-	0	0%	0.2	0%
Subtotal water supply, sanitation and hygiene	110	45%	0	1%	110	46%	0	2%	110	46%	2,487	73%
Malaria ^c	2	1%	0	0%	2	1%	0	0%	2	1%	368	11%
Dengue ^c	4	2%	-	-	4	2%	-	-	4	2%	17	1%
Onchocerciasis ^c	-	-	-	-	-	-	-	-	-	-	0	0%
Japanese encephalitis ^c	3	1%	-	-	3	1%	-	-	3	1%	10	0%
Subtotal water resources management	9	4%	0	0%	9	4%	0	0%	9	4%	396	12%
Drownings ^c	101	41%	3	61%	97	41%	4	62%	96	41%	281	8%
Subtotal safety of water environments	101	41%	3	61%	97	41%	4	62%	96	41%	281	8%
Other infectious diseases ^{c,d}	25	10%	2	38%	23	10%	2	36%	22	9%	245	7%

a Data further validated by Comparative Risk Assessment methods (4)

b Comparative Quantification of Health Risks (4)

c Data based on literature review and expert opinion (1,9); not a formal WHO estimate

d Not attributable to one disease group alone; approximate estimate based on limited evidence

DALYs are a weighted measure of deaths and disability

LMIC: Low and middle income countries; HIC: high income countries; same groupings as in Global Burden of disease: 2004 update report