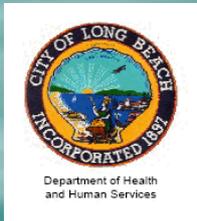


**Welcome
to the City of Long Beach
Department of Health and Human
Services,
ALSAA Program
Bus Pass/Air Pollution Education
Exchange Training Program**



**The Asthma Life Skills Academy for Adults Program is funded by the
Port of Long Beach Mitigation Grants Program**

ALSAA Training

Part 1:

Air Pollution and Air Quality

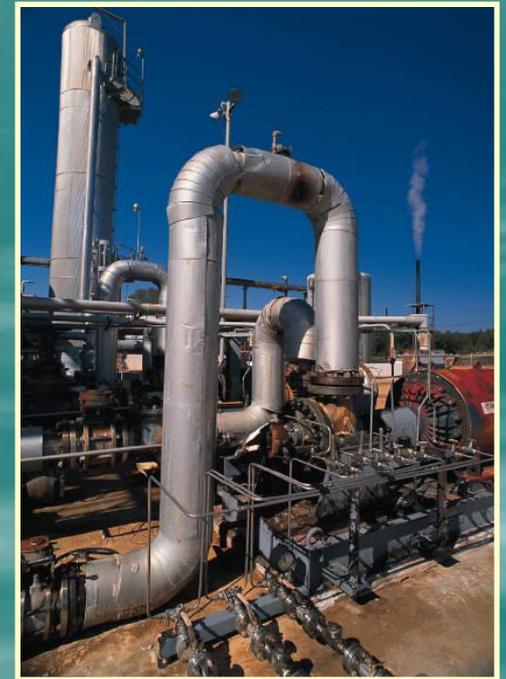
What is Air Pollution?

- Particles or gases in the air that are not part of the normal composition of air
- “Smog” is visible air pollution
- Many pollutants, including some of the most dangerous, are invisible



Where Does Air Pollution Come From?

- Human-made pollution
 - Burning fuel
 - Such as coal, oil, wood, and other fuels to power vehicles (ships, trains, trucks, cars)
 - Industrial activity
 - Power plants, factories



Two Major Sources of Air Pollution

- Stationary sources – means it stays in one place
- Mobile sources – ones that move around



Diesel particulate matter



Diesel pollution comes from burning diesel fuel. It is made up of ultrafine particles and many chemicals and gases.

Diesel particulate matter (PM): California named it a “Toxic Air Contaminant” in 1998



Diesel PM is known to be a carcinogen, which means it causes cancer. It is also dangerous because chemicals can stick to the surface of the particles and some of those chemicals are also cancer-causing.

Air Quality Index (AQI)

- Lets you know when it is a high pollution day
- Stay inside to reduce risk when AQI is at 100 or higher
- AQI can be found in newspapers, TV, radio, internet
 - www.AirNow.gov

Air Quality Index (AQI) Values	Levels of Health Concern
<i>When the AQI is in this range:</i>	<i>...air quality conditions are:</i>
0 to 50	Good
51 to 100	Moderate
101 to 150	Unhealthy for Sensitive Groups
151 to 200	Unhealthy
201 to 300	Very Unhealthy
301 to 500	Hazardous

Air Pollutants

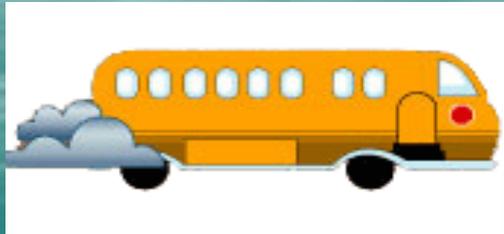
Regulated by Government Agencies

- Ozone (O_3)
- Particulate Matter (PM)
- Carbon Monoxide (CO)
- Nitrogen Dioxide (NO_2)
- Sulfur Dioxide (SO_2)
- Lead (Pb)



These pollutants are regulated by government agencies. They are required to be monitored all over the U.S. The most common air pollutants are ozone and particulate matter.

Ozone (O₃) (Smog)



Emissions

+



Sunlight

=



Ozone (smog)

(Photochemical reaction)

Ozone - good up high, bad nearby

Ozone is not emitted directly into the air, it is formed by emissions reacting in the presence of sunlight.

