No One Is Immune To HIV…

HIV and AIDS Information

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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

- 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?

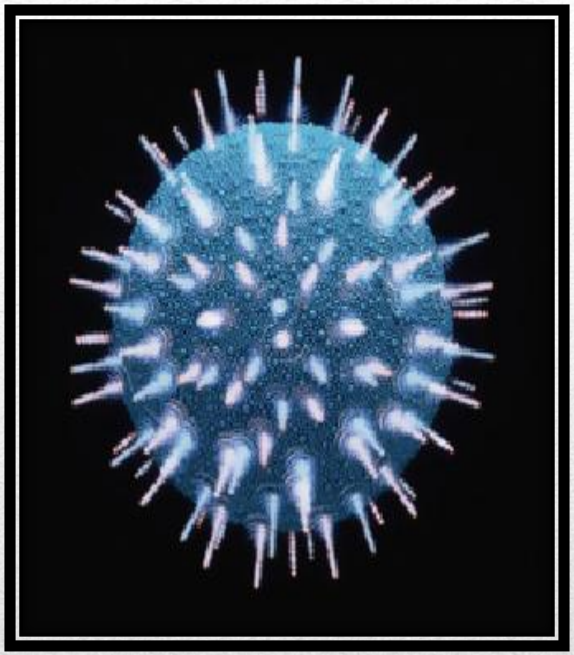
  1985

General Information

- **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?

- **A** – *Acquired* – AIDS is not something a person inherit 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?

- 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?

- 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

- 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

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

Source: CDC

Every Day

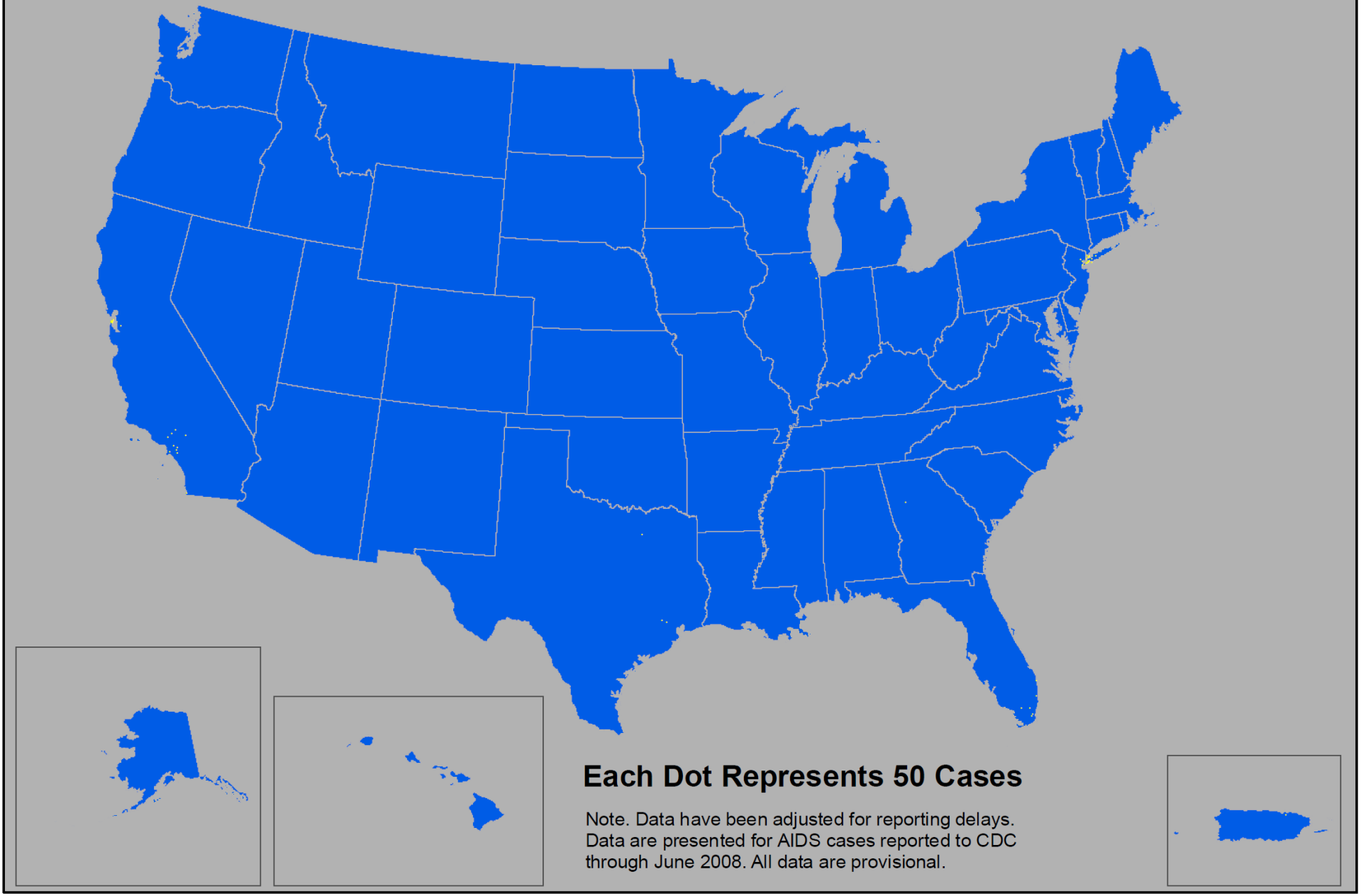
- More than 17,000 people with AIDS still die each year in the U.S.

