Action Agenda For Doctors

Change Begins With YOU...

DOCTORS FOR CLEAN AIR AND CLIMATE ACTION

www.DFCA.org.in

AN INITIATIVE OF

LUNG CARE FOUNDATION

Health Care Without Harm
Doctors are Effective Messengers

Air Pollution is a Public Health Emergency. The simple act of breathing in present times causes many diseases leading to over 4.2 million premature deaths due to ambient air pollution and 3.8 million deaths due to household air pollution across the world. Dr. Tedros Adhanom Ghebreyesus, the Director-General of the World Health Organisation has called Air Pollution the New Tobacco! It is one of the major factors contributing to Climate Change which is declared as Code Red by the Intergovernmental Panel on Climate Change (IPCC). Scientists from around the world could not agree more on the fact that it is critical for us to limit the temperature rise to below 1.5 degrees Celsius above the pre-industrial levels, failing which the Earth will cross critical ‘tipping points’ and consequently mankind will witness catastrophes unleash, depending upon the warming levels. Even if we meet all the goals set at the recent Conference of Parties (COP26), held in Glasgow, we will at best limit the temperature rise to 1.8 degrees Celsius above the pre-industrial times!

Air quality and Climate scenario in India is no exception. Over 99.3% of India’s population breathes polluted air that is above the standards set by WHO. According to the Air Quality Life Index (AQLI), an average Indian could increase life expectancy by 6.3 years, if the WHO guidelines on air quality are met.

Climate Action is going to have to grow much faster to keep up with the Climate Change impacts we’re already seeing. We the Doctors have to lead the pre-emptive strike against Air Pollution and Climate Change as we can understand the threat looming large at mankind.

Doctors experience the pain of the ill effects of Air Pollution and Changing Climate on Health firsthand when they see and manage their patients in their day-to-day practice. Additionally, when doctors talk to their patients and families they are more likely to motivate them as they talk from a position of strength and power. Thus, Doctors can be ‘Motivated Motivators’. They can translate research studies from across the world on ‘Health Impacts of Air Pollution and Climate Change’ into simple and easy-to-understand language for the common man.

Doctors for Clean Air and Climate Action (DFCA) is a network of such passionate and informed doctors who are leading the fight against Air Pollution and Climate Change in their respective areas under various DFCA state chapters across India.
In spite of the significantly high levels of Air Pollution and accelerating Climate Concerns, efforts by the Government, Media and Civil Society Groups to raise awareness have not garnered public interest, leaving most of our population unaware and not concerned about the increasing harms of polluted air and climate change on their health and well-being. Not only is there very little demand from the people to take steps to reduce pollution, but such steps are often criticised and not received well as it causes inconvenience to the masses. Lack of information about the several ill effects of air pollution, including the damage occurring to their children seems to be the possible reason for people’s opposition to any corrective measures to curb Air Pollution and arrest Climate Change. If the common man is made to realise the seriousness of the issue, they will not only adopt all safety measures and precautions but will also actively contribute towards the solutions.

- Since Air Pollution affects the health of the people, Doctors are in a suited position of reverence, strength and power to talk about it.
- Their stance about the urgency to curb pollution and recede changing climate will not only create awareness but will be convincing enough to lead to action.
- This narrative forms the basis of the work of the ‘Doctors for Clean Air and Climate Action, an initiative of the Lung Care Foundation, supported by Health Care Without Harm, to engage and empower doctors to become advocates for clean Air with timely and just Climate Action!

The purpose of this Document is to

Help the Doctors educate and engage with their patients, members of the medical fraternity, media, general public and policy makers on Health impacts of Air Pollution and Climate Change.

This will lead to:

Greater awareness and demand for Clean Air and Climate Action resulting in the formulation of new policies, modification of the existing policies and implementation of laws to reduce the Air Pollution menace, synergizing Climate Action.
UNDERSTANDING AIR POLLUTION 101

Air pollution, by definition, refers to the presence of undesirable components (above the set limits) that contaminate the air and are detrimental to human health, ecosystem or planet as a whole. There are 2 kinds of Air Pollution:

**AMBIENT OUTDOOR AIR POLLUTION**
Cumulative emissions coming from industries, vehicles, construction activities etc

**HOUSEHOLD INDOOR AIR POLLUTION**
Contaminants from smoke, dust, formaldehyde, asbestos, pesticides lead, cleaning solvents, chloroform etc

TYPES OF POLLUTANTS IN OUR AIR

There are 2 major types of pollutants in our Air:

**Particulate Matter (PM)**
Fine or ultrafine particles containing a mix of toxic metals, hydrocarbons & liquids suspended in the air that can penetrate deep into the airways, lungs and then enter the bloodstream to cause damage. The most commonly talked about pollutants are PM10 and PM2.5.

