

Time for Every Primary Health Care Provider Turn into Ent Specialist as Implementation of Stricter Anti-Pollution Measures Delays!

Suresh Kishanrao

Public Health Consultant, Bengaluru 560022, India.

***Corresponding Author:** Suresh Kishanrao, Public Health Consultant, Bengaluru 560022, India.

Received date: November 19, 2024; **Accepted date:** November 29, 2024; **Published date:** December 04, 2024

Citation: Suresh Kishanrao, (2024), Time for Every Primary Health Care Provider Turn into Ent Specialist as Implementation of Stricter Anti-Pollution Measures Delays! *Journal of Clinical Otorhinolaryngology*, 6(6); DOI:10.31579/2692-9562/135

Copyright: © 2024, Suresh Kishanrao. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited

Abstract

Pollution is the largest environmental cause of disease and premature death. Pollution causes more than 9 million premature deaths, most of them due to air pollution. That's several times more deaths than from AIDS, tuberculosis, and malaria combined. As Air pollution accounts for more than 1 in 8 deaths globally and it contributed to more than 9 million deaths in 2023. Air pollution is the 2nd leading risk factor for early death, surpassed only by high blood pressure. In 2021, air pollution was responsible for 8.1 million deaths globally, making it the second leading risk factor for death. According to World Health Organization (WHO) while Ambient (outdoor) air pollution causes 4.2 million and, Household air pollution causes 3.8 million premature deaths per year. As winter blankets Northern India with its chilly embrace, human bodies undergo several adjustments to adapt to the changing weather. Though the season brings with it a certain charm, it also brings a set of challenges, especially concerning our ear, nose, and throat health. With thick blanket of toxic smog engulfing most parts of northern India on Monday the 18th of November 2024, readings of air quality in the national capital Delhi hitting highest this year, people are currently breathing in toxic smog air that is 60 times more toxic than the prescribed level by WHO

Particulate matter (PM2.5) pollution is harmful to human health because it can travel deep into our lungs when inhaled. Children and infants are especially susceptible to harm from inhaling PM2.5. While the immediate impact of Airborne pollutants irritates nose, eyes and throat, causing repeated attacks of nasal congestion, tears & red eyes and of sore throat. In severe cases, Air pollution leads to laryngitis and other voice disorders. Air pollution exacerbates respiratory infections that can lead to middle ear infections and high pollution levels may result in higher incidence of hearing loss. Air pollution can contribute to bacterial and viral infections in the ears, nose, and throat. The Children, the elderly, and those with pre-existing health conditions are more susceptible to the ENT impacts of air pollution. Children are particularly vulnerable because they breathe faster than adults, and their lungs and other organs are still developing Driving or even commuting in public vehicles pose challenge of poor visibility increasing the risk of accidents.

Materials and Methods: As a public health specialist, and one having lived in Delhi for 29 years, this article is an effort to shed light on common health issues that individuals in Northern India, particularly in Delhi face during November- March every year and the need and urgency for the National and Provincial take the situation seriously and ensure strict enforcement of Graded Response Action Plan (GRAP) measures to control air pollution in the National Capital Region (NCR) and all major urban localities in the country.

Outcome: Most hospitals and private practitioners in Delhi are already reporting large numbers of cases of nasal congestion, Sore throat, Sinusitis, Otitis media and Sinusitis cases in last 6weeks.

Keywords: national capital region; graded response; action plan

Abbreviations

Air pollution, AQI= Air quality Index, PMP 2.5= Particulate matter pollution refers to tiny particles in the air that are 2.5 micrometres or less in diameter, GRAP= Graded Response Action Plan,

Introduction

The Supreme Court (SC) of India on Monday the 18th of November 2024 questioned the Delhi government over delay in implementation of stricter anti-pollution measures under GRAP-4 & said it will not allow scaling down of the preventive measures without its prior permission. The moment the AQI reaches between 300 and 400, stage 4 must be invoked SC reminded.

With thick blanket of toxic smog engulfing most parts of northern India on Monday 18th November, readings of air quality in the capital New Delhi hitting highest this year, the national capital is currently breathing-in toxic smog air that is 60 times more toxic than the prescribed level by World Health Organisation (WHO). Primary schools were ordered to cease in-person classes on Thursday 14 November, National Children's Day, with a raft of further restrictions imposed, Government of Delhi (GOD) ordered schools to online classes, until further notice & limiting diesel-powered trucks on Monday 18th of November 2024 [1].

