Identification of Common Spores

Asma Tahir, MPH
Certified NAB Pollen & Mold Counter
CCSD/UNLV Pollen Monitoring Program
Environmental and Occupational Health
UNLV School of Community Health Sciences
What is mold?

- Mold is considered a sub-group of the Fungi Kingdom
- Present on clothing, carpet, air we breathe, everywhere
- Produce spores that are extremely small and can be airborne
- Due to their light weight, mold spores are often floating in the air both outdoors and indoors
Mold Basics

- Molds are a part of the natural environment
- Breaks down organic matter
- Mold should be avoided indoors
- Mold can grow on almost any surface
- Water or excessive moisture speeds up mold growth
Health Effects of Mold

- Allergic reaction = by far the most common, inhalation of spores or touching
- Asthma = mold spores can trigger or make asthma worse
- Hypersensitivity pneumonitis = develop after acute or chronic exposure
- Runny nose, scratchy throat and sneezing. Most of us know this allergic illness as “hay fever” or “allergic rhinitis.”
What's happening in your neighborhood?
Mold Around Us

Bread Mold

- Spores
- Stolon
- Hyphae
- Fruiting Body

Rhizopus - black bread mold
Mold Around Us
Can You Eat Foods With Mold?

Moldy foods that people eat regularly include:
- some packaged fruit juices
- bleu cheese
- soy sauce
- stilton cheese
Mold Around Us
Just Add Water and They Grow
Common Indoor Molds

- Cladosporium
- Penicillium
- Alternaria
- Aspergillus
Alternaria

- **Name**
  - *Alternaria* conidia – “drumstick”
  - Second most abundant component of dry air spora

- **Shape**
  - Large multicellular spores
  - Septa are both beaked and produced in chains
  - Attachment scars visible at the tip of the beak
  - Various shades of brown

- **Size**
  - 7 µm X 18 µm to 15 µm X 75 µm

- **Peak Concentrations**
  - Late summer or fall
    - During afternoon hours with high wind gusts
Ascospores

- Sexual spores produced by ascomycete fungi
- Vary enormously in size, shape, color and features
- **Shape**
  - Single-celled without any internal septa, two-celled with single septum, or multi-celled with many septa
  - Multi-celled spores can be transverse or longitudinal
  - Color ranges from colorless to dark brown and black spores
  - No attachment scar
- **Size**
  - 5 μm to over 100 μm
- **Peak Concentrations**
  - Rainy periods but can be found during early morning hours or high humidity
Basidiospores

- Sexual Spores produced by basidiomycetes
  - Mushrooms, bracket fungi, and puffballs
- Wide range in shape, size, and color
- Shape
  - ALWAYS single-celled
  - Globose, elliptical, fusiform, nodulose, angular, or irregular
  - Spore walls can be smooth or ornamented with spines, warts or ridges
  - Yellow, brown (various), or black in color
- Size
  - Small; 5 to 12 μm
- Peak Concentrations
  - Pre-dawn hours when humidity is high
Cladosporium

- Abundant airborne spores in temperate areas (90% of the U.S.)
- Asexual fungi
- Shape
  - Ellipsoidal to cylindrical
  - Pigmented with yellow to light brown
  - Produced in chains, may be unicellular or have two septa
  - Prominent attachment scars
- Size
  - Varies from 3 μm to 25 μm
- Peak Concentrations
  - Detected year round in many areas
  - Highest levels from late spring to early fall
Smuts

- Common Name
  - Black, dusty spores that are plant pathogens
  - 1,200 species of smuts within 50 genera

- Shape
  - Globose; with smooth, spinney, or reticulate walls
  - Yellow to brown in color

- Size
  - 3 to 24 μm

- Peak Concentrations
  - Low humidity and gusty winds promote spore dispersal
  - Peak sunshine hours and high atmospheric pressure
Nearest Collection Sites

- Joseph Neal Elementary School - 33 Miles
- Palo Verde High School - 27 Miles
What is in your neighborhood
Current Sites

- Total of 6 stations around the valley
- UNLV, Jean, 1 High School, 2 Middle Schools, and 1 Elementary School.
- Future sites in Henderson, Boulder City, and Southwest.
Questions?/Comments!