



# WEEKLY EPIDEMIOLOGICAL REPORT

A publication of the Epidemiology Unit  
Ministry of Health

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## Household Air Pollution and Health

### Indoor air pollution and household energy:

Around 3 billion people still cook and heat their homes using solid fuels (i.e. wood, crop wastes, charcoal, coal and dung) in open fires and leaky stoves. Most are poor, and live in low and middle-income countries.

Such inefficient cooking fuels and technologies produce high levels of household air pollution with a range of health-damaging pollutants, including small soot particles that penetrate deep into the lungs. In poorly ventilated dwellings, indoor smoke can be 100 times higher than acceptable levels for small particles. Exposure is particularly high among women and young children, who spend the most of their time near the domestic hearth.

### Impacts on health

4.3 million people a year die prematurely from illness attributable to household air pollution caused by the inefficient use of solid fuels (2012 data). Among these deaths:

- 12% are due to pneumonia
- 34% from stroke
- 26% from ischaemic heart disease
- 22% from chronic obstructive pulmonary disease (COPD), and
- 6% from lung cancer.

### Pneumonia

Exposure to household air pollution almost doubles the risk for childhood pneumonia. Over

half of deaths among children less than 5 years old from acute lower respiratory infections (ALRI) are due to particulate matter inhaled from indoor air pollution from household solid fuels.

### Stroke

Nearly one quarter of all premature deaths due to stroke (i.e. about 1.4 million deaths of which half are in women) can be attributed to the chronic exposure to household air pollution caused by cooking with solid fuels.

### Ischaemic heart disease

Approximately 15% of all deaths due to ischaemic heart disease, accounting for over a million premature deaths annually, can be attributed to exposure to household air pollution.

### Chronic obstructive pulmonary disease

Over one third of premature deaths from chronic obstructive pulmonary disease (COPD) in adults in low and middle-income countries are due to exposure to household air pollution. Women exposed to high levels of indoor smoke are 2.3 times as likely to suffer from COPD than women who use cleaner fuels. Among men, exposure to indoor smoke nearly doubles that risk.

### Lung cancer

Approximately 17% of annual premature lung cancer deaths in adults are attributable to exposure to carcinogens from household air pollution caused by cooking with solid fuels like wood, charcoal or coal. The risk for women is higher, due to their role in food preparation.

### Contents

### Page

1. <i>Leading Article – Household Air Pollution and Health</i>	1
2. <i>Summary of selected notifiable diseases reported - (21<sup>st</sup> – 27<sup>th</sup> March 2015)</i>	3
3. <i>Surveillance of vaccine preventable diseases &amp; AFP - (21<sup>st</sup> – 27<sup>th</sup> March 2015)</i>	4

WEEKLY SRI LANKA - 2015

**Other health impacts and risks**

More generally, small particulate matter and other pollutants in indoor smoke inflame the airways and lungs, impairing immune response and reducing the oxygen-carrying capacity of the blood.

There is also evidence of links between household air pollution and low birth weight, tuberculosis, cataract, nasopharyngeal and laryngeal cancers.

Mortality from ischemic heart disease and stroke are also affected by risk factors such as high blood pressure, unhealthy diet, lack of physical activity and smoking. Some other risks for childhood pneumonia include suboptimal breastfeeding, underweight and second-hand smoke. For lung cancer and chronic obstructive pulmonary disease, active smoking and second-hand tobacco smoke are also main risk factors.

**Impacts on health equity, development and climate change**

The use of polluting fuels also poses a major burden on sustainable development.

- Fuel gathering consumes considerable time for women and children, limiting other productive activities and taking children away from school. In less secure environments, women and children are at risk of injury and violence during fuel gathering.
- Black carbon (sooty particles) and methane emitted by inefficient stove combustion are powerful climate change pollutants.
- The lack of access to electricity for at least 1.2 billion people.

**WHO's response**

WHO is leading efforts to evaluate which new household cooking technologies and fuels produce the least emissions and thus are most optimal for health. WHO is also providing technical support to countries in their own evaluations and scale-up of health-promoting stove technologies.

Other WHO activities include the following:

**New indoor air quality guidelines for household fuel combustion**

To ensure healthy air in and around the home, WHO's new indoor air quality guidelines for household fuel combustion provide health-based recommendations about the performance of fuels, and stoves as well as strategies for the effective dis-

semination of such home energy technologies to protect health.

**Household energy database**

The WHO Household Energy Database is used to monitor global progress in the transition to cleaner fuels and improved stoves as well as contribute to assessments of disease burden from household energy and the energy access situation in developing countries.

