

# No One Is Immune To HIV...

## HIV and AIDS Information For Schools



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- List three ways HIV can be transmitted.
- Recall three ways HIV can be prevented.
- Explain how HIV develops into AIDS.
- Identify two types of HIV testing.
- Locate where a person can find a testing site.



**The Reader Will Be Able To**

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- What year was HIV first diagnosed?

**1981**

- What states was HIV first seen in?

**New York and California**

- When (year) was the blood supply first tested?

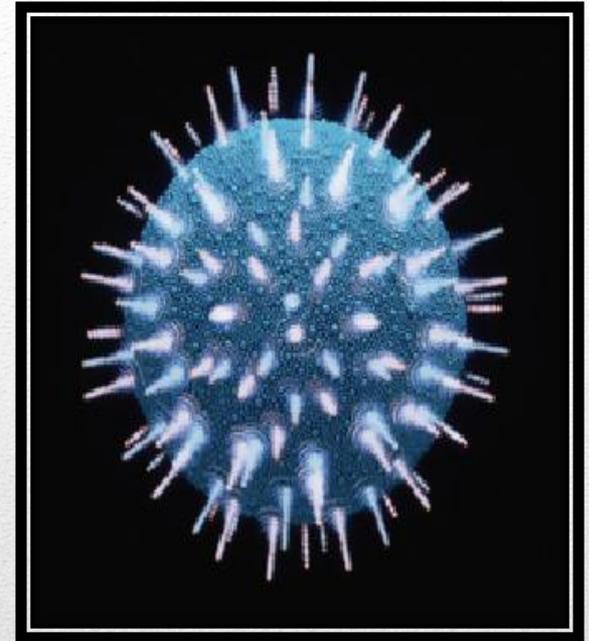
**1985**



## **General Information**

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- **H** – *Human* – This *virus* can only infect people
- **I** – *Immunodeficiency* – HIV weakens the *immune system* by destroying important cells that fight disease and infection.
- **V** – *Virus* – A virus can only reproduce itself by taking over a cell in the body of its host.



HIV

## What Is HIV?

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- **A** – *Acquired* – AIDS is not something a person inherits from their parents. A person *acquires* AIDS after birth.
- **I** – *Immune* – The body's immune system includes all of the organs and cells that work to fight off infection or disease.
- **D** – *Deficiency* – A person develops AIDS when the immune system is "deficient," or isn't working the way it should.
- **S** – *Syndrome* – A syndrome is a collection of symptoms and signs of disease.

## What Is AIDS?

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- Three theories:
  - Came in contact with chimpanzee blood
  - Bit by a chimpanzee
  - Ate uncooked chimpanzee meat

Source: CDC



Green Monkey

# Where Did HIV Come From?

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- CDC estimates that more than one million people are living with HIV in the United States (U.S.).
- One in five (21%) of those people living with HIV is unaware of their infection.
- It is estimated 56,300 Americans becoming infected with HIV each year.

Source: CDC



## HIV Data

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- People who don't know they have HIV have a **higher risk** of serious medical problems and early death.
- People who don't know they have HIV can also **pass the virus on** to others without knowing .



## HIV Data

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- **Every 9 1/2 minutes, someone in the U.S. is infected with HIV!**

Source: CDC



**Every Day**

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- More than 17,000 people with AIDS still die each year in the U.S.
- Through 2008, more than 617,000 people with AIDS in the U.S. have died since the epidemic began.

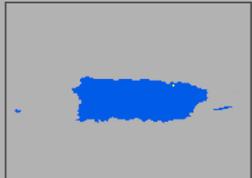
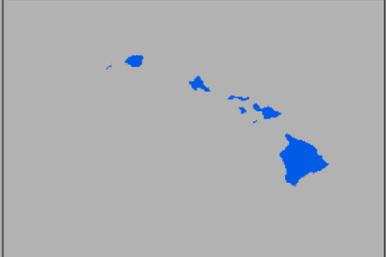
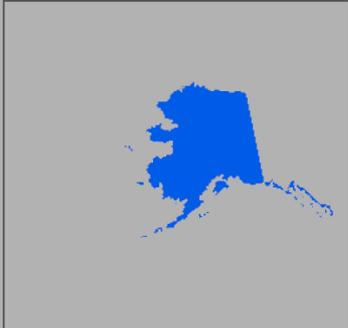
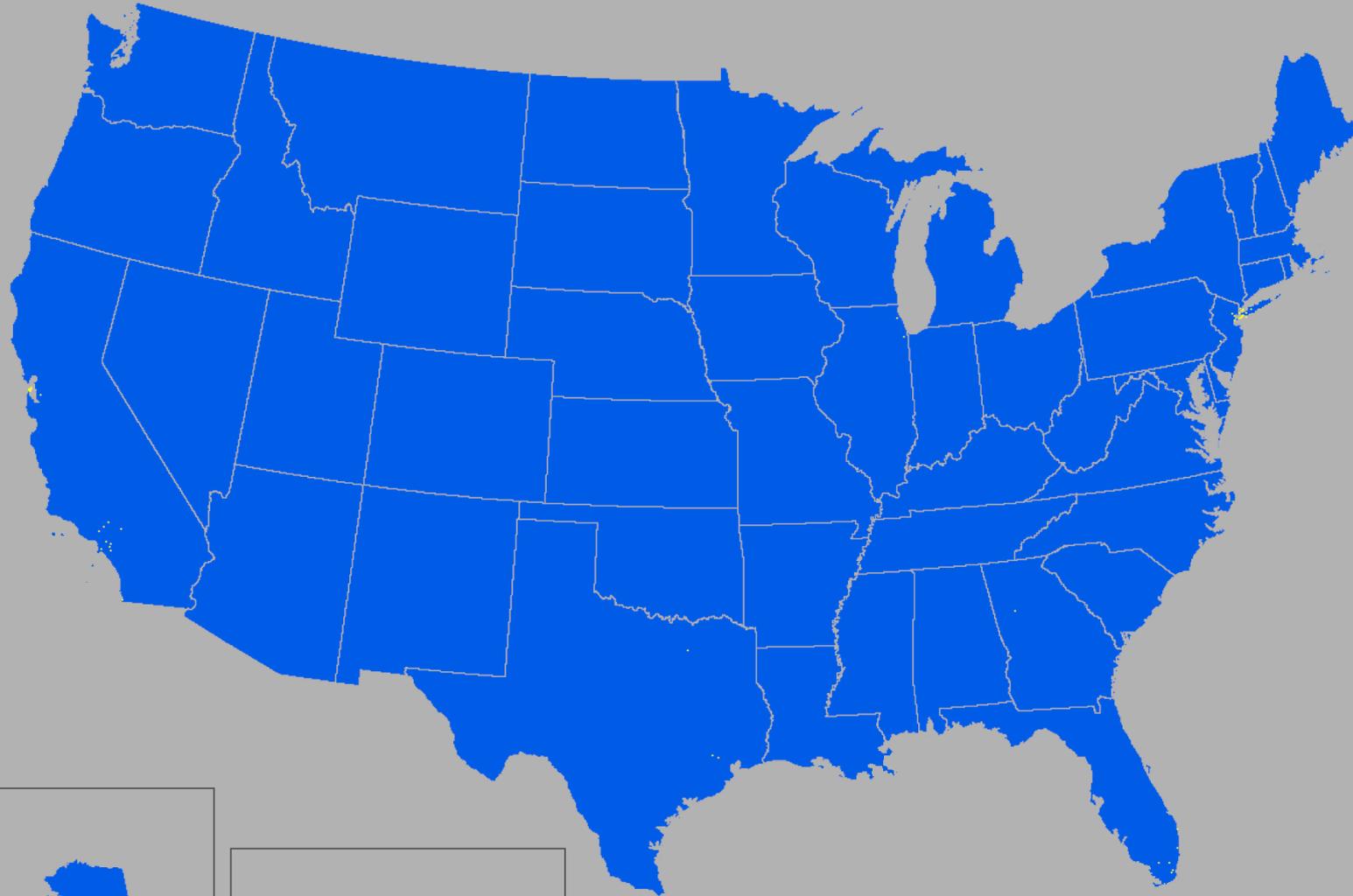
Source; CDC



## AIDS Data

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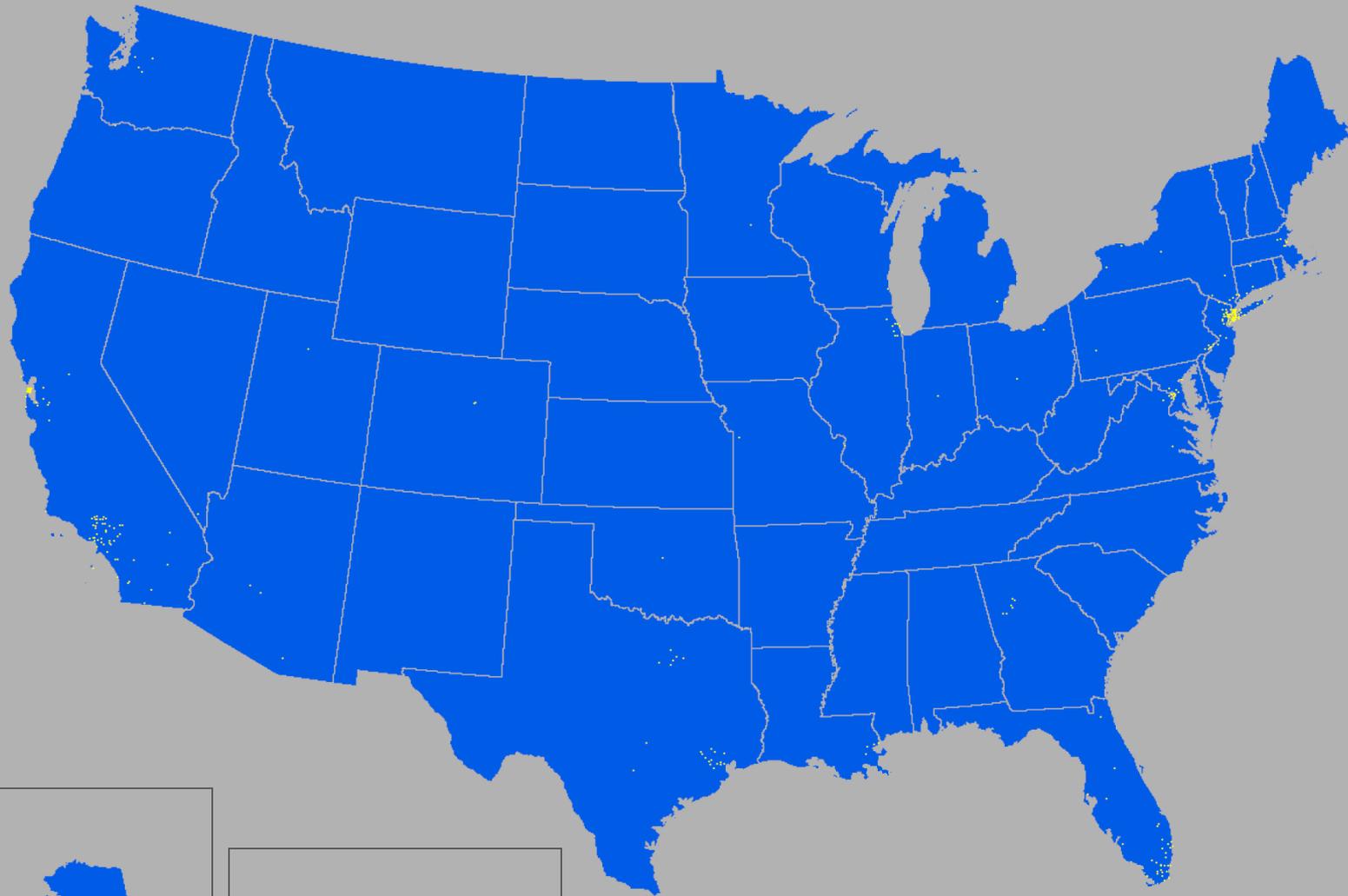
# Estimated AIDS Cases in the United States and Puerto Rico Cumulative through 1983 N = 4,793



**Each Dot Represents 50 Cases**

Note. Data have been adjusted for reporting delays. Data are presented for AIDS cases reported to CDC through June 2008. All data are provisional.