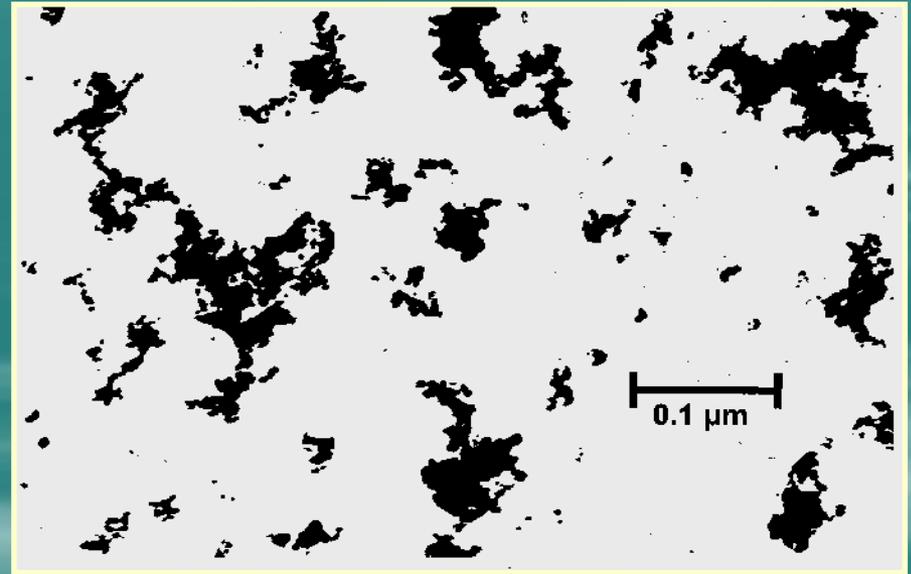
ALSAA Training

Part 2:

Particulate Matter and Health Effects

Particulate Matter (PM)

- Particles floating in the air
- Made by burning fuel in cars, power plants, and refineries, dust, pollen
- Different sizes of PM cause different health problems



PM₁₀

- Particles that are 10 micrometers in diameter
- Sometimes called “coarse” particles
- Can travel in the air up to 30 miles

PM_{2.5}

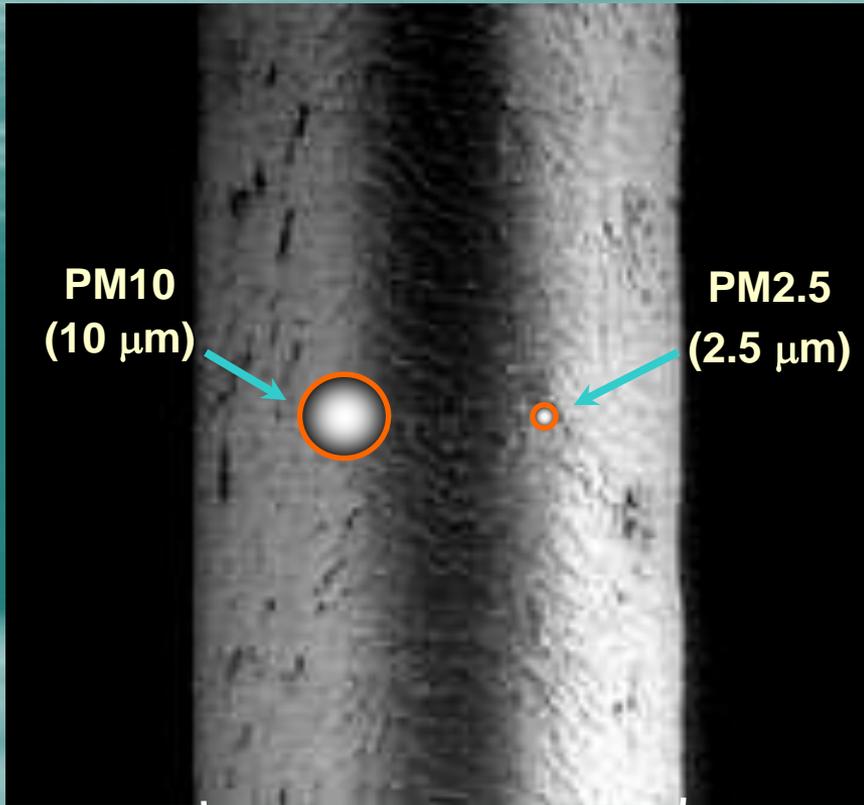
- Particles that are 2.5 micrometers in diameter
- Sometimes called “fine” particles
- Can travel in the air up to 500 miles

