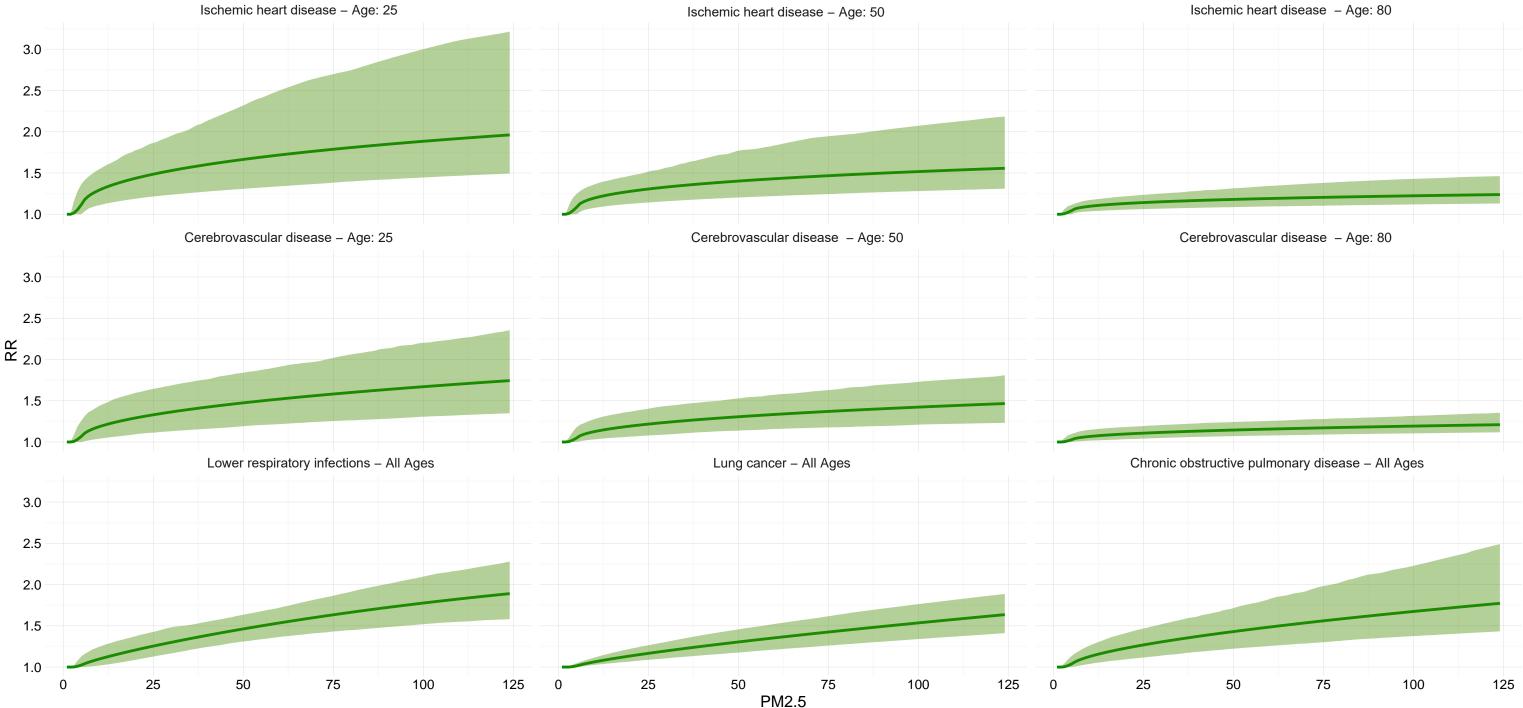
Figure 1. Integrated Exposure Response (IER) functions for ischemic heart disease, cerebrovascular disease, lower respiratory infections, lung cancer and chronic obstructive pulmonary disease. Curves depict the central estimate of the IER (solid line) and their uncertainty (shaded area). Note the RR=1 for PM2.5 concentrations from 0 to 2.4 µg/m3 (lower bound of the TMREL uncertainty distribution). Additional details in Appendix.



			and the second	

Figure 2. Global and country-specific trends in population-weighted PM2.5 levels (95% UI) for the world's ten most populous countries from 1990-2015.

