

# **LANCET COMMISSION ON POLLUTION AND HEALTH – VSL ESTIMATES**

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# Lancet Commission on Pollution and Health

- Monetizes the deaths associated with pollution, as calculated in the 2015 GBD
  - Using productivity losses
  - Using VSL
- Calculates value of statistical lives lost by pollutant for each country (and as a percent of GNI)
- Calculates average WTP to reduce risk of death to zero for each pollutant
- Guiding principal is to make ratio of VSL to per capita GNI “reasonable”

# 2015 Global Burden of Disease: Deaths Due to Pollution

	Deaths in 2015	Percent change from 2005
<b>Traditional Pollution Problems:</b>		
Unsafe water source	1,250,000	-21%
Unsafe sanitation	808,000	-28%
Household air pollution from solid fuels	2,850,000	-13%
<b>Modern Pollution Problems:</b>		
Ambient particulate matter pollution	4,240,000	7.8%
Ambient ozone pollution	254,000	23%

# Percent of Deaths by Country Group

	Low income	Lower middle income	Upper middle income	High income	Total
<b>Traditional Pollution Problems:</b>					
Unsafe water source	25%	71%	4%	--	100%
Unsafe sanitation	29%	69%	2%	--	100%
Household air pollution from solid fuels	17%	58%	25%	--	100%
<b>Modern Pollution Problems:</b>					
Ambient particulate matter pollution	6%	44%	39%	11%	100%
Ambient ozone pollution	2%	52%	34%	12%	100%

# Our Approach

- Base VSL is \$3.83 million (2015 PPP\$) following the OECD meta analysis
- Values transferred based on PPP GNIpc, then converted to USD using market exchange rates
- Income elasticity of the VSL assumed to be 1 for upper-middle and 1.2 for low-middle and low income countries
- Guiding principal is to make ratio of VSL to per capita GNI “reasonable” see Robinson and Hammitt (2009)
- Median ratios are: 96 upper-middle income  
64 low-middle income  
50 low-income

# Concerns in Transferring VSLs to LMICs

- Want to respect people's preferences:
  - Large literature on home drinking water disinfection, adoption of clean cookstoves and improved sanitation
  - Literature suggests these health interventions are not a priority for many households
- A failure of households to understand health risks—or just different priorities?
  - Mobarak et al. PNAS (2012) look at tradeoffs people make between a cash transfer and different goods and services (stated preference study)
  - Promising approach for valuing environmental health programs?