Ultrafine Particles

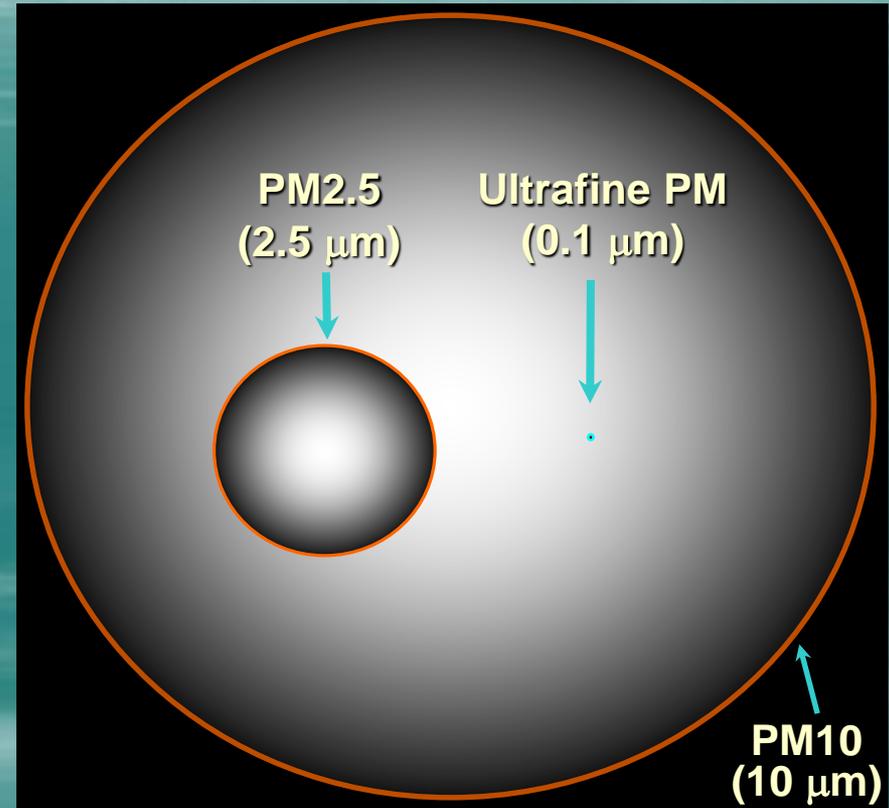
extremely tiny, smaller
than 0.1 micrometers

Comparison of PM₁₀, PM_{2.5}, and Ultrafine PM

Coarse (2.5-10), Fine (0.1-2.5), UF (<0.1)



Human Hair
(60 μm diameter)