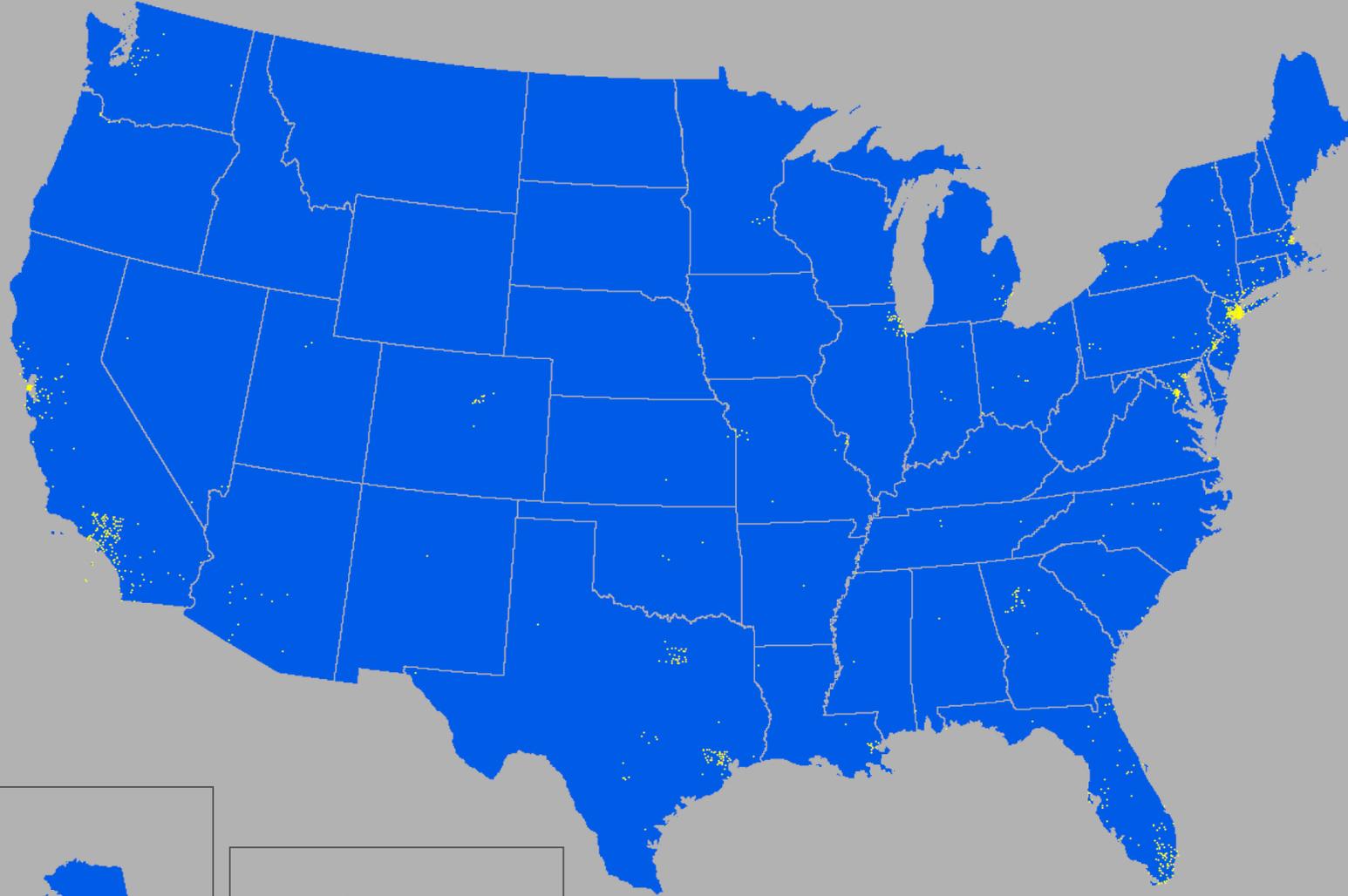
# Estimated AIDS Cases in the United States and Puerto Rico Cumulative through 1985 N = 23,141



**Each Dot Represents 50 Cases**

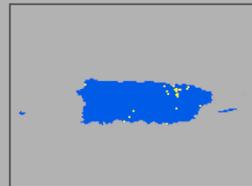
Note. Data have been adjusted for reporting delays. Data are presented for AIDS cases reported to CDC through June 2008. All data are provisional.

# Estimated AIDS Cases in the United States and Puerto Rico Cumulative through 1987 N = 71,189

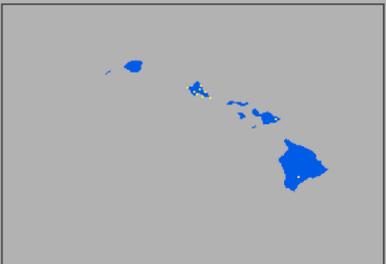
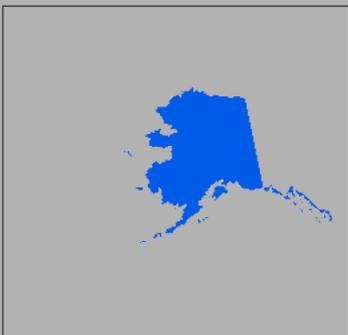
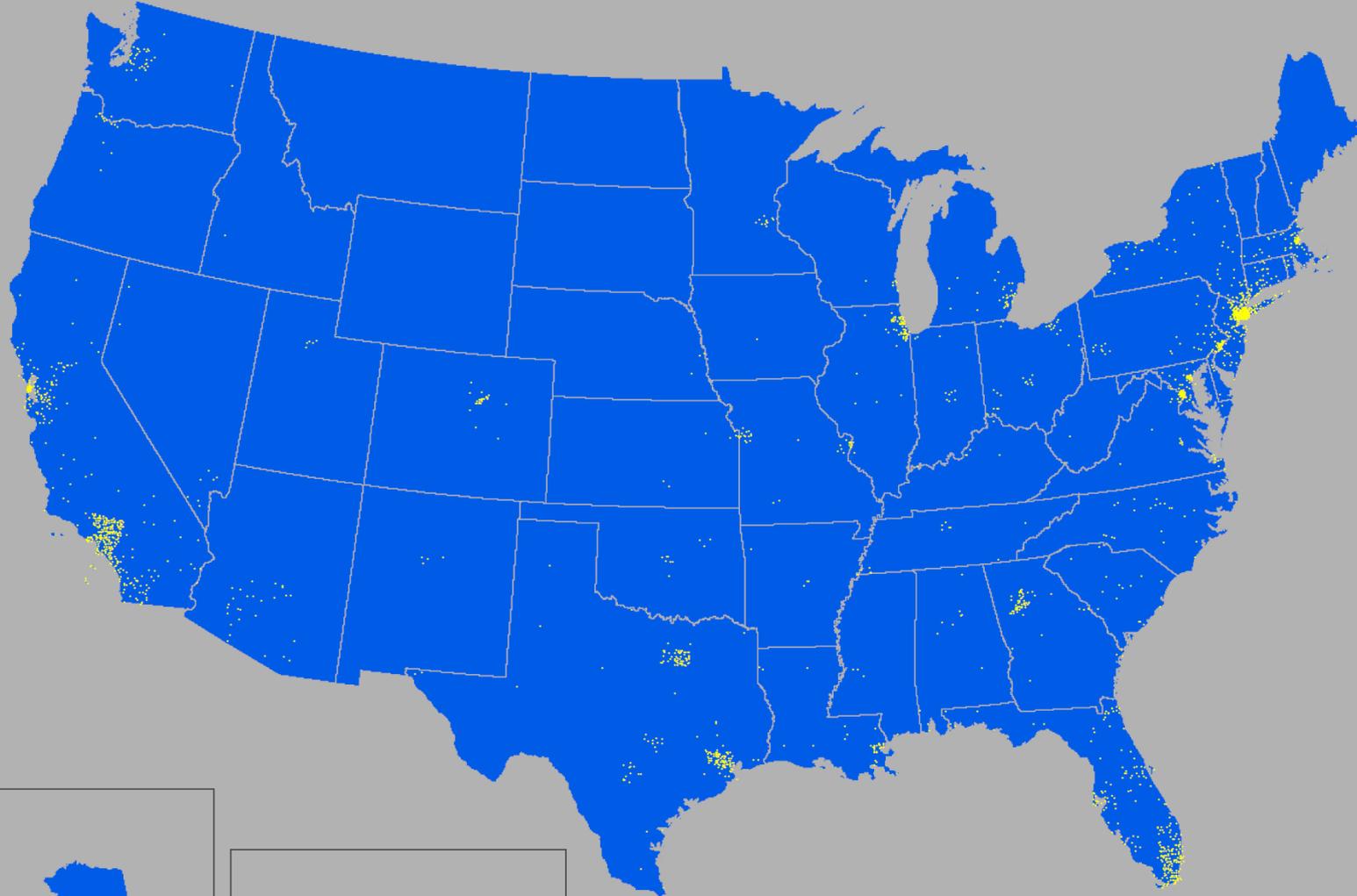


**Each Dot Represents 50 Cases**

Note. Data have been adjusted for reporting delays. Data are presented for AIDS cases reported to CDC through June 2008. All data are provisional.

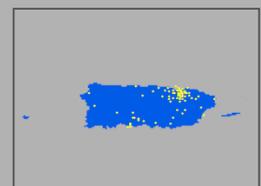


# Estimated AIDS Cases in the United States and Puerto Rico Cumulative through 1989 N = 149,528

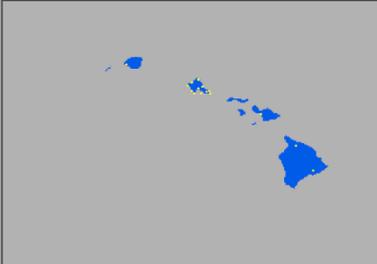
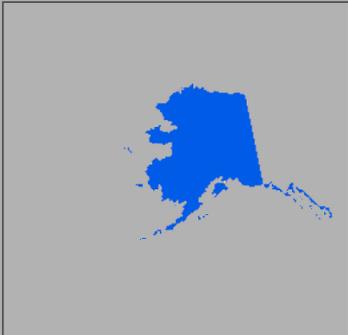
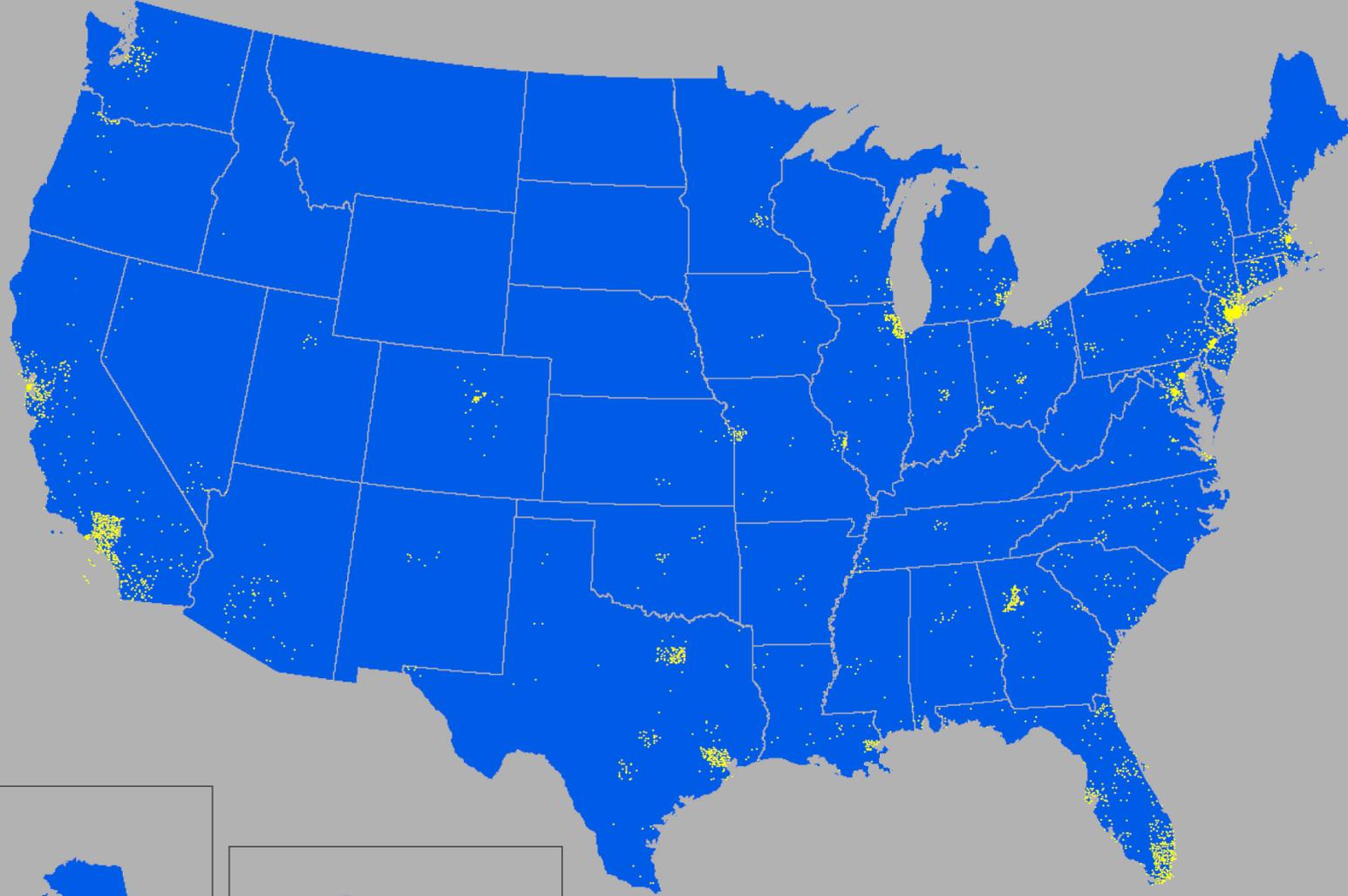


**Each Dot Represents 50 Cases**

Note. Data have been adjusted for reporting delays. Data are presented for AIDS cases reported to CDC through June 2008. All data are provisional.