- Through 2008, more than 617,000 people with AIDS in the U.S. have died since the epidemic began.

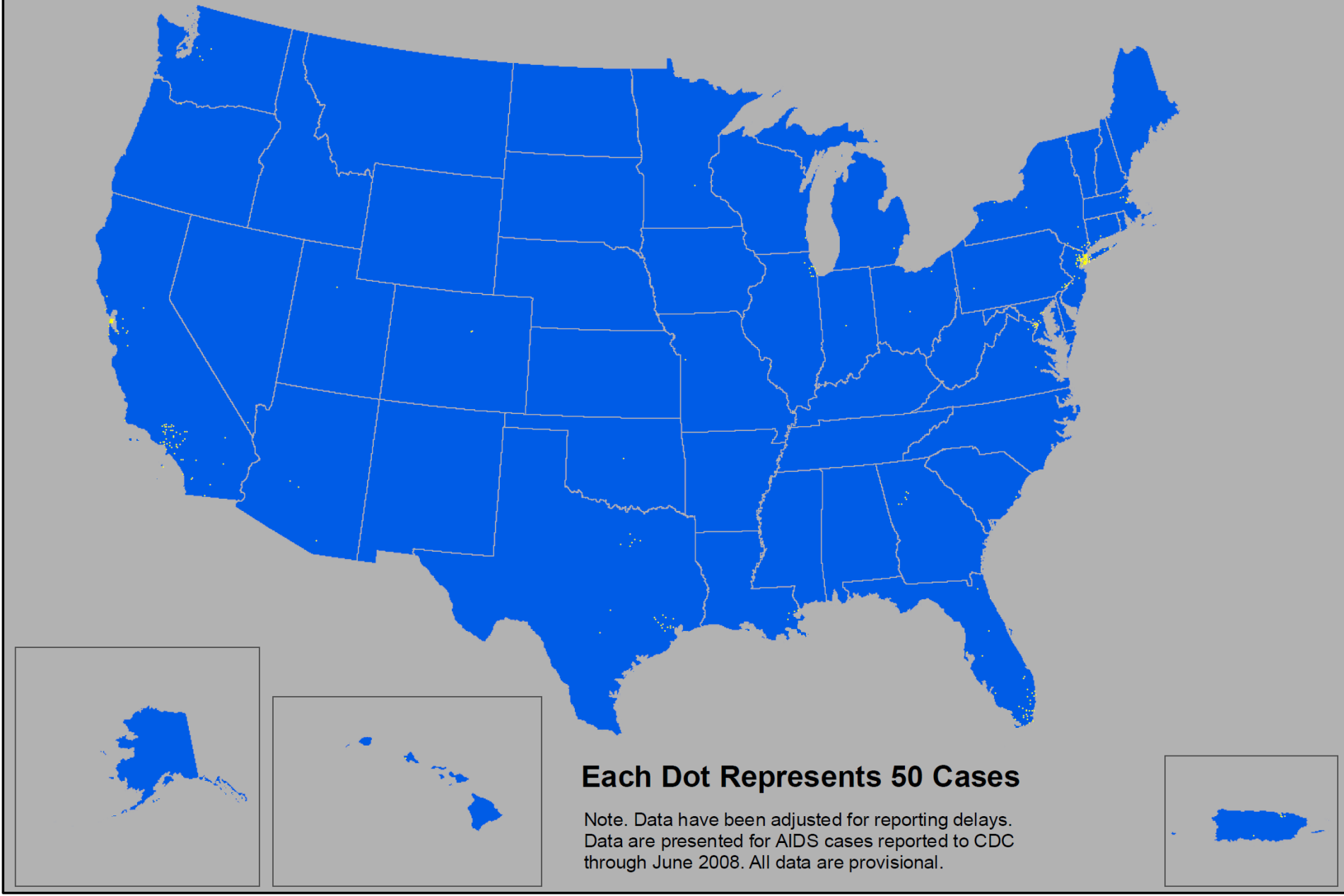
Source; CDC

