

## AP Environmental Science Infectious Diseases

Despite being so small they can't be seen with the naked eye, pathogens that cause human disease have greatly affected the way humans live for centuries. Many infectious diseases have been significant enough to affect how and where we live, our economies, our cultures and daily habits. And many of these effects continue long after the diseases have been eliminated. (Maxine Whittaker, *How infectious diseases have shaped our culture, habits and language*, The Conversation, July 12th 2017)

In 2013, the World Health Organisation declared antibiotic resistance was a threat to global health security. It can seem hard to believe that in the 21st century infectious diseases remain such a profound existential risk. But this declaration highlights the ever-lingering threat of infectious diseases and our dependence on antibiotics to stave off their impact on human and animal health and industry. (David Griffin and Justin Denholm, *Four of the most lethal infectious diseases of our time and how we're overcoming them*, The Conversation, July 9th, 2017)

Fortunately, there are organizations that have made it their mission to protect America and the world from such threats.



CDC works 24/7 to protect America from health, safety and security threats, both foreign and in the U.S. Whether diseases start at home or abroad, are chronic or acute, curable or preventable, human error or deliberate attack, CDC fights disease and supports communities and citizens to do the same.

CDC increases the health security of our nation. As the nation's health protection agency, CDC saves lives and protects people from health threats. To accomplish our mission, CDC conducts critical science and provides health information that protects our nation against expensive and dangerous health threats, and responds when these arise.

WHO works worldwide to promote health, keep the world safe, and serve the vulnerable.

- focus on primary health care to improve access to quality essential services
- improve access to essential medicines and health products
- prepare for emergencies by identifying, mitigating and managing risks
- prevent emergencies and support development of tools necessary during outbreaks
- noncommunicable diseases prevention
- elimination and eradication of high-impact communicable diseases.

### Videos to get started:

How Pandemics Spread: <http://bit.ly/2wysE5t>

Where do new viruses come from?: <http://bit.ly/3aEX0lv>

How do viruses jump from animals to humans?: <http://bit.ly/2TL0DiL>

# Plague

## Circle one:

Bacteria, Protist, Virus

## Origin:

## Areas it has spread to:

## Vectors:

## Symptoms:



## Who is Susceptible:

## Preventatives:

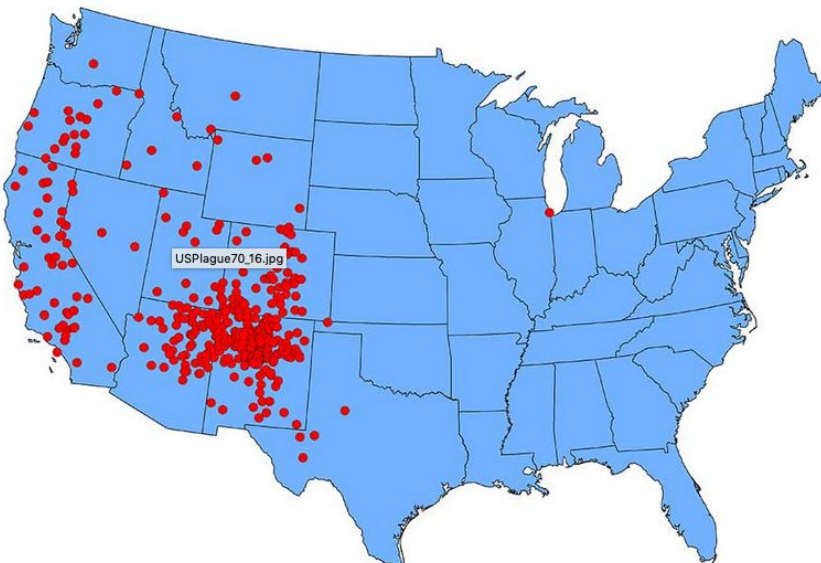
## Treatments:

## Links:

<http://bit.ly/3cFEJGg>

<http://bit.ly/39wIGMS>

Reported Cases of Human Plague - United States, 1970-2018



# Tuberculosis

Links:  
<http://bit.ly/38u0Tbr>

## TB IS PREVENTABLE & CURABLE.



TB is spread through the air from one person to another.

### Symptoms of TB disease include:

- › Cough lasting longer than 3 weeks
- › Chest pain
- › Night sweats
- › Weight loss
- › Weakness
- › Chills
- › Fever