**Research and programme evaluation**

WHO is working with countries, researchers and other partners to harmonize methods of evaluation across settings so that health impacts are assessed consistently and rigorously and also incorporate economic assessment of health benefits.

**Leadership and advocacy in the health, energy and climate community**Health sector

WHO is working to integrate guidance and resources for supporting clean household energy into global child health initiatives and decision-support tools, such as the Global Action Plan for Pneumonia and Diarrhoeal Disease (GAPPD), as well as into other aspects of WHO's own health policy guidance.

Health and climate change

WHO is a partner of the Climate and Clean Air Coalition to Reduce Short-Lived Climate Pollutants (CCAC). As a member, WHO is providing technical support for harnessing health benefits from actions to reduce short-lived climate pollutants, and working to scale up health sector engagement to address such pollutants and improve air quality.

Health, energy and sustainable development

WHO has proposed using reductions in air pollution-related disease burden (both for household and outdoor) as an indicator of an energy post-2015 sustainable development goal.

WHO also has contributed to the development of the tracking framework to measure progress towards the UN Secretary-General's Sustainable Energy for All initiative of universal access to clean energy.

**Sources**

Household air pollution & health available at <http://www.who.int/mediacentre/factsheets/>

**Compiled by Dr. C U D Gunasekara of the Epidemiology Unit.**

Table 1: Selected notifiable diseases reported by Medical Officers of Health 21st - 27th March 2015 (13th Week)

RDHS Division	Dengue Fever		Dysentery		Encephalitis		Enteric Fever		Food Poisoning		Leptospirosis		Typhus Fever		Viral Hepatitis		Human Rabies		Chickenpox		Meningitis		Leishmaniasis		WRCD	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	T*	C**
Colombo	80	3367	1	56	0	4	2	24	27	47	3	75	0	1	0	14	0	2	2	126	2	11	0	0	63	38
Gampaha	10	1492	0	22	0	2	0	7	0	10	0	133	0	3	0	49	0	0	1	48	0	5	0	0	20	80
Kalutara	17	560	2	29	0	3	0	14	51	64	3	97	0	0	0	9	0	1	5	85	1	11	0	0	69	31
Kandy	2	425	0	34	0	0	0	10	0	2	0	15	0	18	1	50	0	0	0	62	0	4	0	1	13	87
Matale	1	277	0	18	0	0	0	3	0	3	1	18	1	4	0	15	0	0	0	7	0	2	0	3	31	69
NuwaraEliya	2	74	2	80	0	1	0	5	0	0	0	8	1	24	1	32	0	0	3	19	0	18	0	0	69	31
Galle	0	282	0	23	0	0	0	2	0	6	0	54	0	22	0	4	0	0	0	59	0	13	0	0	0	100
Hambantota	2	123	1	10	0	0	0	4	0	4	2	30	0	14	0	15	0	0	2	29	0	4	0	87	17	
Matara	9	168	2	25	0	3	1	4	0	44	6	61	1	17	1	11	0	0	5	79	0	8	3	20	100	0
Jaffna	17	944	10	190	0	7	6	120	0	21	0	9	14	446	0	7	1	1	4	58	0	5	0	0	92	8
Kilinochchi	0	32	3	31	0	0	0	3	0	25	0	1	0	6	0	0	0	0	0	8	0	0	0	0	25	75
Mannar	0	67	1	3	0	0	0	4	0	1	0	8	0	14	0	0	0	0	0	0	0	0	0	0	80	20
Vavuniya	0	53	0	8	0	4	1	18	0	2	0	9	0	10	0	1	0	0	0	4	0	3	0	1	25	75
Mullaitivu	0	60	0	9	0	2	0	3	0	1	0	2	0	5	0	1	0	0	0	1	0	2	0	2	40	60
Batticaloa	23	854	6	69	0	3	0	6	0	0	0	2	0	0	0	0	0	0	0	12	0	10	0	0	43	57
Ampara	0	20	0	16	0	0	0	0	0	0	0	5	0	0	0	1	0	0	3	67	0	3	0	0	43	57
Trincomalee	14	276	1	11	0	0	0	14	0	22	1	6	0	2	3	4	0	0	0	20	0	2	0	0	50	50
Kurunegala	15	597	4	54	0	2	0	3	1	9	6	88	1	12	1	13	1	1	9	139	0	5	1	24	70	30
Puttalam	7	362	0	13	0	2	0	1	0	6	0	17	0	7	0	1	0	0	2	27	0	6	0	1	62	38
Anuradhapura	4	225	0	20	0	1	2	2	0	34	2	99	0	10	0	7	0	0	2	48	0	11	4	68	63	37
Polonnaruwa	1	106	1	21	0	2	0	5	0	0	1	37	0	1	0	3	0	0	1	41	0	11	1	30	43	57
Badulla	4	279	2	46	0	1	0	3	0	5	0	19	0	29	1	42	0	2	1	37	0	15	0	4	59	41
Monaragala	1	87	1	35	0	1	0	8	0	2	5	80	0	23	1	17	0	1	0	31	0	5	0	8	82	18
Ratnapura	11	356	1	92	0	3	1	12	0	1	4	98	1	21	1	115	0	0	0	25	0	12	0	3	50	50
Kegalle	7	195	2	27	2	4	4	31	0	0	6	76	2	14	0	39	0	0	5	66	4	14	0	0	82	18
Kalmune	2	330	1	38	0	0	0	0	0	13	0	2	0	0	0	0	0	0	0	40	0	2	0	0	23	77
<b>SRILANKA</b>	<b>229</b>	<b>11611</b>	<b>41</b>	<b>980</b>	<b>2</b>	<b>45</b>	<b>17</b>	<b>306</b>	<b>79</b>	<b>322</b>	<b>40</b>	<b>1049</b>	<b>21</b>	<b>703</b>	<b>10</b>	<b>450</b>	<b>2</b>	<b>8</b>	<b>45</b>	<b>1138</b>	<b>7</b>	<b>182</b>	<b>9</b>	<b>252</b>	<b>53</b>	<b>47</b>