AIDS Data

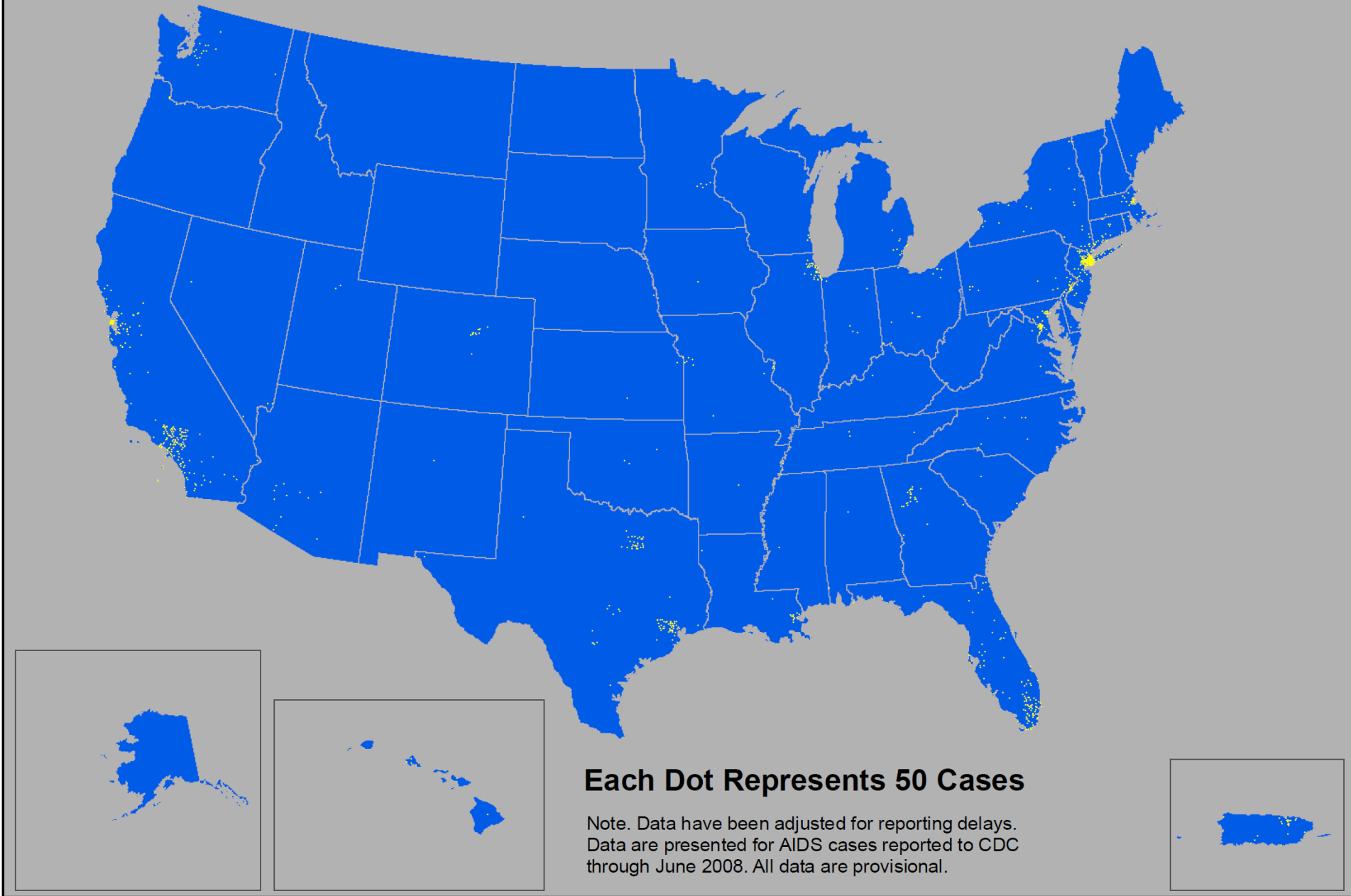
Estimated AIDS Cases in the United States and Puerto Rico
Cumulative through 1983 N = 4,793