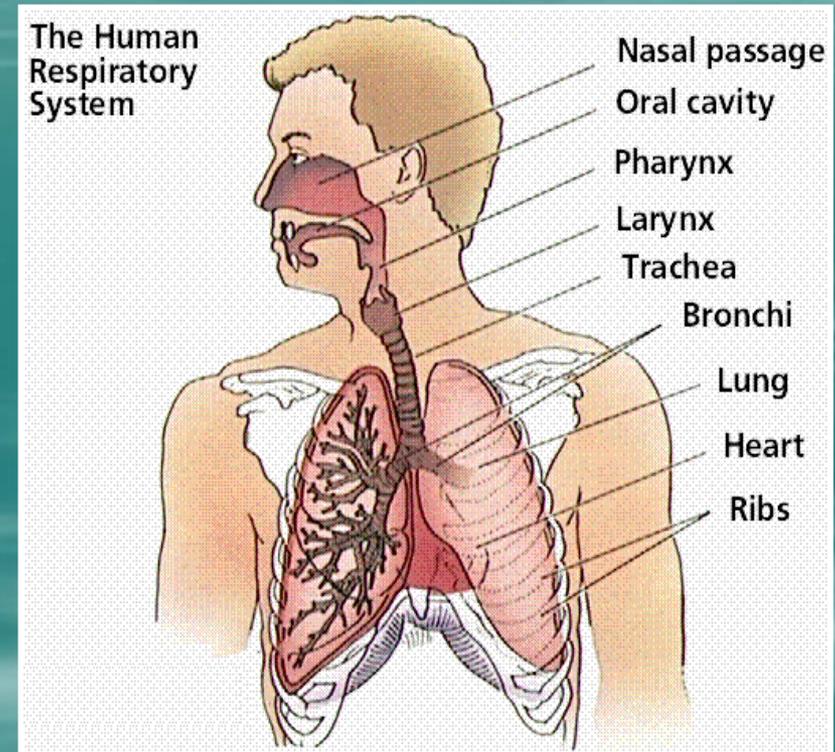


Relative size of particles

1 micrometer = 1 millionth of a meter

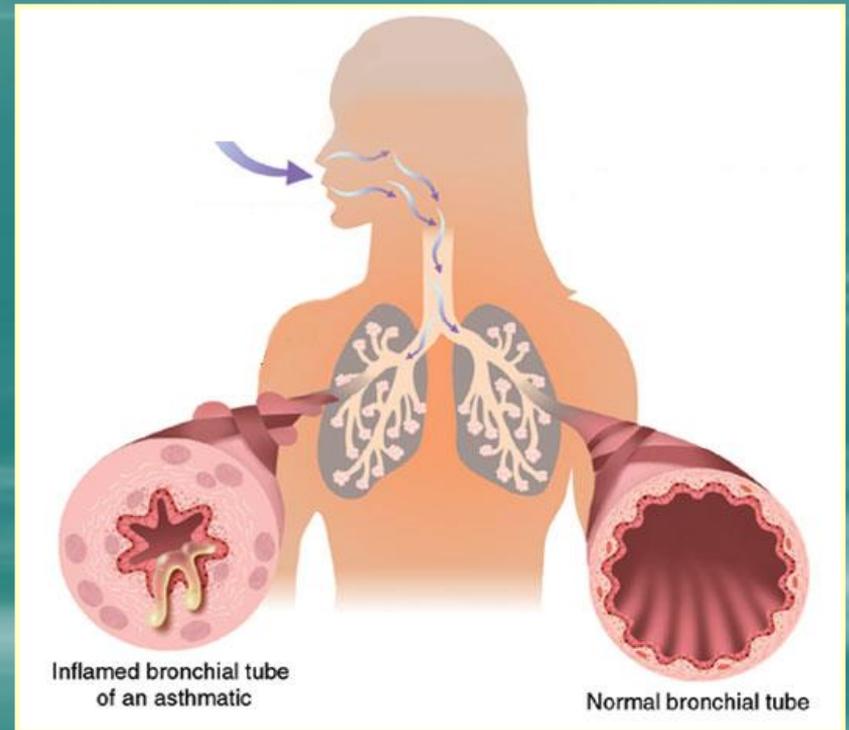
Particles in the Body

- Particles travel with the air people breathe into the respiratory system
- The larger a particle is, the more likely it is to get stuck in the body's first defenses
- The smaller a particle is, the more likely it is to travel on to the lungs
- Ultrafine particles (the tiniest) can get into the bloodstream and move to other organs



Primary route of entry into the body: Inhalation

- Inhalation means to breathe in
- In the lungs, pollution can directly damage the lung tissue causing illness or disease
- From the lungs, it can get into the bloodstream and travel to organs throughout the body



When Air Pollution levels go up:

- There are more:
 - Doctors visits and school absences
 - Emergency Room Visits
 - Hospital Admissions
 - Asthma attacks
 - Deaths from lung and heart illnesses