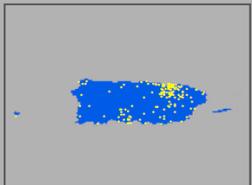


# Estimated AIDS Cases in the United States and Puerto Rico Cumulative through 1991 N = 257,594

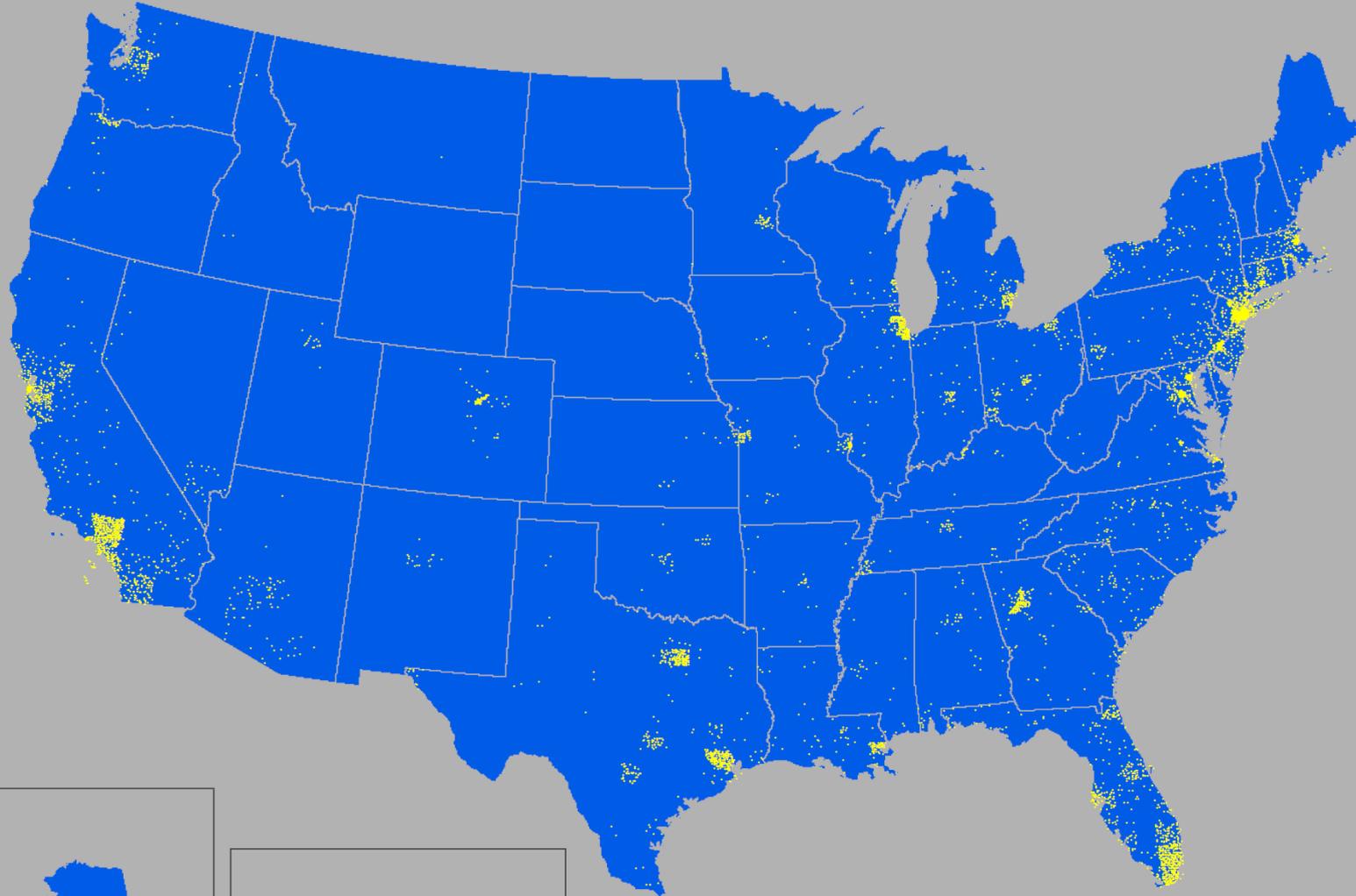


**Each Dot Represents 50 Cases**

Note. Data have been adjusted for reporting delays. Data are presented for AIDS cases reported to CDC through June 2008. All data are provisional.

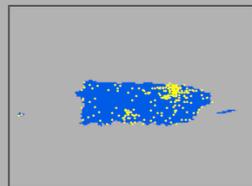


# Estimated AIDS Cases in the United States and Puerto Rico Cumulative through 1993 N = 413,074

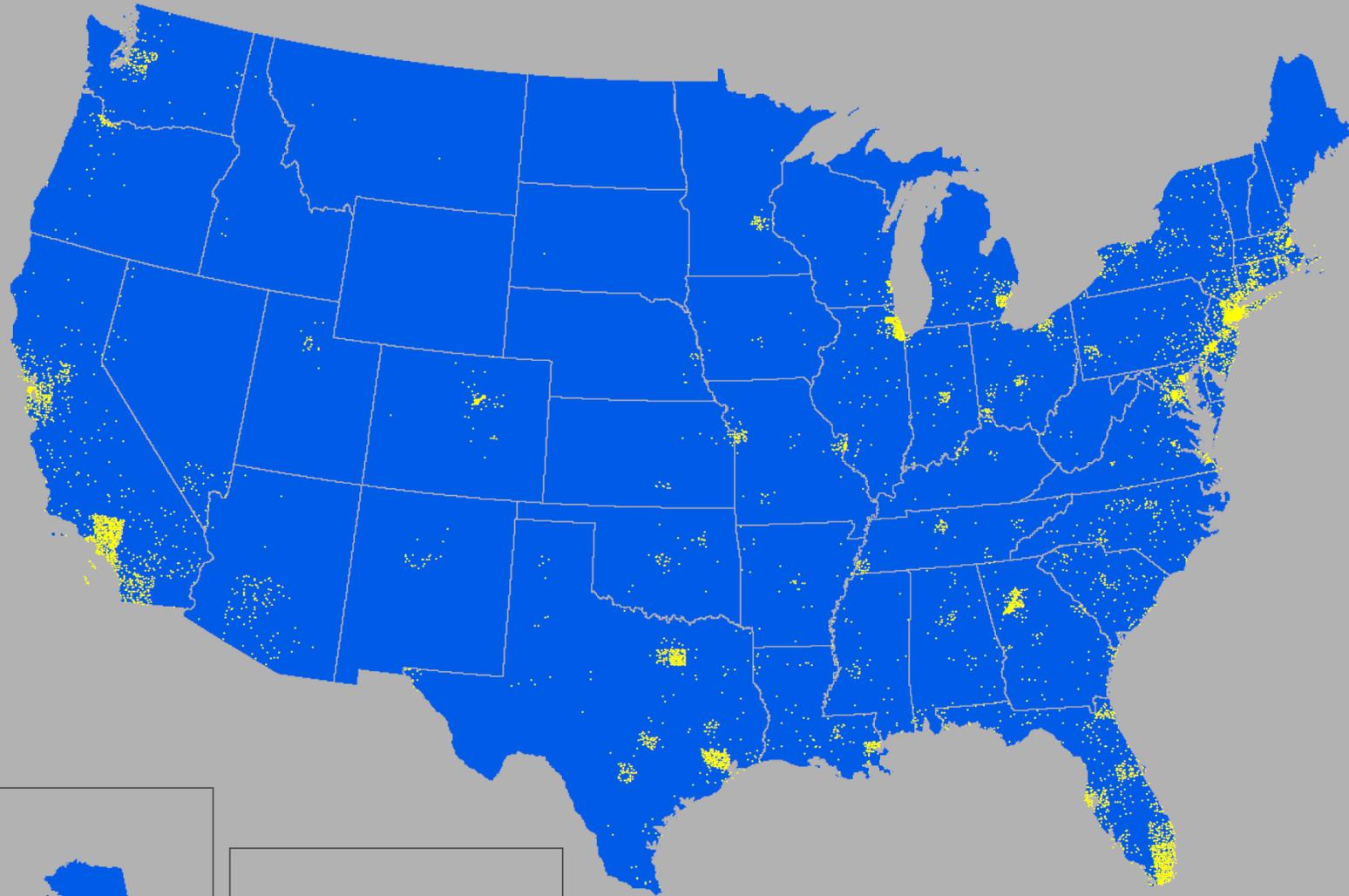


**Each Dot Represents 50 Cases**

Note. Data have been adjusted for reporting delays. Data are presented for AIDS cases reported to CDC through June 2008. All data are provisional.

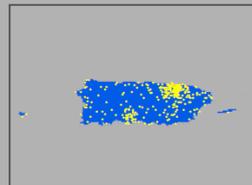
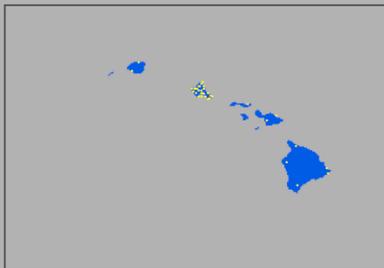
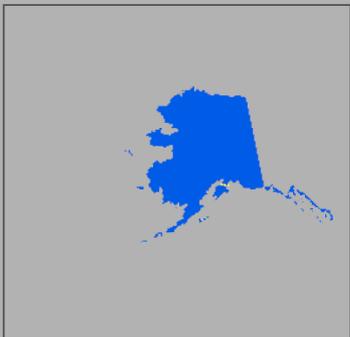


# Estimated AIDS Cases in the United States and Puerto Rico Cumulative through 1995 N = 552,002

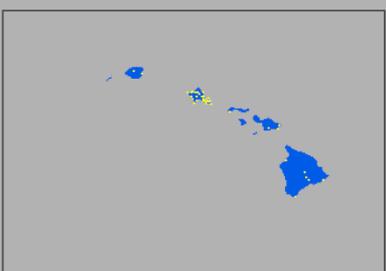
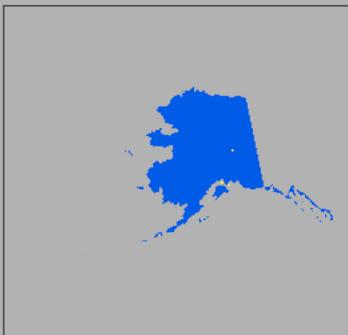
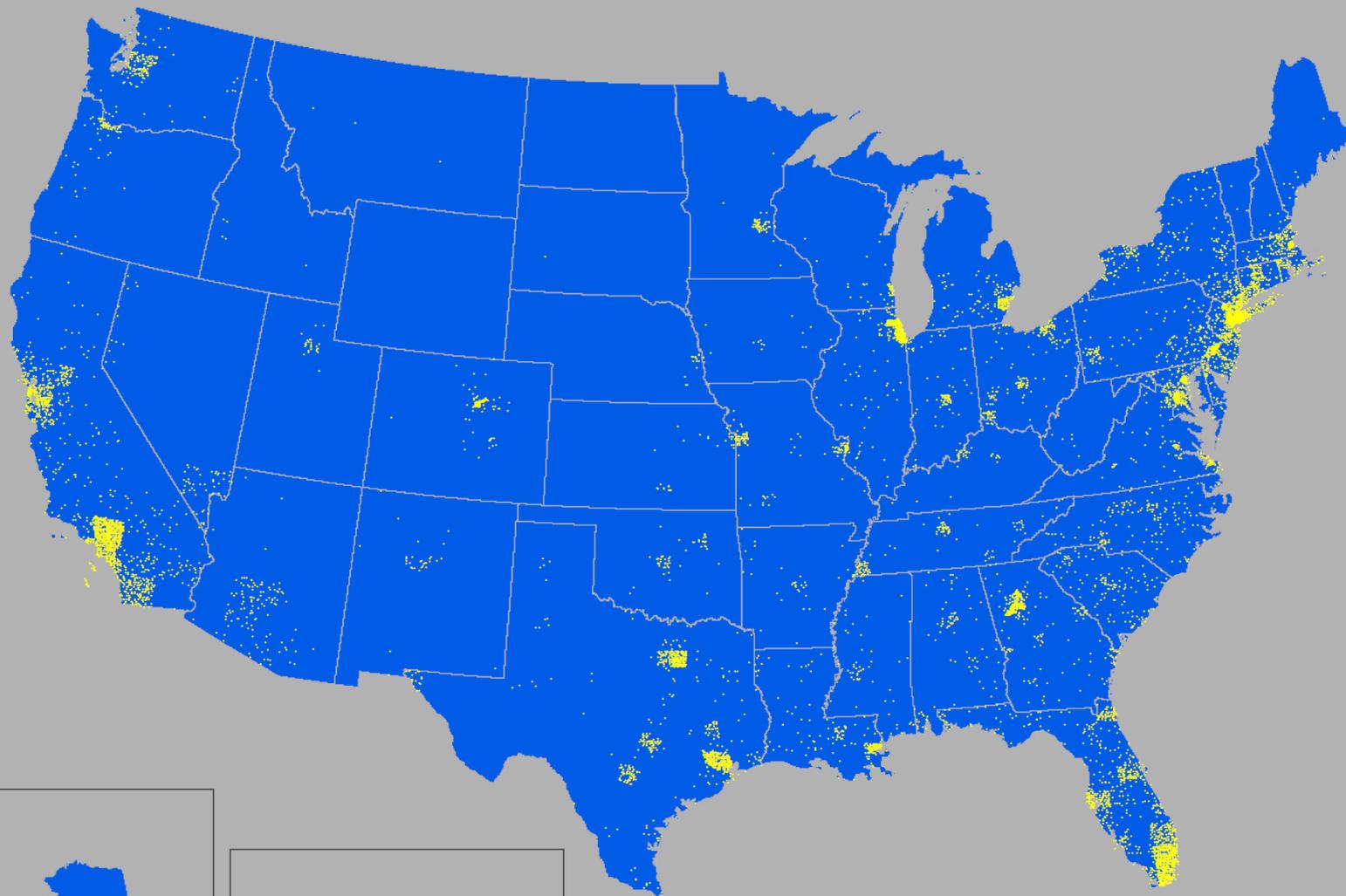


**Each Dot Represents 50 Cases**

Note. Data have been adjusted for reporting delays. Data are presented for AIDS cases reported to CDC through June 2008. All data are provisional.