Source: Weekly Returns of Communicable Diseases (WRCD).

\*T=Timeliness refers to returns received on or before 27th March, 2015 Total number of reporting units 337 Number of reporting units data provided for the current week: 181 C\*\*=Completeness

**Table 2: Vaccine-Preventable Diseases & AFP**

21st - 27th March 2015 (13th Week)

Disease	No. of Cases by Province									Number of cases during current week in 2015	Number of cases during same week in 2014	Total number of cases to date in 2015	Total number of cases to date in 2014	Difference between the number of cases to date in 2014 & 2015
	W	C	S	N	E	NW	NC	U	Sab					
AFP*	01	00	01	00	00	00	00	00	00	02	01	20	23	-13.1%
Diphtheria	00	00	00	00	00	00	00	00	00	00	00	00	00	%
Mumps	01	00	00	00	00	00	00	01	02	04	07	94	210	-55.2%
Measles	10	02	05	00	00	04	02	01	03	27	65	482	1217	-61.1%
Rubella	00	00	00	00	00	00	00	00	00	00	01	04	06	-33.3%
CRS**	00	00	00	00	00	00	00	00	00	00	01	00	03	-100%
Tetanus	00	00	00	00	00	00	00	00	00	00	00	03	06	-50%
Neonatal Tetanus	00	00	00	00	00	00	00	00	00	00	00	00	00	%
Japanese Encephalitis	00	00	00	00	00	00	00	00	00	00	00	06	17	-65.1%
Whooping Cough	00	00	00	01	00	01	00	00	00	02	01	26	16	+62.5%
Tuberculosis	43	15	30	07	12	00	00	01	14	122	214	2427	2752	-12.1%

**Key to Table 1 & 2**

Provinces: W: Western, C: Central, S: Southern, N: North, E: East, NC: North Central, NW: North Western, U: Uva, Sab: Sabaragamuwa.  
 RDHS Divisions: CB: Colombo, GM: Gampaha, KL: Kalutara, KD: Kandy, ML: Matale, NE: Nuwara Eliya, GL: Galle, HB: Hambantota, MT: Matara, JF: Jaffna, KN: Killinochchi, MN: Mannar, VA: Vavuniya, MU: Mullaitivu, BT: Batticaloa, AM: Ampara, TR: Trincomalee, KM: Kalmunai, KR: Kurunegala, PU: Puttalam, AP: Anuradhapura, PO: Polonnaruwa, BD: Badulla, MO: Moneragala, RP: Ratnapura, KG: Kegalle.

**Data Sources:**

**Weekly Return of Communicable Diseases:** Diphtheria, Measles, Tetanus, Neonatal Tetanus, Whooping Cough, Chickenpox, Meningitis, Mumps., Rubella, CRS,

**Special Surveillance:** AFP\* (Acute Flaccid Paralysis), Japanese Encephalitis

CRS\*\* =Congenital Rubella Syndrome

AFP and all clinically confirmed Vaccine Preventable Diseases except Tuberculosis and Mumps should be investigated by the MOH

**Dengue Prevention and Control Health Messages**

**Look for plants such as bamboo, bohemia, rampe and banana in your surroundings and maintain them**

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**ON STATE SERVICE**

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