### A typical TB case requires:



**PLUS**

- X-rays
- Lab tests
- Follow-up & testing of contacts

**Circle one:**  
Bacteria, Protist, Virus

**Origin:**

**Areas it has spread to:**

**Vectors:**

**Who is Susceptible:**

**Symptoms:**

**Preventatives:**

**Treatments:**

## ELIMINATING TB REQUIRES A COMPREHENSIVE APPROACH.



Testing & Treatment of High-Risk Populations



Strong TB programs to find & treat cases



Addressing the threat of drug-resistant TB



Education of Health Care Providers

# Malaria

## Circle one:

Bacteria, Protist, Virus

## Origin:

## Areas it has spread to:

## Vectors:

## Symptoms:

## Who is Susceptible:

# WORLD MALARIA DAY

Ready to Beat Malaria **APRIL 25**

## GLOBAL MALARIA



**3.2B PEOPLE**  
Nearly half of the world's population is at risk of malaria



**MORE THAN 2/3**  
of all malaria deaths are in children under 5

## IN 2016 WORLDWIDE

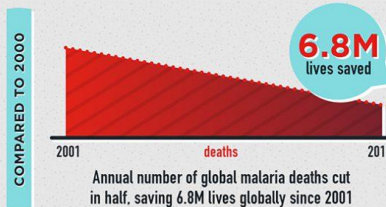


**216M**  
Malaria Cases



**445K**  
Malaria Deaths

## PROGRESS



## MORE THAN 1B



Antimalarial treatments (ACTs) and bed nets provided by global partners

## CDC'S IMPACT



Providing scientific leadership in elimination science



Strengthening surveillance systems to provide data for decision-making



Supporting countries to scale up interventions through the President's Malaria Initiative (with USAID)



Evaluating diagnostics, vaccines, and vector control tools to further drive down transmission and burden



Mitigating threats from drug and insecticide resistance to continued progress



Improving prevention and control of malaria in the United States



CS289084-AY

## Preventatives:

## Treatments:



# West Nile

**Circle one:**  
Bacteria, Protist, Virus

**Origin:**

**Areas it has spread to:**



**Vectors:**

**Symptoms:**

**Who is Susceptible:**

**Preventatives:**

**Treatments:**



**Links:**  
<http://bit.ly/3avho8k>

# SARS

Links:

<http://bit.ly/2TwRI5L>

Vectors:

Circle one:

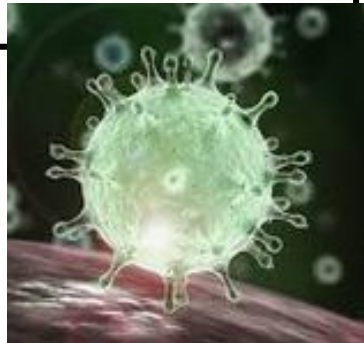
Bacteria, Protist, Virus

Origin:

Areas it has spread to:

Symptoms:

Who is Susceptible:



Preventatives:

Treatments:



# MERS

Links:  
<http://bit.ly/39xDUgK>

**Circle one:**  
Bacteria, Protist, Virus

**Origin:**

**Areas it has spread to:**

**Vectors:**

## HEALTH ADVISORY: MERS

Middle East Respiratory Syndrome

**Were you in the Middle East recently?**

- Watch for fever with cough or difficulty breathing.
- If you get sick within 14 days of leaving, call a doctor.
- Tell the doctor you traveled.

[www.cdc.gov/travel](http://www.cdc.gov/travel)



**Symptoms:**

Blank box for writing symptoms.


**Who is Susceptible:**

Blank box for writing who is susceptible.

**Preventatives:**

Blank box for writing preventatives.

**Treatments:**



### HEALTH ADVISORY:

Middle East Respiratory Syndrome (MERS)

**Going to the Arabian Peninsula?**




A new disease called MERS has been identified in some countries.

The risk to most travelers is low, but you should take these steps to prevent the spread of germs:


- Wash your hands often.
- Avoid touching your face.
- Avoid close contact with sick people.

**Symptoms include fever, cough, and shortness of breath.**

**If you get sick within 14 days of being in the Arabian Peninsula, call a doctor and tell the doctor where you traveled.**



For more information:  
visit [www.cdc.gov/travel](http://www.cdc.gov/travel)  
or call 800-CDC-INFO.



# Zika



**Circle one:**  
Bacteria, Protist, Virus

**Origin:**

**Areas it has spread to:**

**Vectors:**

**Symptoms:**

**Who is Susceptible:**



**Preventatives:**

**Treatments:**

**Links:**  
<http://bit.ly/38wPVSy>



# Cholera

## Circle one:

Bacteria, Protist, Virus

## Origin:

Areas it has spread to:



## Vectors:

## Who is Susceptible:

## Symptoms:

## Preventatives:

## Treatments:

# Stop cholera

With clean water and good hygiene practices

## Make water safe

**1** Pour (filter) water through a clean cloth.

**2** Pour 1 teaspoon (5ml) of bleach into 20-25 litres of water, mix well and wait for at least 30 minutes (half hour).

20-25l

OR

Boil the water. Let the water bubble for one minute, to make it clean and safe. Store safe water in a closed container.

## Prepare safe food

Wash it, peel it or cook it

- Wash or peel fruit and vegetables
- Cook food well
- Store food in a clean and cool place

## Wash your hands

Wash your hands with soap (or ash) and safe water...

- after using the toilet
- after changing a baby's nappy
- after throwing away rubbish

## Keep toilets clean

Use the toilet and keep the toilet clean.

Keep the toilet seat closed and keep the door closed to stop the spread of germs by flies.

### TREATMENT OF CHOLERA

1l of SAFE WATER + 8 teaspoons of SUGAR + half a teaspoon of SALT

Mix well and drink small amounts often. Go to the nearest clinic immediately.

## Links:

<http://bit.ly/3awYr5i>

<http://bit.ly/38wvp4v>