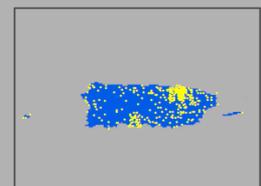


# Estimated AIDS Cases in the United States and Puerto Rico Cumulative through 1997 N = 660,763

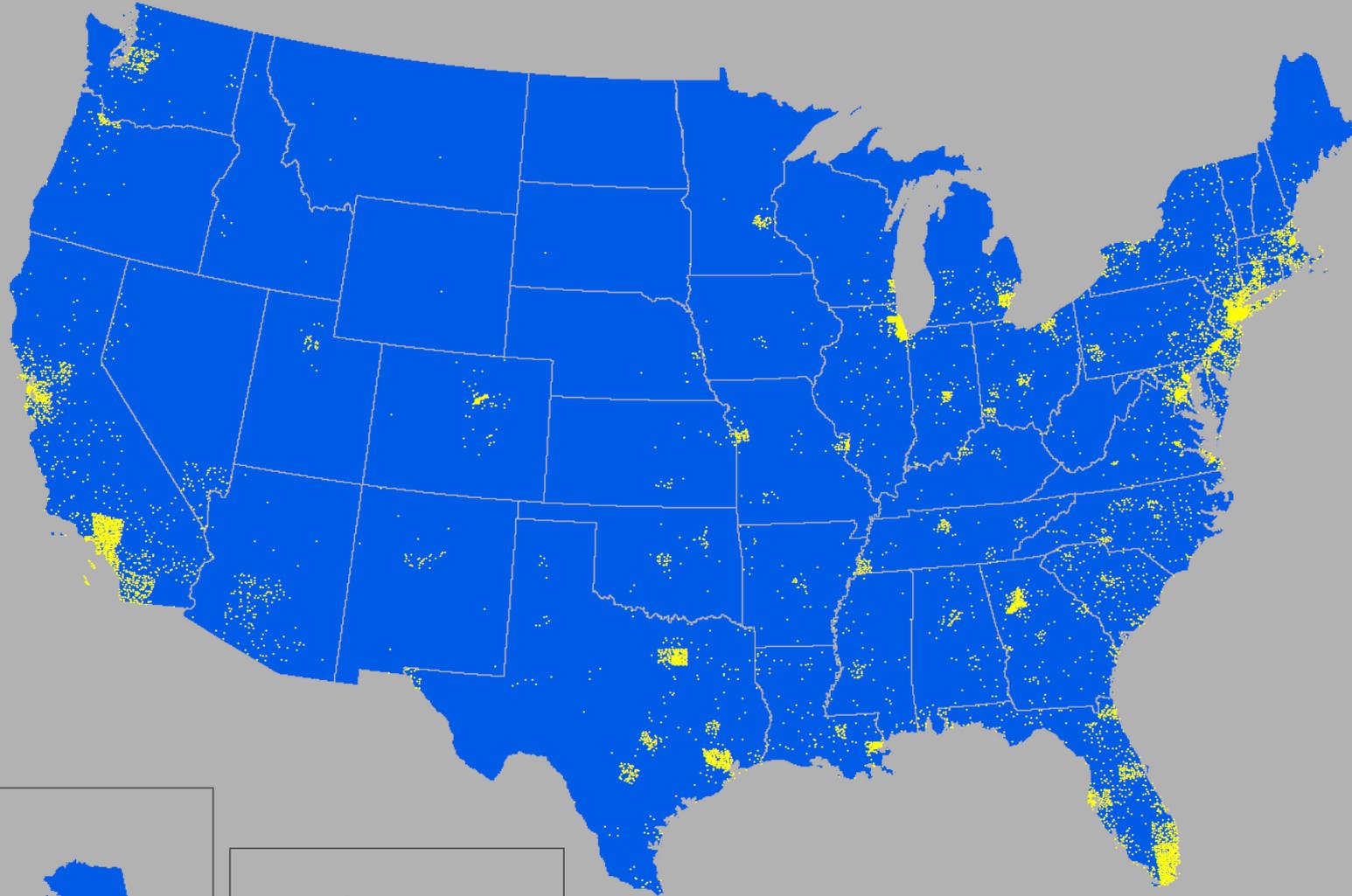


**Each Dot Represents 50 Cases**

Note. Data have been adjusted for reporting delays. Data are presented for AIDS cases reported to CDC through June 2008. All data are provisional.

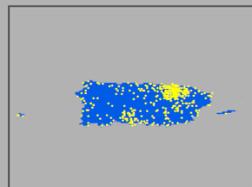


# Estimated AIDS Cases in the United States and Puerto Rico Cumulative through 1999 N = 742,557

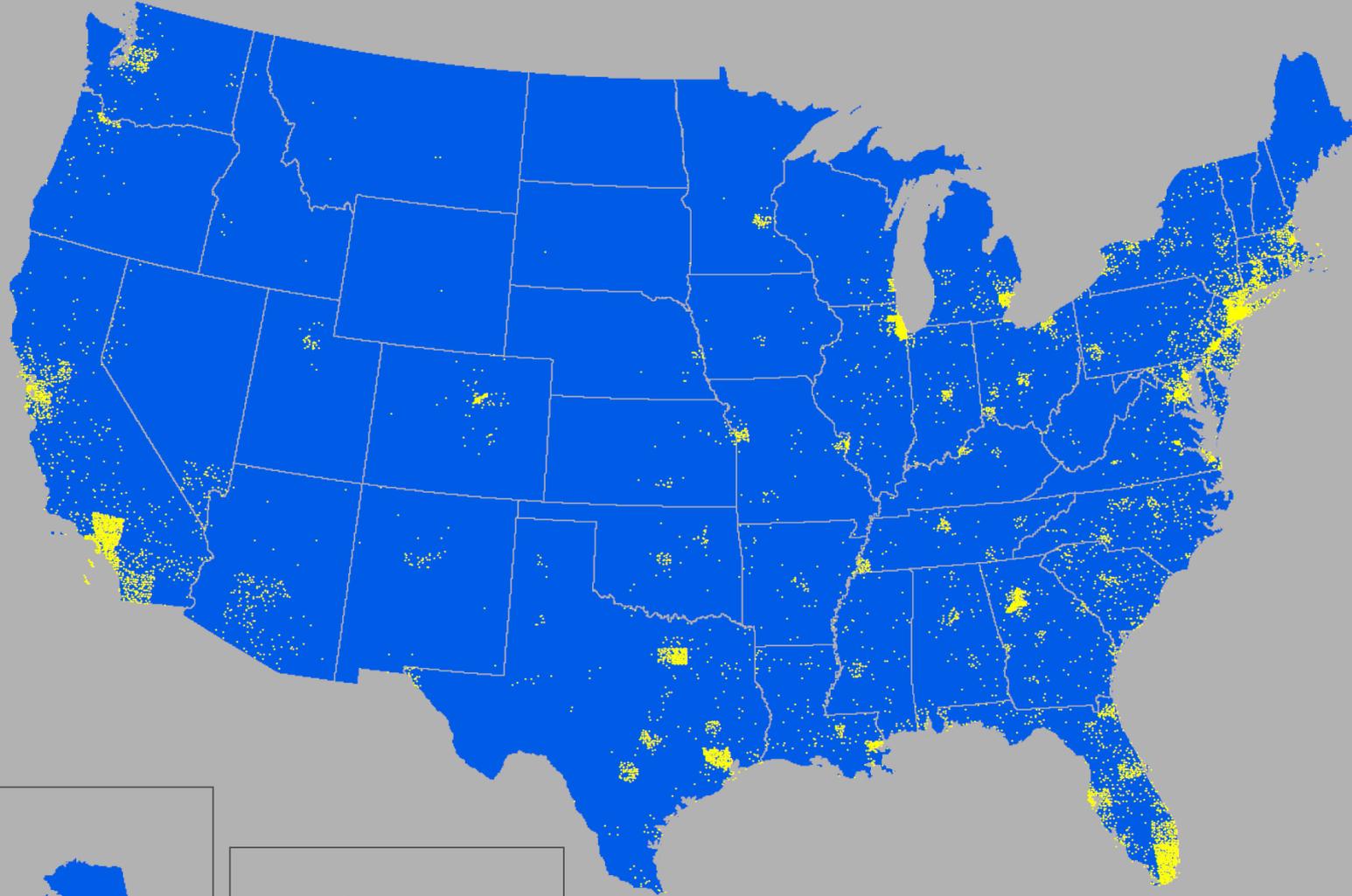


**Each Dot Represents 50 Cases**

Note. Data have been adjusted for reporting delays.  
Data are presented for AIDS cases reported to CDC  
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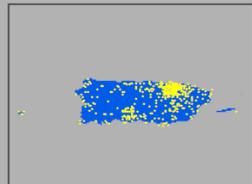
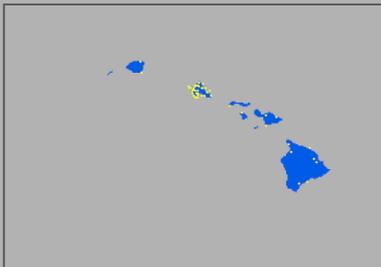
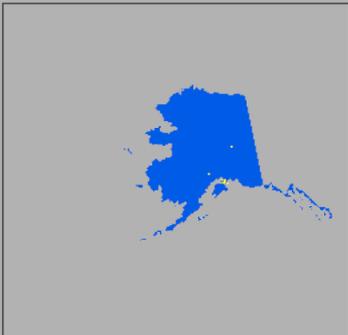


# Estimated AIDS Cases in the United States and Puerto Rico Cumulative through 2001 N = 821,566

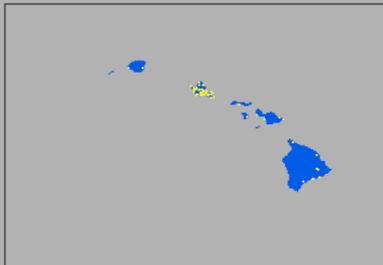
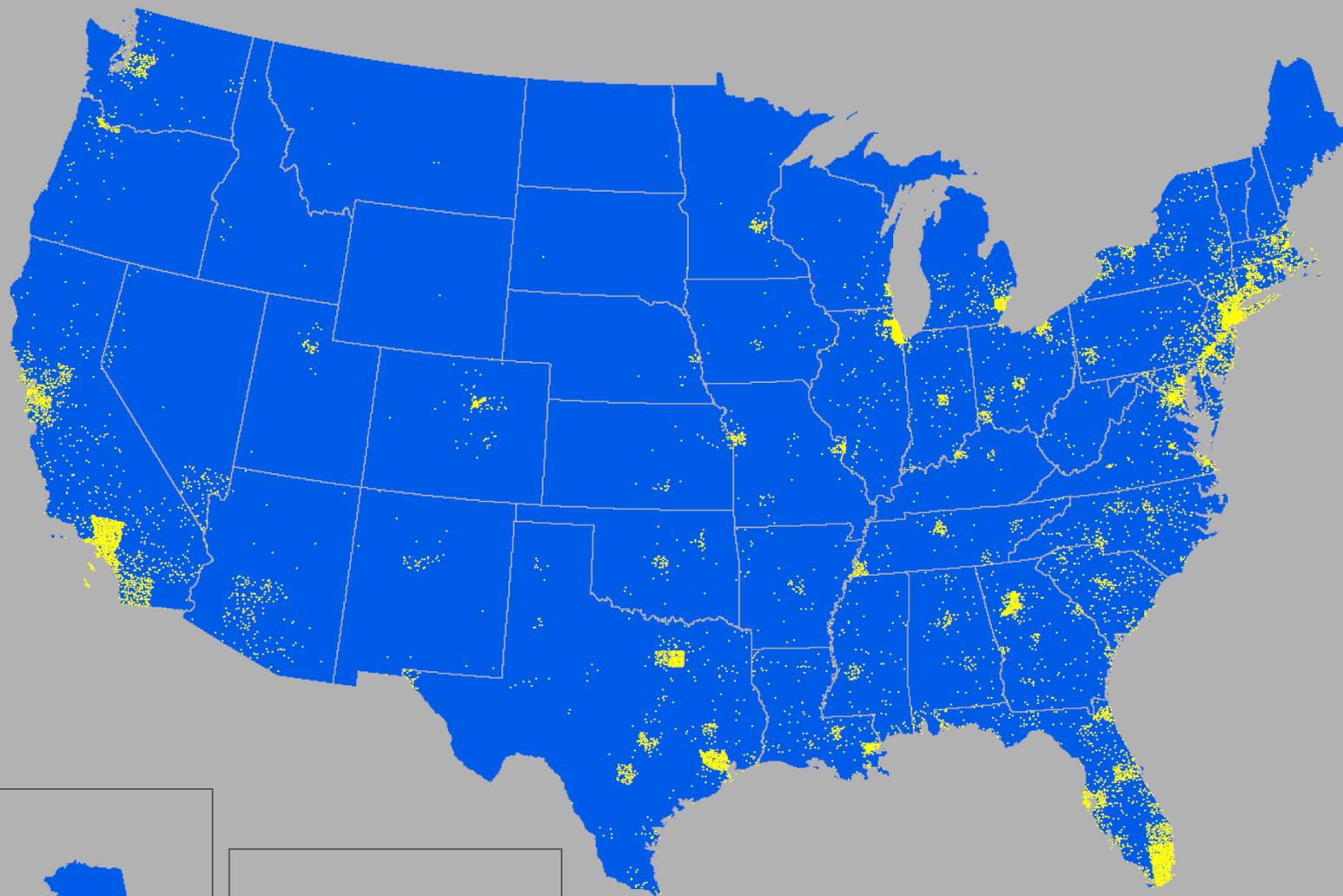


**Each Dot Represents 50 Cases**

Note. Data have been adjusted for reporting delays. Data are presented for AIDS cases reported to CDC through June 2008. All data are provisional.