Air pollution is a major global environmental risk to our health and food security and it is estimated to cause about 9 million premature deaths worldwide and destroys enough crops to feed millions of people every year. Polluted air can cause difficulty breathing, flare-ups of allergy or asthma, and other lung problems. Both short- and long-term exposure to air pollution can lead to a wide range of diseases, including stroke, chronic obstructive pulmonary disease, trachea, bronchus and lung cancers, aggravated asthma and lower respiratory infections. Long-term exposure to air pollution can raise the risk of other diseases, including heart disease and cancer. According to the Central Pollution Control Board, the Air Quality Index recorded at 7 am on 18th November 2024 was 483 in the national capital. To worsen the situation a toxic foam was floating on the Yamuna River in Kalindi Kunj, as residents complained of difficulty in breathing and irritation in the eyes. Various piecemeal government initiatives year after year have failed to address the problem, with the smog blamed for thousands of premature deaths, impacting the health of children and the elderly each year [2,3].

Particulate matter (PM2.5) pollution is harmful to human health because it can travel deep into our lungs when inhaled. Children and infants are especially susceptible to harm from inhaling PM2.5. Levels of PM2.5 pollutants dangerous cancer-causing microparticles that enter the bloodstream through the lungs, peaked at 907 micrograms per cubic metre on Monday morning, according to IQ Air pollution monitors, with a reading above 15 in a 24-hour period considered unhealthy. Individual monitoring stations noted even higher levels, one recorded PM 2.5 pollutants at 980, 65 times the WHO maximum [4].

National guidelines mandate Stage I of GRAP to be activated when the AQI is in the 'poor' category (201 to 300), ii) Stage II is when it's in the 'very poor' category (301-400), iii) Stage III is when the AQI is in the 'Severe' category (401-450) and iv) finally Stage IV is when it rises to the 'Severe +' category (more than 450) [2].

As a public health specialist, and one having lived in Delhi for 29 years, this article is an effort to shed light on common health issues that individuals in Northern India, particularly in Delhi face during November- March every year and the required strict enforcement of GRAP.

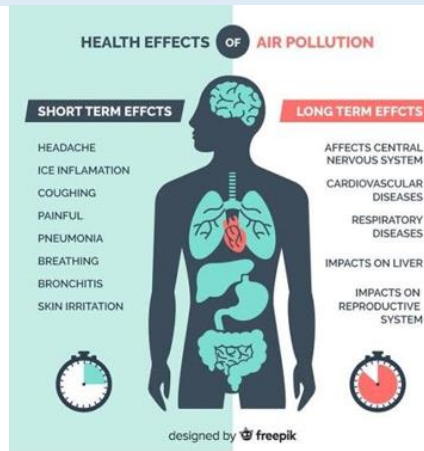
Story of Navigating Winter Woes - Ear, Nose, and Throat Issues in Delhi & North India:

As winter blankets Northern India with its chilly embrace, human bodies undergo several adjustments to adapt to the changing weather. Though the season brings with it a certain charm, it also brings a set of challenges, especially concerning our ear, nose, and throat health. As a public health specialist, and one having lived in Delhi for 29 years, it is I shed light on common issues that individuals in Northern India face during November-March. Common problems that affect the nose and throat include infections caused by i) Viruses — such as colds and flu (Rhinovirus, Respiratory Syncytial viruses, and COVID-19) ii) Bacteria such as a streptococcal throat infection iii) Fungi such as oral thrush. Some common ear, nose, and throat

(ENT) conditions getting reported in ENT outpatients & general practitioners in the last few weeks include [4,5]:

