CLEAN AIR CHOICE®
IMPROVING THE AIR WE BREATHE

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OUR HISTORY – 1904 TO TODAY

- National Tuberculosis Association
- Oldest voluntary health organization
- Focus on lung health
- Before EPA (outdoor)
- Public Health (indoor)
- Environmental Pollution to Health Concerns
WHEN YOU CAN’T BREATHE, NOTHING ELSE MATTERS!
CAUSES OF LUNG DISEASE & CANCER

1. Smoking
2. Exposure to radon gas
3. Exposure to chemicals – workplace (asbestos, silica)
4. Air pollution – transportation/industrial sources

1. Previous lung disease (tuberculosis)
2. Family history of lung cancer
3. Past cancer treatment
4. Previous smoking related cancer (tobacco products)
5. Lowered immunity (AIDS, HIV)
Cigarette smoking rates have decreased

2/3 lung cancer occurs - never/ex smokers
LUNG CANCER IS THE DEADLIEST CANCER

Estimated Cancer Deaths by Site, 2013

Source: American Cancer Society, Cancer Facts & Figures 2013

MOST LUNG CANCER IS CAUSED BY SMOKING (WHILE THE NUMBER OF SMOKERS ARE DECREASING, THE INCIDENCE OF LUNG CANCER IS INCREASING)
Health Conditions linked to Air Pollution exposure (such as lung cancer and emphysema) are often fatal

- Globally* = 6.1 million death from air pollution (12% of global deaths in 2016)
  - 4.1 million = outdoor or ambient air pollution
  - 2.6 millions = indoor fires and heat

*University of Washington’s Institute for Health Metrics and Evaluation
WHAT IS OZONE?

Ozone is a gas, sometimes called smog. It is created in the atmosphere.

\[ \text{NOx} + \text{VOCs} + \text{CO} + \text{Sun} = \text{Ozone (O}_3\text{)} \]
PARTICULATE MATTER

Molecules | Virus | Bacteria | RBC | Cell | Pollen | Pin | Hair

0.05μm | 0.5μm | 5μm | 50μm

0.01μm | 0.1μm | 1μm | 10μm | 100μm

PM 10-2.5
Thoracic particles

PM 10-2.5
Coarse fraction

PM 2.5
Fine particles

UFP (PM0.1)
Ultrafine particles
WHEN YOU CAN’T BREATHE, NOTHING ELSE MATTERS!
U.S. HYDROCARBONS EMISSIONS BY SECTOR

- Fires: 29%
- Mobile: 26%
- Industrial Processes: 19%
- Consumer/Commercial Solvent Use: 16%
- Miscellaneous: 7%
- Fuel Combustion: 3%
A new vehicle today is up to 95% percent cleaner than a new vehicle in 1970.

By 2020, mobile sources are projected to account for up to 50% of the NOx emissions, and substantial hydrocarbon and PM emissions.
MOBILE SOURCE EMISSIONS

Engine operation
Fuel components

- Exhaust emissions
- In car emissions
- Trip emissions
- Refueling emissions
- Evaporative emissions (hot days > cold days)
USEPA MOBILE SOURCE CLEAN AIR RULES

- Clean Cars and Passenger Trucks – Tier 3
- Clean Heavy-Duty Trucks and Buses
- Mobile Source Air Toxics Rule
- Clean Non-road Diesel Engines and Equipment
- Locomotive and Marine Diesel Standards
- Ocean-going Vessels
- Small Gasoline and Recreational Marine Standards
- Ultra-low Sulfur Fuel Requirements
- Renewable Fuel Standards

A new vehicle today is up to 95% percent cleaner than a new vehicle in 1970. Still, by 2020, mobile sources are projected to account for up to 50% of the NOx emissions, and substantial hydrocarbon and PM emissions.
1974 REMOVAL OF LEAD FROM GASOLINE

EPA standards led to parallel decreases in lead content of gasoline and blood lead level of the average American.
1995 REFORMULATED GASOLINE

- Why need?
  - Cars are 98% cleaner (than 30 years ago)
  - Twice as many cars on road today
  - Cars are kept longer (due to costs)

- Reformulated gas
  - Gasoline w/ additional processing and refinement
  - Has reduced evaporation
  - Includes an oxygenate to improve combustion
  - 10% ethanol in 95% of all gas in U.S.
  - Less benzene by 43%
# REGULATORY FUEL COMPONENT PROGRAM

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<th>OVERVIEW</th>
<th>POLLUTANT</th>
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<td>Lead (1970-1990)</td>
<td>Total ban of the use of Lead</td>
<td>Lead</td>
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<td>Sulfur (2004-220)</td>
<td>2016: 93% reduction</td>
<td>Sulfur</td>
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<tr>
<td>Reformulated gas (1995)</td>
<td>• <strong>Further refinement of gasoline</strong>&lt;br&gt;• Requires oxygenate (E10, MTBE)&lt;br&gt;• Reduces toxics (43%)&lt;br&gt;• 98% gasoline is E10</td>
<td>Ozone&lt;br&gt;Toxics</td>
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<td>MTBE</td>
<td>Total ban of the use of MTBE</td>
<td>MTBE</td>
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<td>Benzene (2011-2014)</td>
<td>2016: 60%</td>
<td>Benzene</td>
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U.S. AND LA AIR QUALITY INDEX – JULY 19, 2018
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