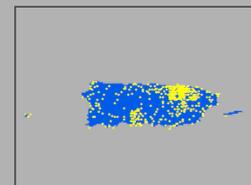


# Estimated AIDS Cases in the United States and Puerto Rico Cumulative through 2003 N = 900,883

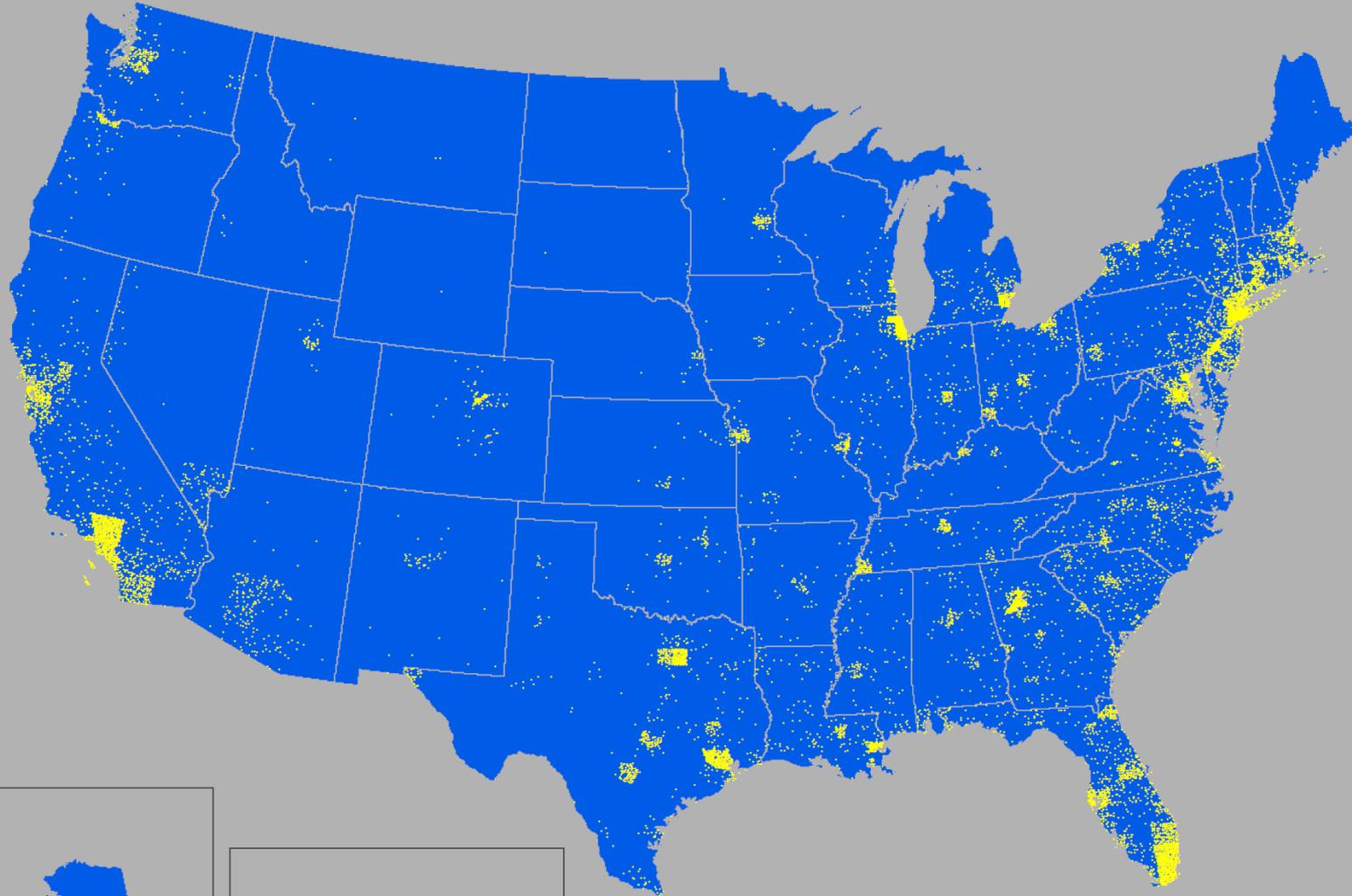


**Each Dot Represents 50 Cases**

Note. Data have been adjusted for reporting delays. Data are presented for AIDS cases reported to CDC through June 2008. All data are provisional.

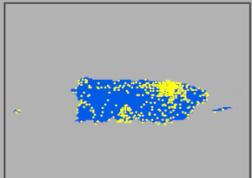
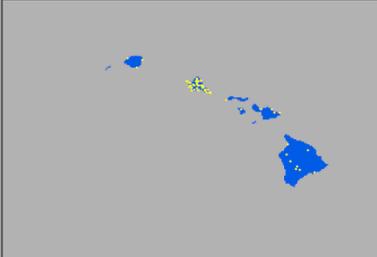


# Estimated AIDS Cases in the United States and Puerto Rico Cumulative through 2005 N = 976,474

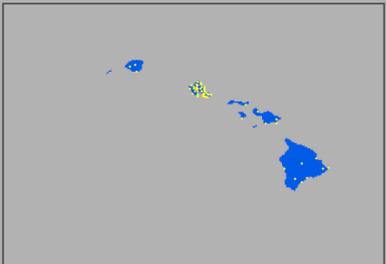
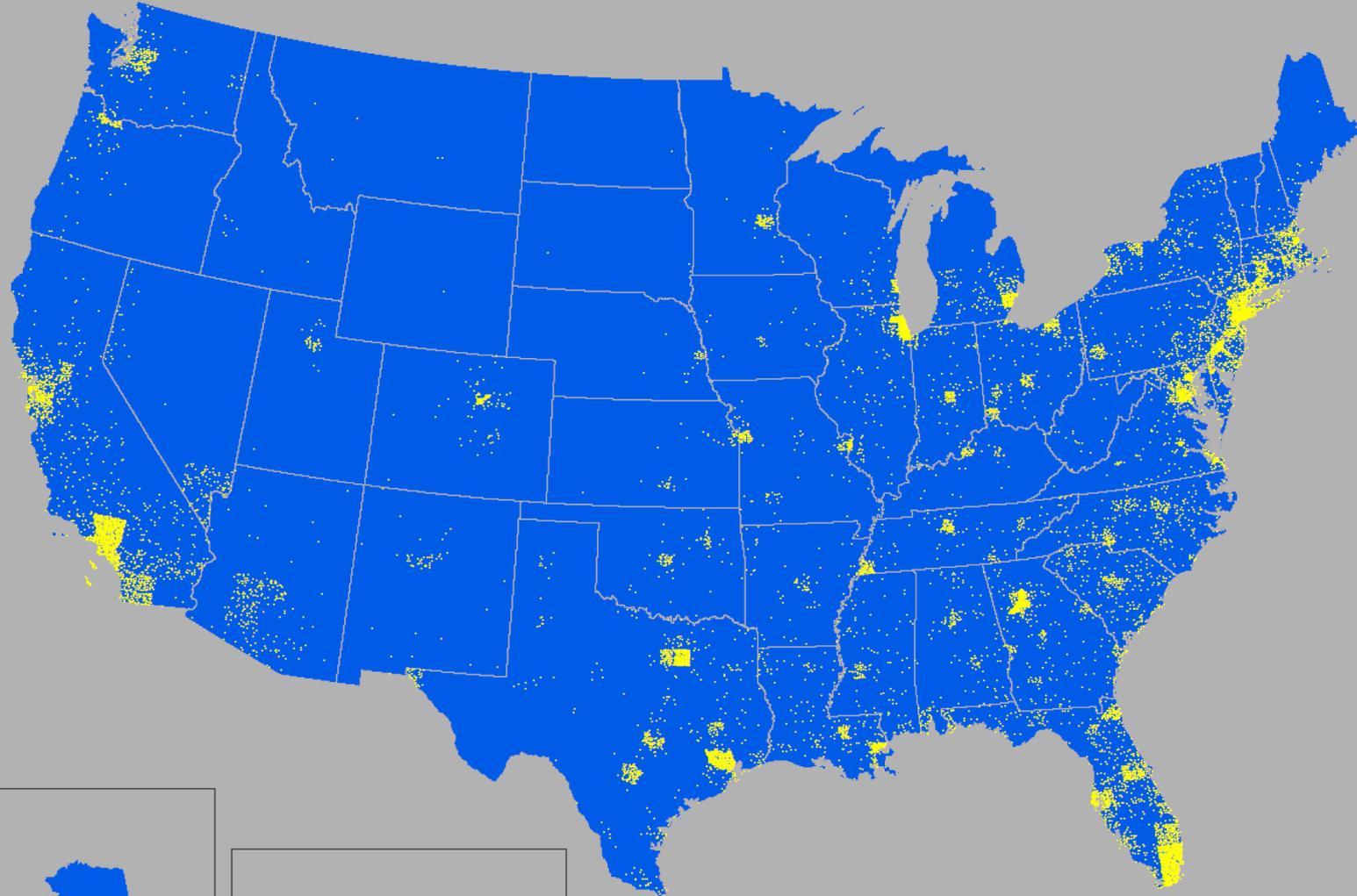


**Each Dot Represents 50 Cases**

Note. Data have been adjusted for reporting delays. Data are presented for AIDS cases reported to CDC through June 2008. All data are provisional.

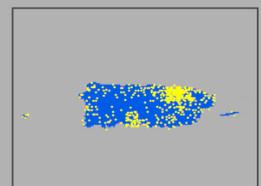


# Estimated AIDS Cases in the United States and Puerto Rico Cumulative through 2007 N = 1,049,714



**Each Dot Represents 50 Cases**

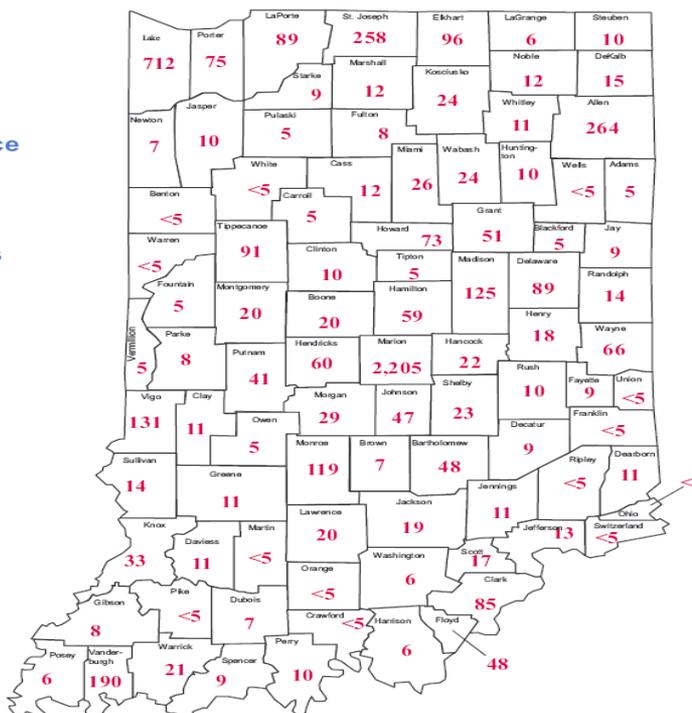
Note. Data have been adjusted for reporting delays. Data are presented for AIDS cases reported to CDC through June 2008. All data are provisional.