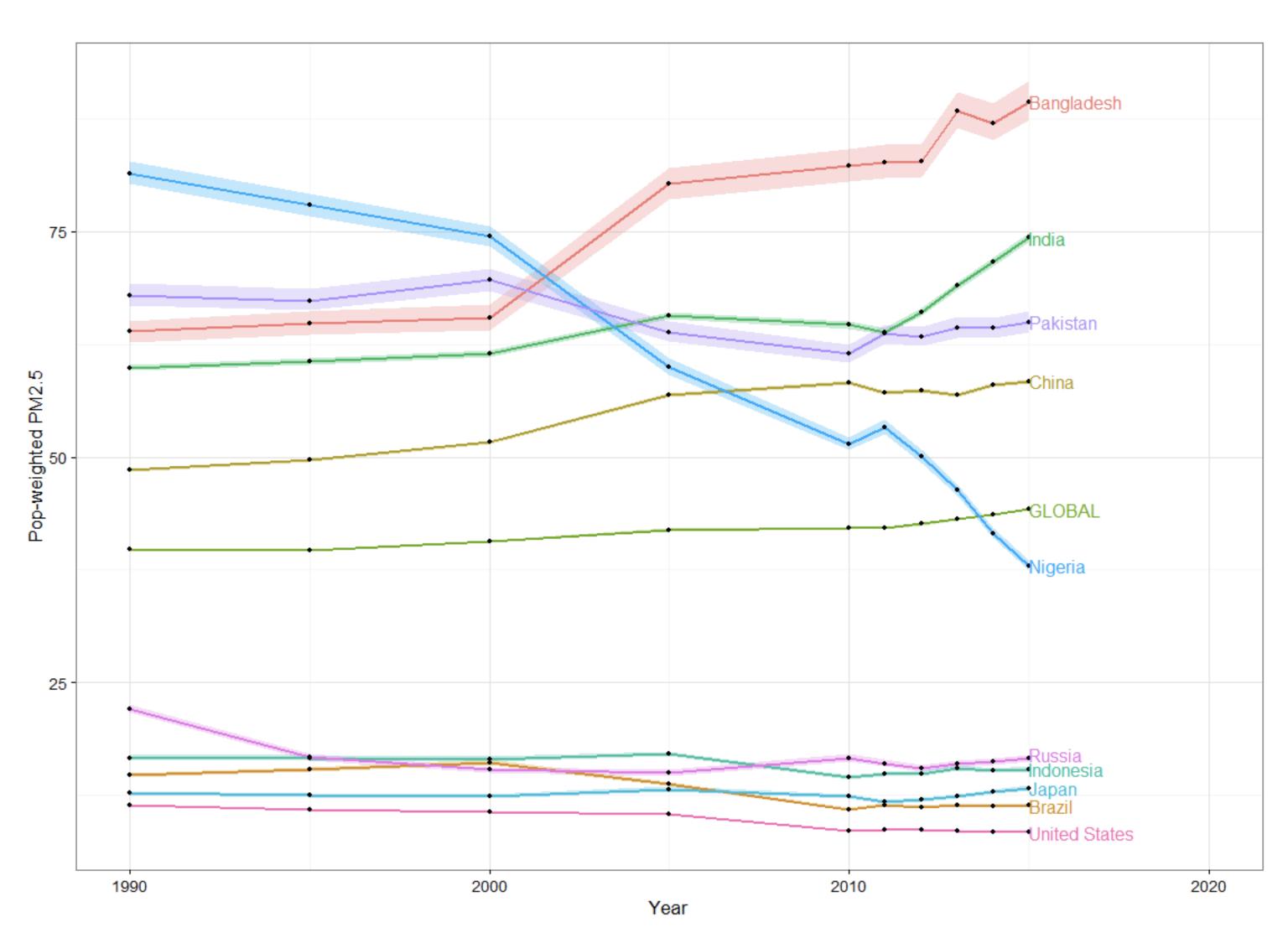


Figure 3. Leading level 3 global risk factors for deaths (A) and DALYs (b) for both sexes combined, 1990 and 2015. Risks are connected by arrows between time periods. Behavioral risk factors are shown in purple, environmental risks in green, and

metabolic risks in orange. DALYs=disability-adjusted life-years.