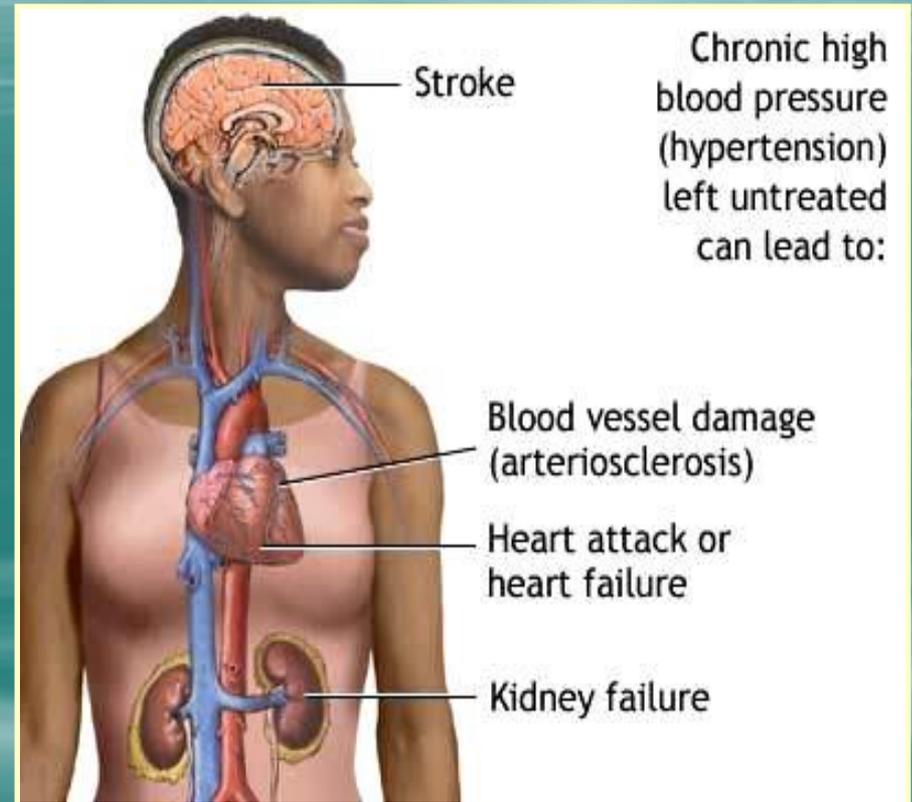
Air Pollution Health Effects

- Increased respiratory (lung) illnesses
 - Decreased lung function in children
 - Asthma exacerbations (makes asthma worse and cause asthma attacks)
 - Chronic respiratory illnesses
 - Premature death



Air Pollution Health Effects

- Premature babies (born earlier than they should be)
- High blood pressure
 - Heart Attack or heart failure
 - Stroke
 - Kidney Failure
- Cancer



ALSAA Training

Part 3:

Ways to Reduce Air Pollution

Asthma and Air Pollution



- Take steps to protect your health
 - Are you sensitive to it?
 - Know when and where air pollution may be bad
 - Change your activity level
 - If you are asthmatic, keep quick relief medicine on hand

Some ways you can reduce air pollution

■ At home:

- Recycle paper, plastic, glass bottles, cardboard, and aluminum cans. (This conserves energy and reduces production emissions.)
- Use a fan instead of air conditioning
- Quit smoking



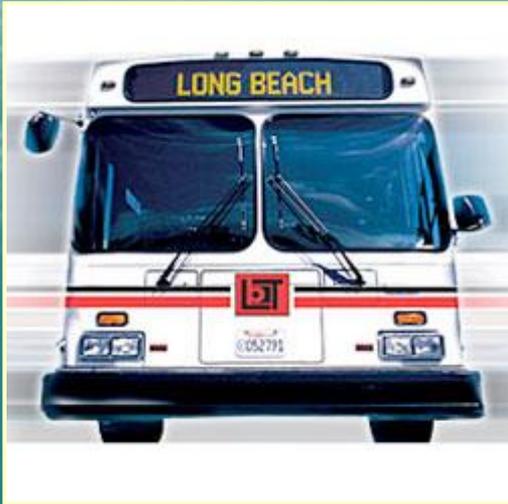
Ways to reduce air pollution

■ At home

- Use low flow showerheads
- Conserve energy - turn off appliances and lights when you leave the room
- Dry clothes on a clothes line
- Use non toxic cleaning products (vinegar, baking soda, Murphy's oil)



Ways to reduce air pollution



- **Drive less**
 - Carpool
 - Walk or ride a bicycle
 - Use public transportation
- **Drive smart**
 - Use cruise control
 - Combine errands into one trip
 - Keep tires properly inflated
 - Keep your car tuned and support the smog check program



For more information

- Air Quality and Health
 - www.epa.gov/airnow
- Indoor Air and Asthma
 - www.epa.gov/asthma
- How to reduce air pollution
 - <http://www.epa.gov/air/peg/reduce.html>
- Adults with asthma
 - LB DHHS ALSAA (562) 570-4008
- Children with asthma
 - LBACA Long Beach Alliance for Children with Asthma (562) 427-4249

Congratulations!

You have successfully completed
Bus Pass/Air Pollution Education
Exchange Training Program!

In order to process your FREE bus pass, please
complete the questionnaire as referenced on
the website.

How to get your bus pass

- In person, please come to:
City of Long Beach Health Department
Bureau of Environmental Health
2525 Grand Ave, Room 220
Long Beach, CA 90815
Monday through Friday 8 AM to 5 PM

Thank You!

For more information, please contact:
City of Long Beach
Department of Health & Human Services
ALSAA Program
Asthma Life Skills Academy for Adults
Victoria Chavez (562) 570-4168
Victoria.Chavez@longbeach.gov