## HIV DISEASE CASE DEATHS REPORTED AS OF JUNE 30, 2011\*

Total Deaths among  
Persons with HIV  
Disease Reported Since  
1981: 5,742

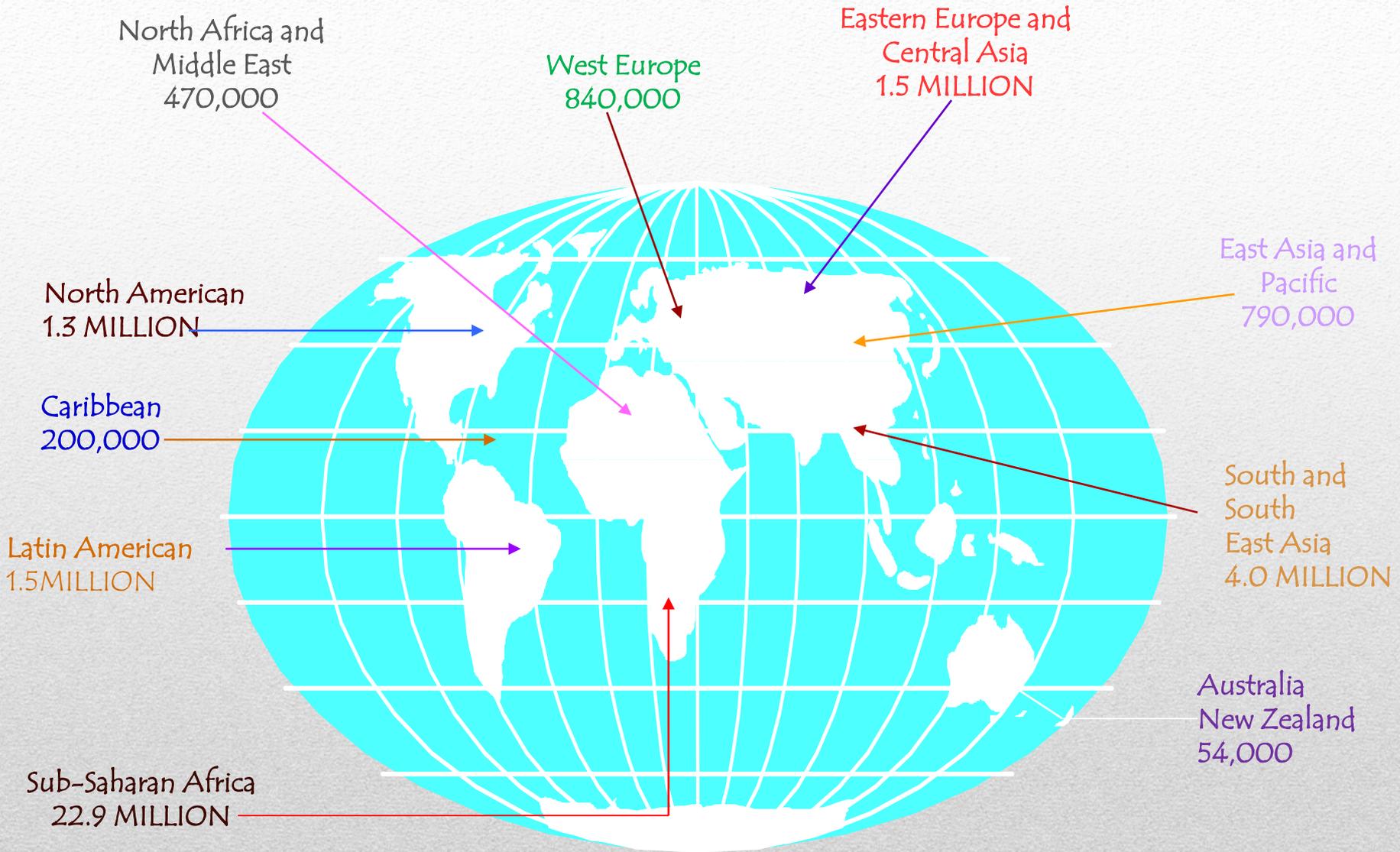
**NOTE:** A Vital Records  
and CDC match was  
performed, which  
resulted in unreported  
deaths from previous  
years.



\* The subject heading 'HIV Disease' found within this document refers to a combined total of persons with HIV or AIDS including those where progression to AIDS has occurred.

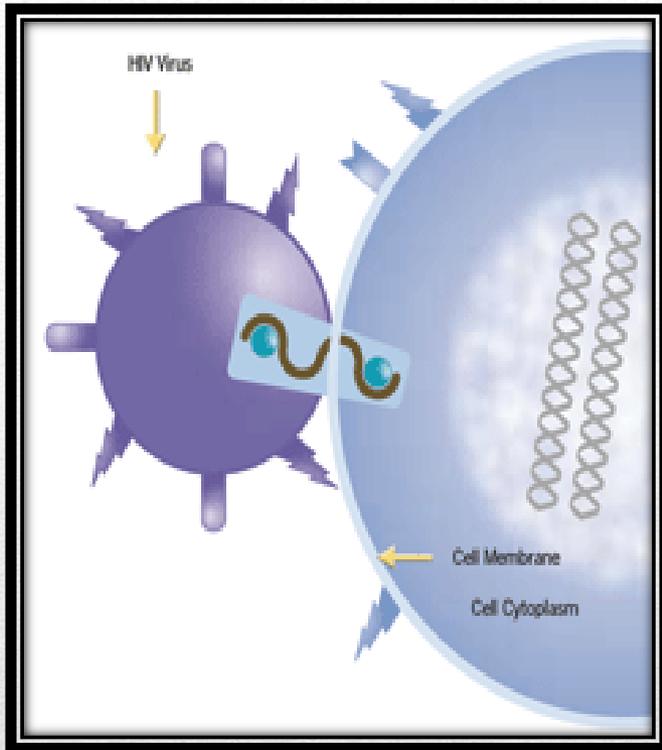
# Indiana Data

Source: ISDH



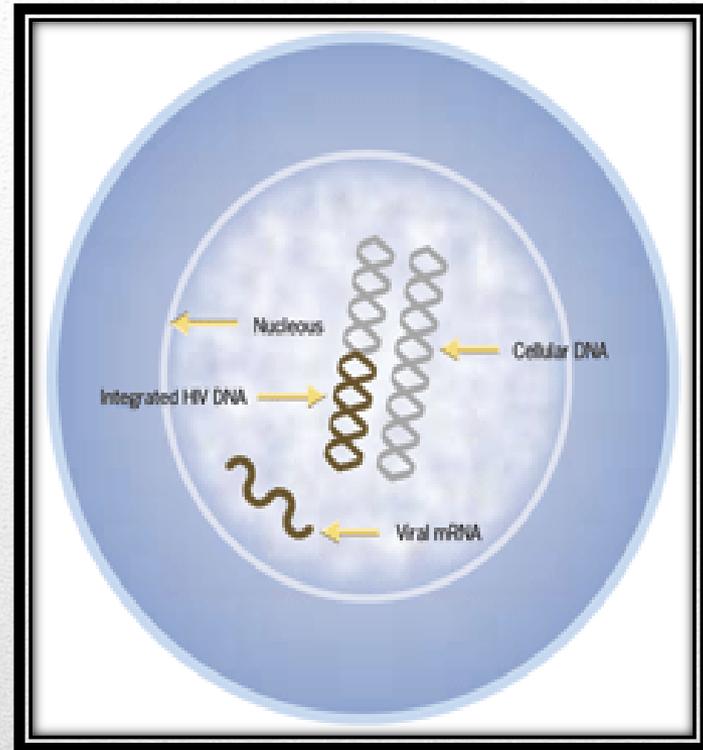
**Adults and Children Infected with HIV in 2010**  
**TOTAL 34.0 Million**

Source: UNAIDS 2010



## INFECTION OF HOST CELL

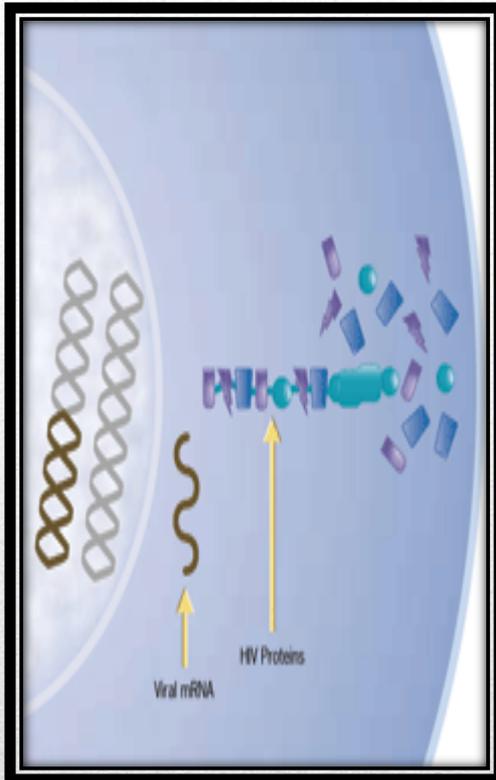
HIV binds to the receptor on the surface of the host cell. HIV's genetic core and enzymes are injected into the host cell.



## INTEGRATION INTO HOST CELL

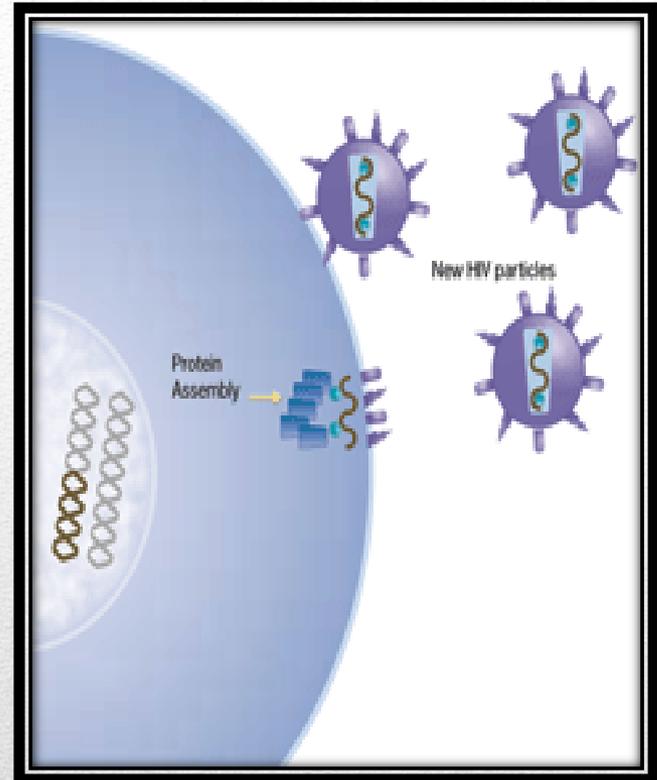
HIV's DNA is inserted into the host cell's nucleus, the site of its DNA.

# How HIV Works



### **ACTIVATION OF THE VIRUS**

The host cell is now infected. And HIV is formed in the infected cell.

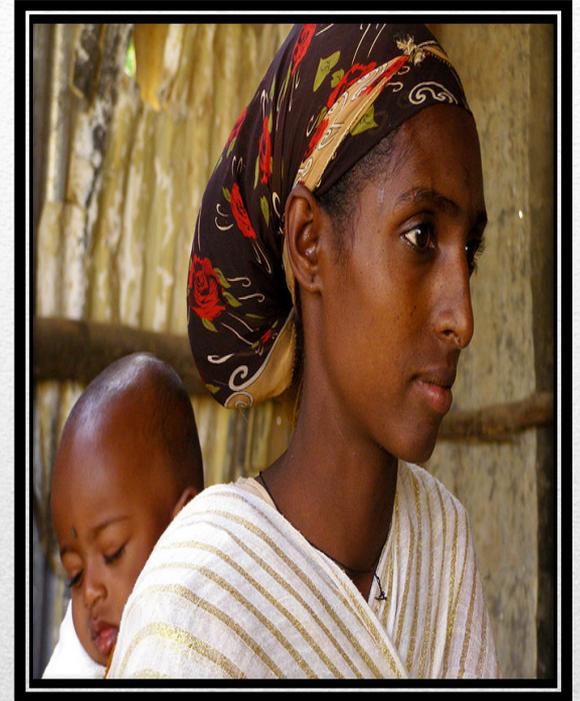


### **BUDDING AND FURTHER INFECTION**

The newly-formed HIV then “buds” out and is released from the infected host cell to repeat the same process of infection in other cells.

# How HIV Works

- HIV-2 has the same modes of transmission as HIV-1 and is associated with similar opportunistic infections and AIDS.
- HIV-2, develops more slowly and tends to be milder. Those with HIV-2 are comparatively less infectious early in the course of infection.
- HIV-2 is more common in Africa than here in the United States.