## (A) Deaths

Both se 1990 rank	Global exes, All ages,	Deaths 2015 rank	
1 High systolic blood pressure		1 High systolic blood pressure	Metabolic risks
2 Smoking		2 Smoking	Environmental/occupational risks
3 Childhood undernutrition		3 High fasting plasma glucose	Behavioral risks
4 Ambient particulate matter pollution	H	4 High total cholesterol	-
5 Household air pollution from solid fuels		5 Ambient particulate matter pollution	
6 High total cholesterol	X	6 Diet high in sodium	
7 High fasting plasma glucose	11	7 High body-mass index	
8 Diet high in sodium		8 Diet low in whole grains	
9 High body-mass index		9 Diet low in fruits	
10 Unsafe water source		10 Household air pollution from solid fuels	
11 Diet low in whole grains		11 Low glomerular filtration rate	
12 Diet low in fruits		12 Alcohol use	
13 Alcohol use	X	13 Diet low in nuts and seeds	
14 Unsafe sanitation		14 Diet low in vegetables	
15 No handwashing with soap		15 Low physical activity	
16 Diet low in vegetables		16 Diet low in seafood omega-3 fatty acids	5
17 Low glomerular filtration rate		17 Unsafe sex	
18 Diet low in nuts and seeds		18 Childhood undernutrition	
19 Suboptimal breastfeeding		19 Unsafe water source	
20 Low physical activity		20 No handwashing with soap	
21 Diet low in seafood omega-3 fatty acid	i X	21 Secondhand smoke	
22 Secondhand smoke		22 Unsafe sanitation	
23 Unsafe sex		23 Diet high in processed meat	
24 Vitamin A deficiency		24 Lead exposure	
25 Diet high in processed meat		28 Suboptimal breastfeeding	
26 Lead exposure		40 Vitamin A deficiency	

# (B) DALYs

## Global Both sexes, All ages, DALYs

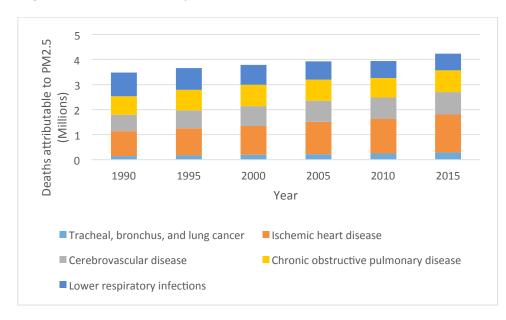
1990 rank

## 2015 rank

1 Childhood undernutrition		1 High s
2 Unsafe water source		2 Smokir
3 High systolic blood pressure		3 High fa
4 Household air pollution from solid fuels		4 High b
5 Smoking		5 Childho
6 Ambient particulate matter pollution		6 Ambie
7 Unsafe sanitation	X X/	7 High to
8 Suboptimal breastfeeding		8 House
9 No handwashing with soap		9 Alcoho
10 High fasting plasma glucose		10 Diet k
11 Alcohol use		11 Diet l
12 High total cholesterol		12 Unsat
13 High body-mass index		13 Diet l
14 Diet high in sodium		14 Unsa
15 Diet low in whole grains	K X	15 Low g
16 Diet low in fruits		16 Iron c
17 Iron deficiency		17 Diet l
18 Secondhand smoke		18 No ha
19 Vitamin A deficiency		19 Unsat
20 Unsafe sex		20 Diet l
21 Low glomerular filtration rate		21 Low p
22 Diet low in vegetables		22 Subo
23 Diet low in nuts and seeds		23 Diet l
24 Low physical activity		24 Drug
25 Diet low in seafood omega-3 fatty acid	s ', ',	25 Secor
27 Drug use	`.	39 Vitam
	1	