- **PM 10**
  - Particles with diameter of 10 micrometres or less.
  - Primarily comes from Dust Pollution
  - Can pass through the nose, throat and enter the lungs
  - Includes airborne particles like pollen, mold etc.

- **PM 2.5**
  - Particles with diameter of 2.5 micrometers or less.
  - Can penetrate deep into the lungs and enter the bloodstream.
  - Includes emissions from combustion engines, organic compounds, metal industries etc

**Gaseous Pollutants**
Mixture of gases and hydrocarbons suspended in the air above permissible limits. These toxic gases released from combustion of fossil fuels, atmospheric reactions etc are harmful for human health when inhaled and are known to cause many respiratory ailments.

- Nitrogen Oxide
- Sulphur Dioxide
- Carbon Monoxide
- Volatile Organic Compounds (VOCs)
- Greenhouse Gases such as Methane
- Ground Level Ozone
- Black Carbon (Sooty Particles)

**PRIMARY POLLUTANTS**
Chemicals directly emitted into the air. Example: CO2, CO, NO2, CH4, Particulate Matter etc

**SECONDARY POLLUTANTS**
Pollutants that are formed from atmospheric reactions between primary pollutants and other compounds in the air. Example: Ground Level Ozone, smog, Peroxyacetyl Nitrate (PAN) etc

Reference Diagram: PM10 & PM2.5 Size

Picture Credit: United States Environmental Protection Agency
AIR POLLUTION
THE INVISIBLE KILLER

The tiny, invisible air pollutants penetrate deep into our lungs, enter the human system through skin, eyes, nose, bloodstream and pose a significant threat to human health from short-term health ill-effects to long-term chronic diseases and even premature death.

SHORT TERM EFFECTS
- Headache
- Nausea
- Cough
- Breathlessness
- Dry Skin
- Acne
- Allergic Reactions
- Hairfall
- Poor Hair Texture
- Irritation in Eyes
- Nose & Throat

LONG TERM IMPACT

Organs Affected By Air Pollution

- Brain: Stroke, Dementia, Parkinson’s Disease, Poor Mental Health
- Eye: Conjunctivitis, Dry Eye Diseases, Keratitis, Cataracts
- Heart: Ischemic Heart Disease, Hypertension, Congestive Heart Failure, Atherosclerosis
- Liver: Hepatic Steatosis, Hepatocellular Carcinoma
- Lungs: Chronic Obstructive Pulmonary Disease, Asthma, Lung Cancer, Chronic Laryngitis, Acute and Chronic Bronchitis
- Gastrointestinal: Esophageal Cancer, Colorectal Cancer, Inflammatory Bowel Disease, Colon Disease, Appendicitis
- Skin: Angular Skin Disease, Skin Aging, Urticaria, Dermatopathies, Seborrheic, Acne
- Blood: Leukemia, Intravascular Coagulation, Anaemia, Sickle Cell Pain Cries

29% OF DEATHS FROM LUNG CANCER
24% OF DEATHS FROM STROKE
25% OF DEATHS FROM HEART DISEASE
43% OF DEATHS FROM LUNG DISEASE

Picture Credit: https://s3.amazonaws.com/researcher-airpollution-public/2017-AirPollution-and-NonCommunicableDiseases.png

https://www.joanldotcom.org/article/201312-005j01520725-201312-005j01520725
1. Engaging with the Patients

1.1 Increasing Awareness about Air Pollution and Climate Change among patients

As members of the medical fraternity, our views about the health ill-effects of air pollution and climate change will be taken seriously by the patients and the public. Hence, we must educate our patients about the adverse health effects of polluted air and changing climate, their adverse effects and measures to prevent impending damage. Here are a few things, we, as Doctors, can do:

- Talk to the patients about the health ill-effects of increasing Air Pollution and consequent Climate Change, when they visit for consultations.

- Put up posters in clinics and hospitals highlighting the health impacts and preventable actions for decreasing Pollution and de-accelerating Climate Change.

- Display Air Quality Index (AQI) monitors and related health advisory in patient waiting rooms to increase sensitization on this ubiquitous issue.

- Keep Air-purifying Plants in patient waiting rooms with a simple message at the bottom “Use these natural air purifiers at home” or “Plants are the best air purifiers”. This can be useful for kick-starting conversations on Air Pollution and Climate Change and increasing greenery in the surroundings.

- Organise and actively participate in patient education programs and community camps to raise awareness on health ill-effects of Air Pollution and Climate Change.