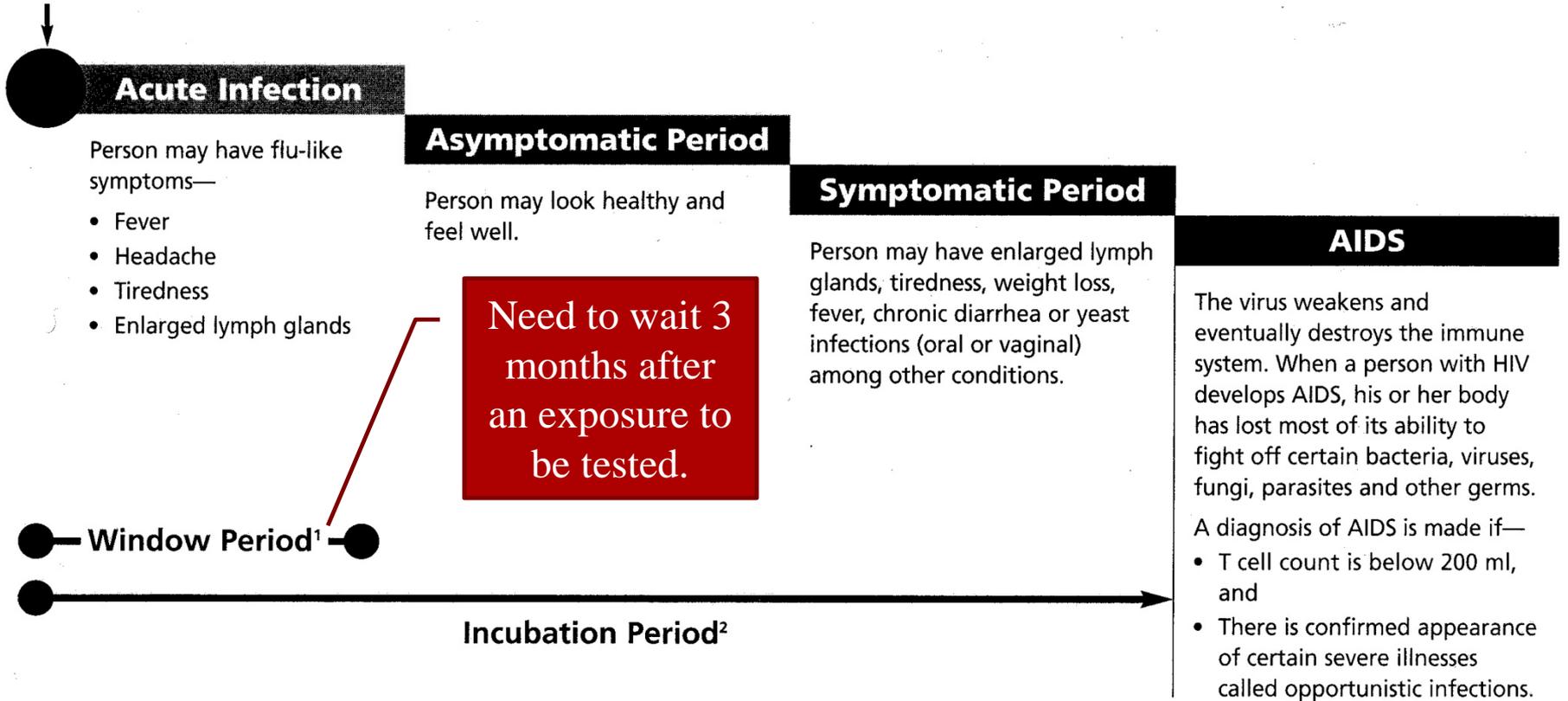


## HIV- 2

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# The Stages of HIV Infection

Person becomes infected with HIV



- A person who has HIV can infect others even if they look healthy and feel well.
- One person with HIV may have a different combination of signs and symptoms from someone else who is also infected.
- Only an HIV test can show if someone is infected with HIV.
- Only a doctor can diagnose AIDS.

1. *Window Period:* Time it takes for antibodies to become detectable in the body; usually within three months.

2. *Incubation Period:* Time from point of infection to development of AIDS.

**Note:** This handout intentionally leaves out time because people are affected differently by HIV. Their health, access to treatment and many factors determine how long they stay in one stage. For detailed information about the stages of infection, please see the Facts Book.

# WHY DOES THE INTERNET PLAY A ROLE IN HIV TRANSMISSION?



- Blood products
- Semen
- Vaginal secretions
- Breast milk
- Saliva in dental settings
- Any body fluid that is visibly contaminated with blood



## **Bodily Fluids That Transmit HIV**

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- The U.S. blood supply is among the safest in the world.
- Nearly all people infected with HIV through blood transfusions received those transfusions before 1985, the year HIV testing began for all donated blood.
- All blood donors and organ donors are screened for their risk of HIV.
- All donated blood and organs are tested.
- All blood and organs that test positive for HIV are destroyed.



## Blood Supply And HIV

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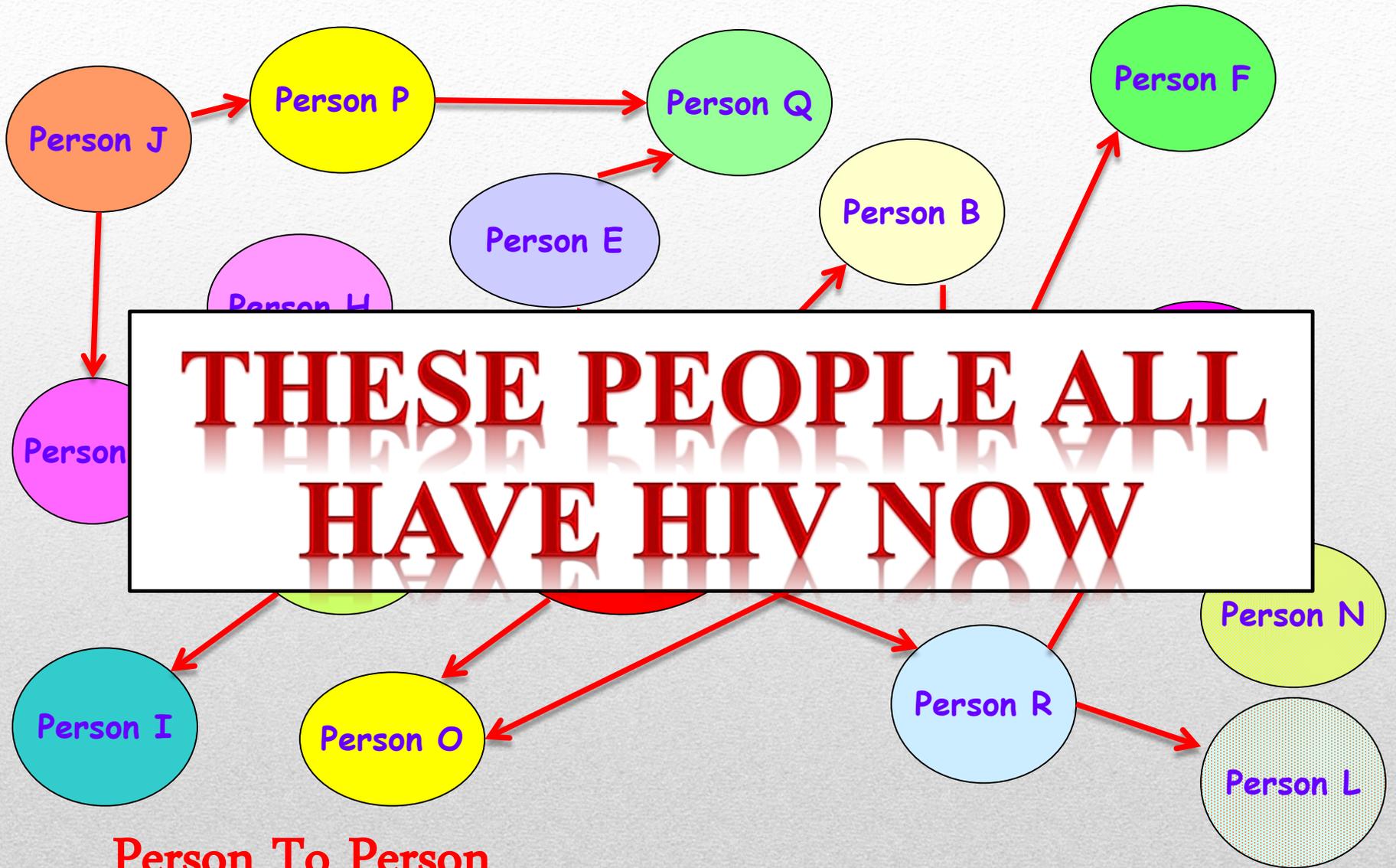


- Indiana Code IC-16-41-7-2.
- A person who tests positive for HIV **MUST** tell his or her sex and needle sharing partner.
- They can not donate blood, organs, or any other body fluid (sperm, breast milk).
- If the person does not disclose the information they will be arrested.



## Public Health Law

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**Person To Person**

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Greenwood Man Arrested  
For Not Disclosing His HIV  
Positive Diagnosis

**FELONY CHARGE**

A Greenwood man is in jail for allegedly **not telling the women he dated he is HIV-positive.**

The man's ex-girlfriend now fears for her life and the health of others.

"I will never be right again because of this monster," the woman said.

Tony Perkins, 47, was arrested after the ex-girlfriend turned him in for what he didn't tell her.

**"At this time, we have the names of 11 women he had sexual relations with," said Greenwood Police Chief Joe Pitcher.**

Although diagnosed in 2004, investigators say **Perkins broke the law by not informing the women he slept with that he was HIV-positive. The ex-girlfriend believes "hundreds" of women may be affected.**

Perkins was twice warned by the state health department that it was his duty and the law to inform partners of his condition.

The victim who came forward told police Perkins **often meets women on a dating web site**

- Causal contact
- Eating after someone
- By mosquitoes
- Saliva
- Sweat
- Tears
- Using the bathroom after someone
- Drinking after someone
- Hanging out with someone as long as there is not drugs or alcohol



## How Is HIV Not Transmitted?

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- Cause a person to make unhealthy choices.
- Can lower a persons immune system.
- May cause a person not to use a latex condom.
- Sharing needles/syringes and drug equipment increases the risk of HIV



## Alcohol And Drugs

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- Coughing & shortness of breath
- Fever
- Severe & persistent diarrhea
- Weight loss & extreme fatigue
- Difficult or painful swallowing
- Nausea, abdominal cramps & vomiting



## Symptoms Of HIV

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- A person who is HIV + must have three things to move to AIDS:
  - CD4 and T-Cells (white blood cells) must be below 200 to move to AIDS.
  - A person without HIV usually has a CD4 and T-Cell count of 800 to 1,200 or more.(NIH)
  - The person must also have **TWO** of the opportunistic infections to move to AIDS

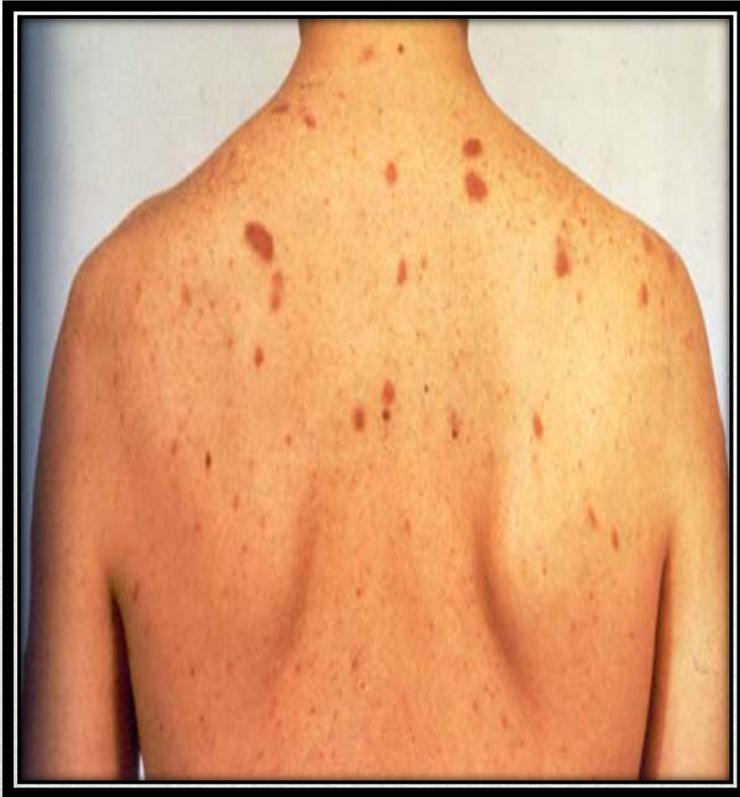


## HIV To AIDS

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AIDS INDICATOR DISEASES	Initial Diagnosis		Initial Date		AIDS INDICATOR DISEASES	Initial Diagnosis		Initial Date	
	Def.	Pres.	Mo.	Yr.		Def.	Pres.	Mo.	Yr.
Candidiasis, bronchi, trachea, or lungs .....	1	NA			Lymphoma, Burkitt's (or equivalent term)	1	NA		
Candidiasis, esophageal .....	1	2			Lymphoma, immunoblastic .....	1	NA		
Carcinoma, invasive cervical .....	1	NA			(or equivalent term)				
Coccidioidomycosis, disseminated .....	1	NA			Lymphoma, primary in brain .....	1	NA		
or extrapulmonary					<i>Mycobacterium avium</i> complex .....	1	2		
Cryptococcosis, extrapulmonary .....	1	NA			or <i>M. kansasii</i> , disseminated .....				
Cryptosporidiosis, chronic intestinal .....	1	NA			or extrapulmonary				
(>1 mo. duration)					<i>M. tuberculosis, pulmonary*</i> .....	1	2		
Cytomegalovirus disease (other than in liver, .....	1	NA			<i>M. tuberculosis, disseminated .....</i>	1	2		
spleen, or nodes)					or extrapulmonary*				
Cytomegalovirus retinitis (with loss of vision) ..	1	2			<i>Mycobacterium, of other species or .....</i>	1	2		
HIV encephalopathy .....	1	NA			unidentified species, disseminated or .....				
Herpes simplex: chronic ulcer(s) (>1 mo. ....	1	NA			extrapulmonary				
duration); or bronchitis, pneumonitis or .....					<i>Pneumocystis carinii</i> pneumonia .....	1	2		
esophagitis					<i>Pneumonia, recurrent, in 12 mo. period ..</i>	1	2		
Histoplasmosis, disseminated or extra .....	1	NA			Progressive multifocal .....	1	NA		
pulmonary					leukoencephalopathy				
Isosporiasis, chronic intestinal .....	1	NA			Salmonella septicemia, recurrent .....	1	NA		
(> 1 mo. duration)					Toxoplasmosis of brain .....	1	2		
Kaposi's sarcoma .....	1	2			Wasting syndrome due to HIV .....	1	NA		

# Opportunistic Infections



**Kaposi's Sarcoma**



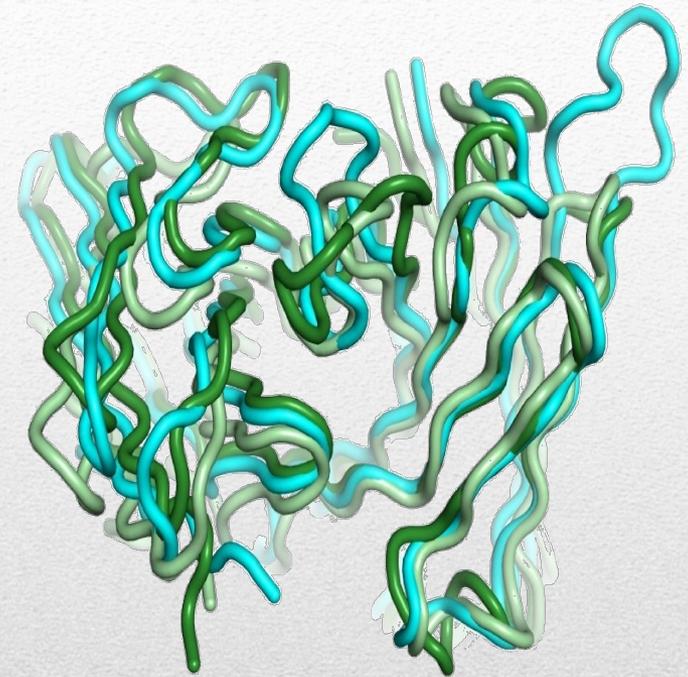
**Candidacies Esophageal**

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

# **Opportunistic Infections**

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- The most commonly used HIV tests detect **HIV antibodies** – the substances the body creates in response to becoming infected with HIV.
- There are tests that look for HIV's genetic material or proteins directly; these may also be used to find out if someone has been infected with HIV.