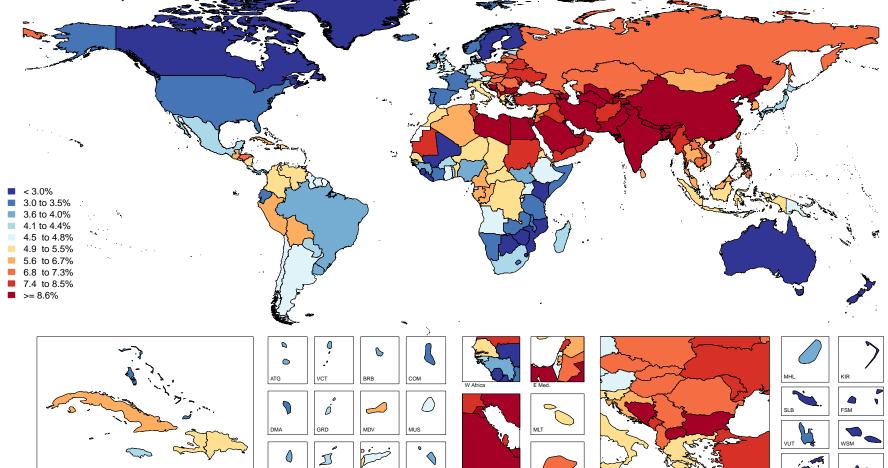
_	1 High systolic blood pressure
/	2 Smoking
/	3 High fasting plasma glucose
/	4 High body-mass index
4	5 Childhood undernutrition
	6 Ambient particulate matter pollution
/	7 High total cholesterol
1	8 Household air pollution from solid fuels
/	9 Alcohol use
/	10 Diet high in sodium
/	11 Diet low in whole grains
/	12 Unsafe sex
	13 Diet low in fruits
ì	14 Unsafe water source
/	15 Low glomerular filtration rate
_	16 Iron deficiency
/	17 Diet low in nuts and seeds
~	18 No handwashing with soap
ì	19 Unsafe sanitation
/	20 Diet low in vegetables
1	21 Low physical activity
1	22 Suboptimal breastfeeding
/	23 Diet low in seafood omega-3 fatty acid
$\langle$	24 Drug use
Ì	25 Secondhand smoke
Ì	39 Vitamin A deficiency

Metabolic risks Environmental/occupational risks Behavioral risks



# Figure 4. Global deaths by cause attributable to ambient PM2.5 from 1990 to 2015.

Figure 5. Percent of deaths attributable to PM2.5 for all ages and both sexes combined in 2015. ATG = Antigua and Barbuda. VCT = Saint Vincent and the Grenadines. BRB = Barbados. COM = Comoros. DMA = Dominica. GRD = Grenada. MDV = Maldives. MUS = Mauritius. LCA = Saint Lucia. TTO = Trinidad and Tobago. SYC = Seychelles. MLT = Malta. SGP = Singapore. MHL = Marshall Islands. KIR = Kiribati. SLB = Solomon Islands. FSM = Federated States of Micronesia. VUT = Vanuatu. WSM = Samoa. FJI = Fiji. TON = Tonga.