1. **Nasal Congestion:** One of the most prevalent problems during winter is nasal congestion. The cold air tends to be dry, leading to the drying of the nasal passages. This, coupled with indoor heating systems commonly used, result in irritation and congestion. Many individuals have trouble breathing through their noses, leading to mouth breathing, which leads to throat problems. To alleviate this, it is essential to stay hydrated by drinking plenty of water and using a humidifier to add moisture to the indoor air.
2. **Upper respiratory tract infections,** such as the common cold (Rhinovirus & flu, Influenza A, Para-influenza viruses are also more prevalent during the winter. These infections worsen when symptoms in individuals with pre-existing conditions like asthma cause coughing, wheezing, and shortness of breath.
3. **Sore throats** are another frequent complaint during the winter season. The cold and dry air can irritate the throat, making it more susceptible to infections with viral infections. To prevent throat discomfort, practicing good respiratory hygiene, like covering your mouth and nose when coughing or sneezing, can go a long way. Maintaining a balanced diet rich in vitamins and minerals also boosts the immune system, providing added protection against infections.
4. **Earaches and infections-** As our ears are connected to our throat by a tube. Harmful germs can get trapped in this tube and cause an infection, that are not uncommon during winter, especially in children. The cooler temperatures encourage the accumulation of moisture in the ears, creating a conducive environment for bacterial/fungal growth. Decreased hearing and ear blockage are commonly attributed to wax deposits. A symptom of sudden loss of hearing that must not be misinterpreted, as early treatment can be a game changer. Frequent nose blowing, which is a common practice can be counterproductive, as the infection travels to sinuses leading to sinusitis. This practice must be refrained from.
5. **Sinusitis:** The word "sinus" refers to four paranasal sinuses, each corresponding with the respective bone from which it takes its name: maxillary, ethmoid, sphenoid, and frontal. Two large **frontal sinuses** are located above your eyes and in our forehead. The largest two sinuses are the **maxillary sinuses**, and they are positioned under our eyes and behind our cheeks. Two sphenoid & two ethmoid sinuses are set between our eyes & behind our nose. The total function of the paranasal sinuses is unclear. The cavities allow for the increase in the bony structure without adding significant mass. They provide social cues that indicate such things as gender & sexual maturity. Respiratory mucosa lines the paranasal sinuses. This respiratory mucosa is ciliated and secretes mucus. The adverse effect on health is due to these becoming inflamed or infected and blocked, leading to headaches, facial pain, & difficult breathing.

Maintaining proper nasal hygiene, using saline nasal sprays, and avoiding prolonged exposure to cold air can minimize sinusitis. Avoid using over-the-counter decongestant nose drops which have plenty of side effects when used over longer periods causing refractory and rebound nasal congestion [7].



Discussions:

I must not laugh for fear of opening my lips and receiving the bad air.
William Shakespeare

Pollution is the largest environmental cause of disease and premature death. Pollution causes more than 9 million premature deaths, many of them due to air pollution. That's several times more deaths than from AIDS, tuberculosis, and malaria combined.

Polluted air can cause difficulty breathing, and immediate of short effects include irritation of the eyes, throat, allergy, sneezing, nasal and sinuses congestion, middle ear infections and flare-ups of existing allergy or asthma, and other lung problems. Long-term exposure to air pollution can lead to a wide range of diseases, chronic obstructive pulmonary disease (**COPD**), irritation of trachea, bronchus, aggravate asthma & lower respiratory infections. Long-term exposure to air pollution can raise the risk of heart disease and lung cancers [3]. Air pollution is a global challenge that affects human health, the climate, & the environment:

Climate: Air pollution & climate change are deeply connected and share methane & black carbon. Biodiversity: Air pollution is one of the main drivers of biodiversity loss, threatening the survival of millions of plant & animal species.

Equity: Women are more likely to suffer from air pollution-related diseases because they spend more time indoors due to traditional gender roles.

Ecosystems: Plastic pollution disrupts ecosystems, biodiversity & threatens human health & life.

Agriculture: Air pollution impacts agriculture productivity & food security.

Economic development: Air pollution impacts economic development.

Deforestation, vehicular emissions and stub burning are a major source of air pollution, emitting an estimated 1,000 metric tons of smoke particles into the atmosphere annually

Health: Air pollution is the second leading cause of early death globally, after high blood pressure. It affects almost every organ in the body and is responsible for more than 6 million premature deaths each year. As children breathe in more air per pound of body weight than adults do and since they have thinner skin, and more of it per pound of body weight, they have less fluid in their bodies, so fluid loss (e.g. dehydration, blood loss) can have a bigger effect on children. This over-breathing, make humans feeling breathless especially children and elderly. When we breathe, we inhale oxygen and exhale carbon dioxide. Excessive breathing may lead to low levels of carbon dioxide in our blood, causing the symptoms of hyperventilation, which include - Dizziness or light-headedness, Shortness of breath, Belching, bloating, dry mouth, Weakness, confusion, Sleep disturbances, Numbness and tingling in our arms or around our mouth and Muscle spasms in hands and feet, chest pain and palpitations. Health officials, the public & farmers need advance notice when dangerous air quality levels are on the rise

Management of Hyperventilation: Reassurance from a friend or family member who is calm and deliver messages like “you are doing fine,” “you are not having a heart attack” and “nothing will happen to you “with a soft, relaxed tone are helpful.

To increase our carbon dioxide, we need to take in less oxygen by breathing through pursed lips (as if you are blowing out a candle) or one can close the mouth and one nostril, and breath through the other nostril.

If anxiety or panic is observed, a psychologist or a doctor needs to treat.

Learn breathing exercises that help us relax and breathe from our diaphragm and abdomen, (Pranayama) rather than your chest wall.