1.2 Encouraging Lifestyle Changes among Patients

We should encourage our patients to switch over to healthier lifestyles, not only for themselves but also for their family, friends and acquaintances by:

- Increasing use of pooling and public transport to reduce vehicular air pollution.

- Increasing greenery by using indigenous air purifying plants.

- Efficient waste management at home, denouncing plastics.

- Promoting clean cooking fuels and raising awareness on the adverse health effects of burning fossil fuels, both from pollution and climate change perspective.

Public participation for individual solutions is necessary if we want to reduce the health ill-effects of polluted air.
We as Doctors, should educate ourselves and also increase awareness among other health professionals, by regularly updating ourselves with scientific data emerging from robust research in the Air Pollution and Climate Change domain. A network of dedicated and trained doctors who uphold Air Pollution as a public health emergency and engage in spreading the message to the public effectively, thus making Clean Air and Climate Action a people’s movement is the need of the hour!

The various actions this group can take are:

- Organise and conduct regional seminars and workshops on Air Pollution in India; its components, causes and landmark health studies.
- Request Doctors to include ‘exposure to Air Pollution as an important component in history taking.
- Encourage and empower doctors to conduct local research studies (including their own hospital/ clinic) to correlate air pollution, climate change and health.
- Actively reach out to the medical fraternity including National Medical Associations through mass mailing or WhatsApp groups to highlight the impending health emergency due to Air Pollution and Climate Change seeking their commitment and support for action towards clean Air and Climate Action.
- Disseminate posters, study materials, catalogues and online content containing information about the health impact of Air Pollution and Climate Change.
3. Engaging with the Masses

One of the key objectives of the Doctors for Clean Air and Climate Action is to develop a network of health professionals who will provide expert opinion to the patients, public, union and state policy makers and media as a reservoir of knowledge with the latest updates, having witnessed the health effects of Air Pollution and Climate Change.

3.1 Engaging with the Media

- Organise media training programs on Health Impacts of Air Pollution and Climate Change, particularly to the journalists covering Health and Environment beat.

- Using the media as a platform to build, amplify and lead the campaign against Air Pollution and Climate Change by writing articles and opinion pieces in local newspapers, awareness stories/series in newspapers, giving interviews on TV, Radio etc., participating in public events related to Air Pollution and Climate Change.

- Be wary of the Air Quality Index (AQI) in your city and neighborhood. Issue health advisories based on AQI levels in the media. This can be a good start to spread awareness on the issue. The advisories can be relayed as news tickers or regular updates on local FM radio just like traffic advisories. These can also be sent out to schools and colleges in the city to help them plan their activities to reduce students, particularly children’s exposure to polluted air and extreme weather events.

3.2 Engaging with the Schools

- Organise, conduct and address seminars, workshops and events in schools and colleges to sensitise and motivate the children to work on the critical issue of Air Pollution and Climate Change.

- Starting B.E.S.T. (Breathe Easy Stay Tough) Clubs in schools and colleges. B.E.S.T. Clubs is an initiative of the Lung Care Foundation, and is a student-led initiative to effectively empower the Youth of our country towards better lung health. It engages school students to conceptualise and implement an annual engagement plan involving activities to create awareness about Air Pollution and Climate Change. By highlighting the health ill-effects, it promotes individual actions for clean air. To know more, visit: http://lcf.org.in/bestclub/

- Preparing schools in dealing with Asthma-related emergencies due to high levels of pollution and changing climate by asking them to adopt the Asthma Manual to Schools compiled by LCF. To download, Visit: http://lcf.org.in/asthma-management-manuals-for-schools/
3.3 Engaging with the Public

Videos by Doctors in regional languages talking about the health ill-effects of air pollution talking about the health ill-effects of air pollution-some common symptoms to look out for, busting myths-including myths about air purifiers and masks, some common causes of air pollution, elicit commitment from the public to focus on individual solutions and also waking them up to demand clean air and healthier environment as a human right.

Setting up low-cost air monitoring systems in cities, clinics, schools etc., to educate people about air quality and issue health advisories according to pollution levels.

Highlighting the deteriorating state of health, increase in diseases and correlation of Air Pollution, Climate Change and Health to the general public by collating your medical data to form research studies and publishing the findings so that they reach the masses.

Spread awareness through active engagement on social media platforms such as Facebook, Instagram, YouTube, Blogs where content on Air Pollution and Climate Change, its health ill effects and individual actions to help reduce air pollution and prevent climate change can be shared among the masses effectively.