SYC

LCA

тто

Caribbean



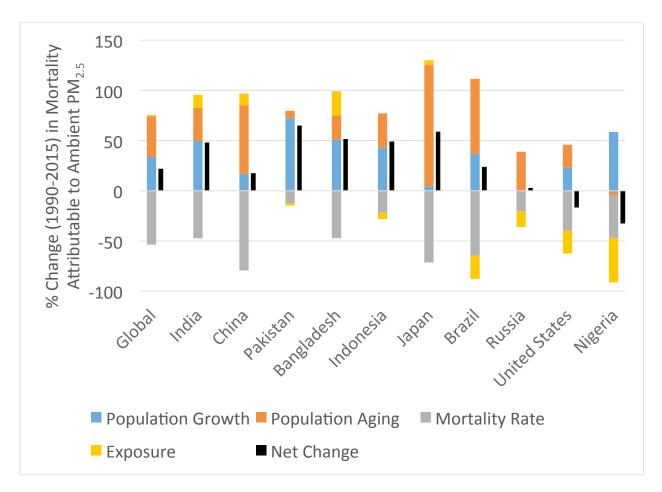
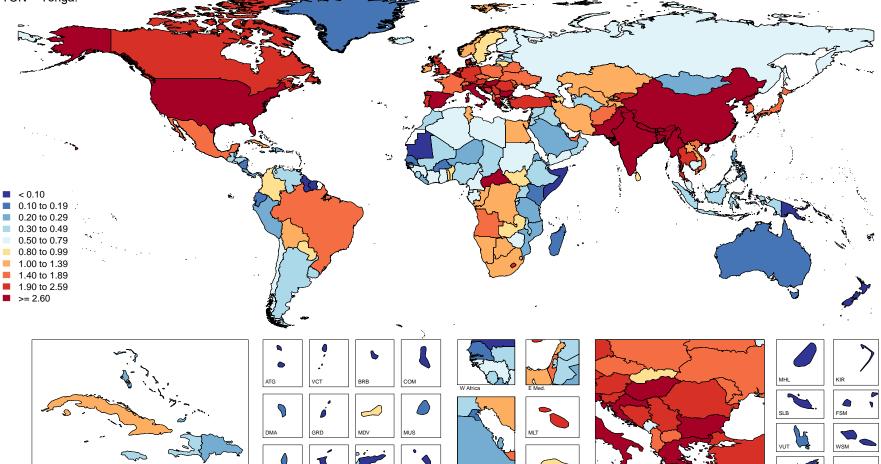


Figure 6. Contribution of changes in Population Growth, Population Aging, Age-Standardized Rates of Mortality (ischemic heart disease, cerebrovascular disase, lung cancer, lower respiratory infections, and chronic obstructive pulmonary disease) unrelated to ambient air pollution, and Exposure (colored stacked bars) to changes in mortality attributable to ambient PM2.5 (black bars) for the ten most populous countries and globally.

Figure 7a. Deaths per 100,000 attributable to ozone in 2015 for all ages and both sexes combined. ATG = Antigua and Barbuda. VCT = Saint Vincent and the Grenadines. BRB = Barbados. COM = Comoros. DMA = Dominica. GRD = Grenada. MDV = Maldives. MUS = Mauritius. LCA = Saint Lucia. TTO = Trinidad and Tobago. SYC = Seychelles. MLT = Malta. SGP = Singapore. MHL = Marshall Islands. KIR = Kiribati. SLB = Solomon Islands. FSM = Federated States of Micronesia. VUT = Vanuatu. WSM = Samoa. FJI = Fiji. TON = Tonga.



ersian Gulf

SGF

Balkan Peninsula

Caribbean

LCA

тто

Figure 7b. Percent change in deaths per 100,000 attributable to ozone from 1990 to 2015 for all-ages and both sexes. ATG = Antigua and Barbuda. VCT = Saint Vincent and the Grenadines. BRB = Barbados. COM = Comoros. DMA = Dominica. GRD = Grenada. MDV = Maldives. MUS = Mauritius. LCA = Saint Lucia. TTO = Trinidad and Tobago. SYC = Seychelles. MLT = Malta. SGP = Singapore. MHL = Marshall Islands. KIR = Kiribati. SLB = Solomon Islands. FSM = Federated States of Micronesia. VUT = Vanuatu. WSM = Samoa. FJI = Fiji. TON = Tonga.