Practice relaxation techniques regularly, such as progressive muscle relaxation or meditation.

Exercise regularly.

Essential skills needed for providing primary ent services:

All Primary Health Care providers (Doctors, Nurses & others) in India are trained to:

1. **Using Nasal Drops:** i. Ask the patient to blow nose gently, ii. Wash the hands thoroughly with soap and water, iii. Check if the dropper tip is chipped or cracked, iv. Avoid touching the dropper tip against the nasal mucosa, v. Tilt patients head as far back as possible, or let him/her lie down on his back on a flat surface and hang his head over the edge. vi. Put the correct number of drops into your nose, vii. Bend patient's head forward towards his/her knees and gently move it left and right viii. Let patient remain in this position for a few minutes, ix. Clean the dropper tip with warm water. Cap the bottle right away and x. Wash your hands to remove any medication.
2. **Putting ear drops:** i. Make the patient lie down or tilt the head, with the affected ear facing upwards. ii. Open the ear canal by gently pulling the ear upwards and backwards to straightens the ear canal. iii. Clear any visible superficial discharge. iv. Hold the dropper of the medicine upside down over the ear & put the recommended number of drops into the ear. v. Avoid touching the dropper tip inside the ear, as it may get contaminated. vi. After use, wipe the tip with a clean tissue. Do not wash with water or soap. vii. Advise the patient to stay in the position for at least 15 minutes. A small piece of cotton may be used to plug the ear.
3. **Checking for patency of the nasal passage:**
Two clinical procedures can be carried out for assessing the patency of the nose:
 - a) Spatula Test: Place a tongue depressor/spatula below the nostrils of the patient & ask the patient to blow through his nose and compare the area of mist formation from both the sides. In normal cases, the areas of mist formation under both the nostrils are equal.
 - b) Cotton-wool test: Hold a fluff of cotton against each nostril & observe its movements when the patient inhales/exhales. In case of nasal obstruction due to polyp/septum deviation, the movement of the cotton fluff on that side would be reduced.
4. **D) How to remove ear wax:**
Steps for removal of ear wax using syringing: i. Make the patient sit on a chair, such that the affected ear is towards you. ii. Pull the ear lobe upwards and backwards gently to straighten the external ear canal and enable better visualisation (in younger children, pull the pinna downwards and backwards gently). iii. Place a kidney-shaped dish under the ear to collect the water overflow. iv. Fill a 20 ml syringe with a firmly attached metal or plastic cannula with lukewarm water. v. Direct the jet of water backwards and upwards and not directly at the tympanic membrane. Several syringefuls may be required before the wax is cleared. vi. Intermittently inspect the canal. vii. Inspect the expelled water for evidence of wax. It is important to ensure that the water is at body temperature (37 °C); otherwise, discomfort and vertigo may be induced by stimulation of the labyrinth.
5. **How to do dry mopping of the ear:**
Clean the ear with a dry mop only when the ear is discharging, When the ear is dry it must not be cleaned with a dry mop. 'Cotton buds' must never be used to clean ear canals as they are too big, and the cotton and wool is wound onto the stick too tightly.
6. **Making a dry mop:**
 - i) Wash your hands with soap and water – air dry, ii) Pull off a small piece of cotton wool, iii) Gently pull it out into an oval shape iv) Put the tip of the stick into the centre of the cotton wool, v) Twist the stick round and round with one hand whilst holding half of the cotton wool tightly against the stick with the

thumb and index finger of your other hand, vi) Half of the cotton wool should extend from the end of the stick and form a fluffy, soft tip, vii) The rolled-up piece of cotton wool should be long enough so that when the soft tip is deep in the ear canal & next to the eardrum there is still some cotton wool sticking out of the ear canal, so that you can hold the cotton wool and ensure that the cotton wool comes out of the ear canal. After completing dry mopping, wash your hands again.

How to make a wick: Make a wick by rolling a cloth or a tissue paper into a pointed shape. Gently pull the ear lobe away from the head. Place the wick into the ear canal. It will absorb any discharge or blood in the ear canal. Leave it in place until it is wet. Remove the wet wick and inspect it. Is there pus on the wick if yes replace with a clean wick, repeat until the wick comes out dry.

Preventions of ENT issues: Practicing good hygiene, such as frequent hand washing and avoiding touching our face, are crucial in preventing the spread of germs/viruses and reduce the risk of catching a cold or flu. Avoiding irritants like smoke and strong perfumes is advised as they can worsen ENT problems by irritating the nasal passages and throat. Seeking a doctors advise and if required an ENT specialist is the right approach.