Initiate or Join fun community movements to promote clean air, a healthier environment leading to healthy living- such as tree plantation drives, sustainable living workshops, cycle rides, health camps, waste to compost drives etc. Leverage these platforms to engage with the public about solutions that can be generated by a group of people especially RWAs, student groups etc.

Encourage planting of various indigenous tree species like Banyan, Neem, Peepal etc. to increase green cover in your city or locality and promote the use of air-purifying plants at homes.
Engage with the Policy Makers

Any policy change requires the support of state and union level policy makers which in turn require strong public movement demanding reforms. Doctors can play a pivotal role in shaping public opinion on Air Pollution and Climate Change by educating the public, building requisite pressure through this movement on the policy makers and the administrators.

- Engage with the policy makers and bureaucrats with open letters, e-mails, phone calls and meetings, highlighting how a policy brief to control Air Pollution and Climate Change will have support by the masses since it affects each one of us adversely in a multitude of ways, through complex pathways, yet to be deciphered.

- To collaborate with the Civil Society Organisations working on different tangents in the Air Pollution and Climate Change domain for policy change recommendations. It will be much more impactful to influence government policies if a wide array of organisations and individuals corroborate facts and findings about the Health impacts of Air Pollution and Climate Change.

Engaging through Research

Air Pollution, Climate Change and Health dialogue is incomplete until doctors have significant research data to support what they see in day to day practice. Doctors for Clean Air and Climate Action also aims to address this gap in data and strengthen its voice. For this purpose, Doctors should undertake research studies on the health impact of Air Pollution and Climate Change in collaboration with other local Doctors through their clinics or hospitals. As DFCA champions, doctors should lead these researches to assess the actual damage on the ground.

Some suggestions for the possible research areas:

- Finding sources of pollution in your local area of work and list the simple steps that could be taken to reduce pollution from sources varying as per the area chosen.

- Tracking the number of patient visits and correlating it with the AQI levels to see if a rise in AQI also leads to an increase in the number of patients visiting varying specialties including emergency services.

- Pulmonary Function Test (PFT) performed in populations predisposed to Air Pollution and Changing Climate say due to their occupation for example traffic police, personnel working in mining areas, shop keepers, auto-rickshaw drivers etc., and assess the impact of exposure to the polluted environment affecting the whole body.
Air pollution was the 4th leading risk factor for early death worldwide in 2019, surpassed only by high blood pressure, tobacco use, and poor diet.  

91% of the world’s population live in places where air pollution levels exceed WHO guideline limits.  

Globally, countries in Asia and Africa experience the highest age-standardized rates of death and DALYs attributable to PM2.5: for example, India (96 deaths/100,000 population); China (81 deaths/100,000); Egypt (157/100,000); Iran (63/100,000); and Nigeria (59/100,000).  

22 of the top 30 most polluted cities globally are located in India.  

In 2019, India had the highest population-weighted annual average PM2.5 concentration of 83.2 μg/m.  

In 2019, 1·67 million deaths in India were attributable to air pollution, accounting for 17·8% of the total deaths in India, 0·98 million deaths were attributable to ambient particulate matter pollution, 0·61 million to household air pollution, and 0·17 million to ambient ozone pollution.  

Of the total deaths attributable to air pollution in India in 2019, the largest proportions were due to COPD (32·5%) and ischaemic heart disease (29·2%), followed by stroke (16·2%) and lower respiratory infections (11·2%).  

On average, people in India would live 5·9 years longer if their country met the WHO guideline.  

The economic effects of air pollution are especially severe in regions like South Asia, where losses are equivalent to 10·3% of GDP.  

The economic loss due to lost output from premature deaths attributable to air pollution in India in 2019 was US$28·8 billion, and from morbidity attributable to air pollution was $8·0 billion.  

Of the total economic loss of $36·8 billion attributable to air pollution in India in 2019, 36·6% was from lung diseases, which included COPD (21·1%), lower respiratory infections (14·2%), and lung cancer (1·2%). The rest was from ischaemic heart disease (24·9%), stroke (14·1%), diabetes (8·4%), neonatal disorders (13·3%), and cataract (2·7%).  

The economic loss due to lost output from premature deaths and morbidity attributable to air pollution was 1·36% of India’s GDP in 2019.  

The economic loss due to lost output from premature deaths and morbidity attributable to ambient particulate matter pollution and household air pollution as a percentage of GDP in India was 0·84% and 0·49% respectively in 2019.  

References
[1] https://www.who.int/health-topics/air-pollution#tab=tab_2
[2] https://www.who.int/health-topics/air-pollution#tab=tab_3
24th February, 2020: Leaders of 18 National Medical Associations representing over 180,000+ Doctors from across the country came together to be a part of the Leadership Conclave for Clean Air.

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