HIV Antibodies

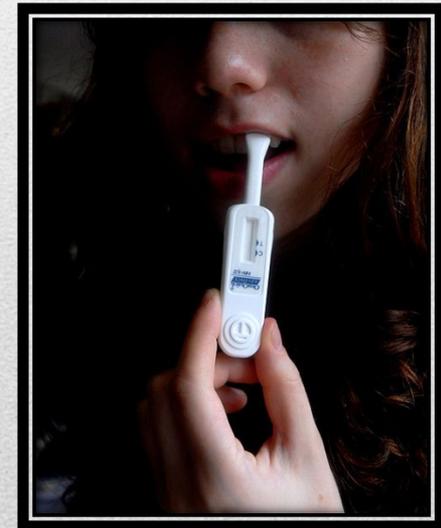
## HIV Test

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- Blood test:
  - One tube of blood is taken and sent to the lab.



- Oral Testing
  - Cells are taken from the inside of the mouth and are tested for HIV (if this test is reactive, a blood test must be done to confirm the test).



## HIV Testing

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- No name is used.
- A number given only (10001234).
- If the test is positive, the person will have to have a confidential test done.
- This test is given at the Hamilton County Health Department

100002557398

Op Scan Number

## Anonymous HIV Testing

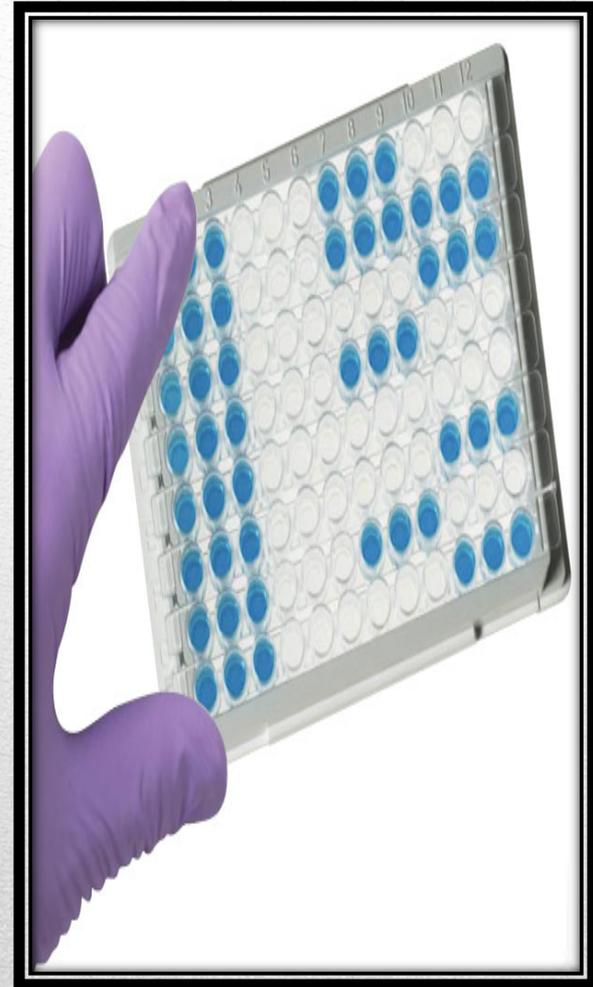
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- Records the person's name with the test result.
- Records are kept locked from everyone except medical personnel, or in some states, the state health department.
- Individuals should ask who will know the results and how the record will be stored.
- If the HIV antibody test is confidential, a release form can be signed to have the test results sent to the individual's physician.
- At some centers, however, such as doctor offices or clinics, test results may become part of the individual's medical record and may be seen by health care workers, insurers, or employers.
- This test is performed at the Hamilton County Health Department

## **Confidential HIV Testing**

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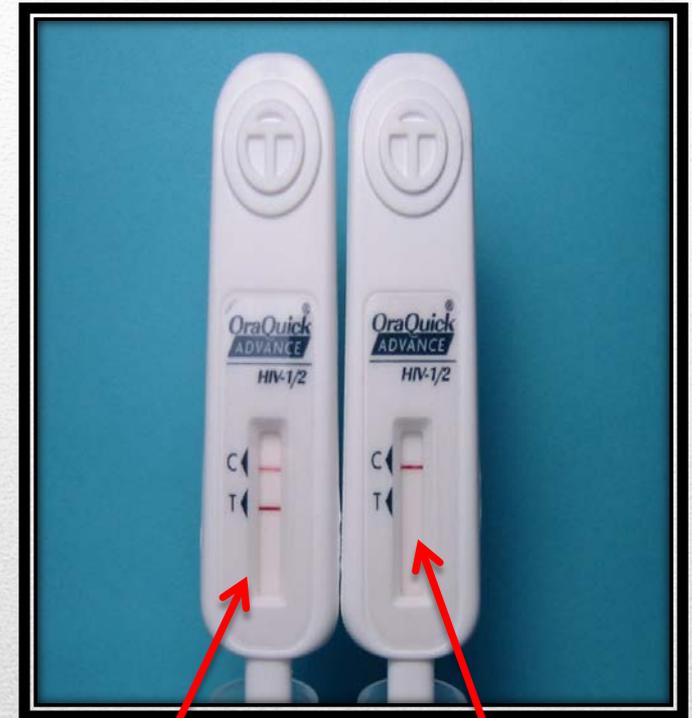
- ELISA (Enzyme Linked Immunoassay):
  - A screening test for the diagnosis of HIV antibodies.
  - If the ELISA is negative, the person is negative for HIV.
  - If the test is positive a second ELISA is done with a new sample. If the second sample is positive a confirmatory test is done called the Western Blot.
- Western Blot:
  - More specific and will confirm if someone is truly HIV positive



## ELISA & Western Blot

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- Negative or Non Reactive Results:
  - No HIV antibodies were found in the sample.
- Positive or Reactive Results:
  - Antibodies were found in the sample. The person is then said to be HIV +.
- Indeterminate Result:
  - The person is not negative or positive. A new sample should be taken in two weeks.



Positive Or  
Reactive

Negative Or  
Non Reactive

## Testing Terms

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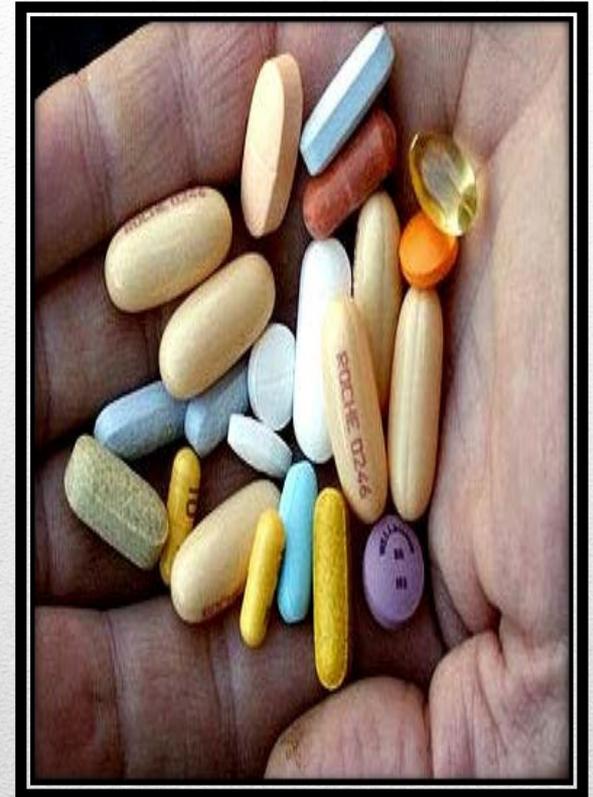
- Have you injected drugs or shared equipment (such as needles, syringes,) with others?
- Have you had unprotected vaginal, anal, or oral sex with men who have sex with men, multiple partners, or anonymous partners?
- Have you exchanged sex for drugs or money?
- Have you been diagnosed with or treated for hepatitis, tuberculosis (TB), or a sexually transmitted disease or infection (STD/STI)
- Have you had unprotected sex with someone who could answer yes to any of the above questions?



## Who Should Be Tested

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- There are 31 antiretroviral drugs (ARVs) approved by the Food and Drug Administration to treat HIV infection.
- These treatments **do not cure people of HIV or AIDS.**
- Rather, they **suppress the virus**, even to undetectable levels, but they **do not completely eliminate HIV from the body.**



## Treatment For HIV/AIDS

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- By suppressing the amount of virus in the body, people infected with HIV can now lead longer and healthier lives.
- However, they **can still transmit** the virus and must continuously take antiretroviral drugs in order to maintain their health quality.



## Treatment For HIV/AIDS

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- 50%-90% of people who have HIV also have Hepatitis C
- Can lead to liver damage more quickly
- Hepatitis C is more severe in a person who is HIV +
- Symptoms of Hep. C are more severe
- Co - infection will affect treatment of HIV & Hep. C

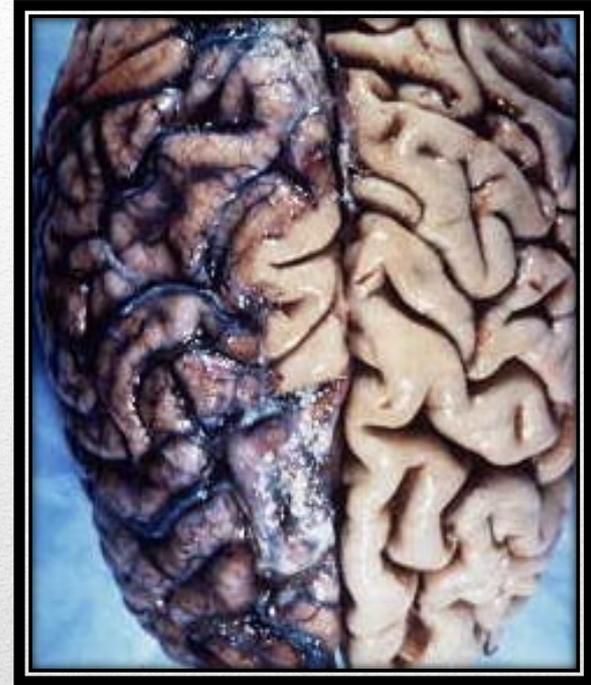


## HIV And Hepatitis C

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- 70 % of people who tested positive for Syphilis in Indianapolis, also tested positive for HIV in 2010.

Source: ISDH



Syphilis of brain.  
This person did not get  
treated for the infection.

## **HIV And Syphilis**

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- **Abstinence ( Not having sex).**
- Do not get a tattoo or body piercing at a “tattoo party”.
- Use a latex condom correctly for every sexual act.
- Stop using drugs.
- Use clean needles and drug equipment every time.



## **How To Stop HIV Transmission**

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**Available at the  
Hamilton County Health Department**

**Call or E-mail For An Appointment  
317-776-8500**

**[www.health@hamiltoncounty.in.gov](http://www.health@hamiltoncounty.in.gov)**

**Test Results Given In 20 Minutes  
Pre-test and post-test counseling will be given to every client**

**FREE HIV/STD/STI Testing**

- AIDS.gov
  - [www.AIDS.gov](http://www.AIDS.gov)
- Centers For Disease Control and Prevention
  - [www.cdc.gov](http://www.cdc.gov)
- Indiana State Department of Health
  - <http://www.in.gov/isdh>
- National Institute of Allergy and Infectious Diseases
  - [www.niaid.nih.gov/pages/default.aspx?wt.ac=tnHome](http://www.niaid.nih.gov/pages/default.aspx?wt.ac=tnHome)
- UNAIDS
  - [www.unaids.org](http://www.unaids.org)



## Reference

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