Reducing the Impact of Pollution: Modern technology can reduce the impact of pollution by managing these three stages of pollutant impacts, for example: Stage 1 could be managed by introducing electric and hybrid cars that use less fossil fuel, Stage 2 could be managed by fitting catalytic converters to car exhaust systems or adding scrubbers to industrial chimneys to remove toxic chemicals and allow for their reuse and Stage 3 could be managed by using synthetic membranes to capture chemical spills (e.g. mats designed to capture and hold hydrocarbons)

Community Level Actions: The key steps of an action plan envisage - Step 1: Define our goal. And get clear on what you want to achieve with the project. Step 2: List tasks. Once you have your goal, list the tasks and activities you must complete to achieve it. Step 3: Identify critical tasks. Step 4: Assign tasks Step 5: Periodical Assessment, mid-course corrections and improve.

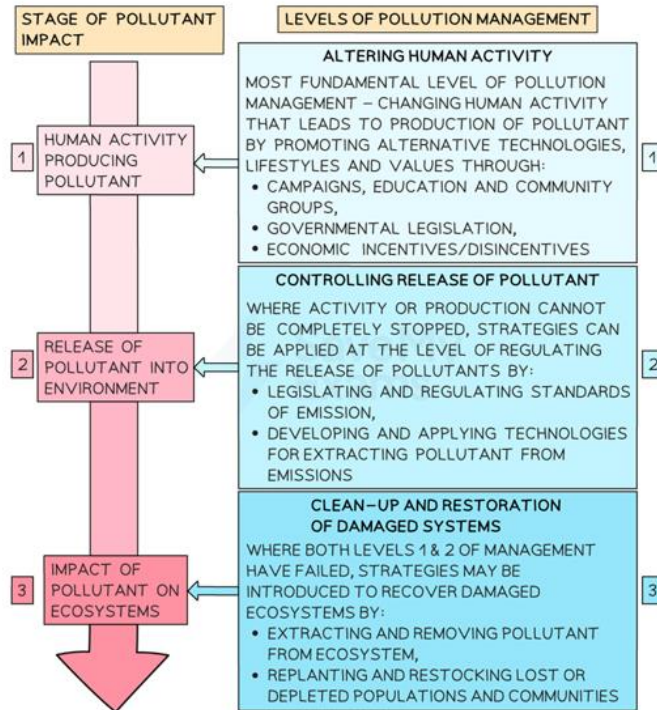
Conclusion:

As winter blankets Northern India with its chilly embrace, human bodies undergo several adjustments to adapt to the changing weather. Though the season brings with it a certain charm, it also brings a set of challenges, especially concerning our ear, nose, & throat health.

According to IQ Air pollution monitors Levels of PM2.5 pollutants peaked at 907 micrograms per cubic metre on 18th November morning, with a reading above 15 in a 24-hour period considered unhealthy.


Government of Delhi's piecemeal efforts like closing Primary schools to cease in-person classes and conduct online classes, limiting diesel-powered trucks etc have not given the results, and therefore scaling down of the preventive measures without Supreme Court's prior permission has been ordered.

While the air quality control management is not going to yield immediate results, health care providers need equip themselves handling Air pollution related Ear, Nose & Throat illnesses.



References:

1. Delhi-is-currently-breathing-air-thats-60-times-more-toxic-than-who-limit, <https://www.savemyexams.com/pollution-management/27-September-2024>
2. Environmental-systems-and-societies-ess/<https://www.savemyexams.com/pollution-management/27-September-2024>
3. How air pollution affects our health, <https://www.eea.europa.eu/28-October-2024>
4. Health conditions &-diseases/hyperventilation <https://www.hopkinsmedicine.org/>.
5. ENT Care Training Manual, <https://nhsrcindia.org/sites/default/files/2021>
6. Navigating Winter Woes: Common Ear, Nose, and Throat Issues in Northern India, <https://sgrh.com/blog/Shri-Gangaram-Hospital-New-Delhi>.
7. Anatomy, Head & Neck, Nose Sinuses, Brandi Henson et.al,

 This work is licensed under Creative Commons Attribution 4.0 License

To Submit Your Article Click Here: [Submit Manuscript](#)

DOI:10.31579/2692-9562/135

Ready to submit your research? Choose Auctores and benefit from:

- fast, convenient online submission
- rigorous peer review by experienced research in your field
- rapid publication on acceptance
- authors retain copyrights
- unique DOI for all articles
- immediate, unrestricted online access

At Auctores, research is always in progress.

Learn more <https://www.auctoresonline.org/journals/journal-of-clinical-otorhinolaryngology>