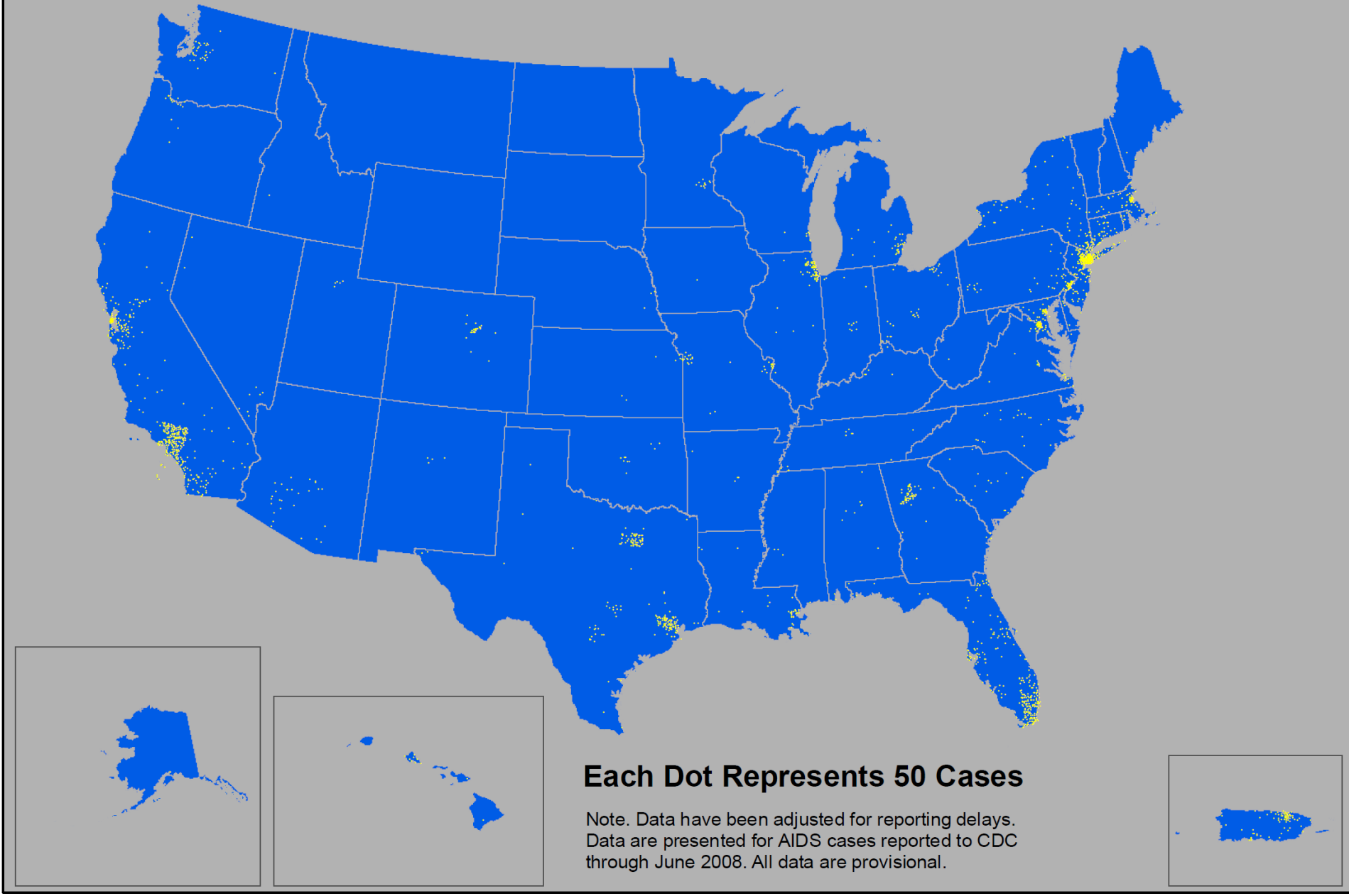
Estimated AIDS Cases in the United States and Puerto Rico
Cumulative through 1985 N = 23,141



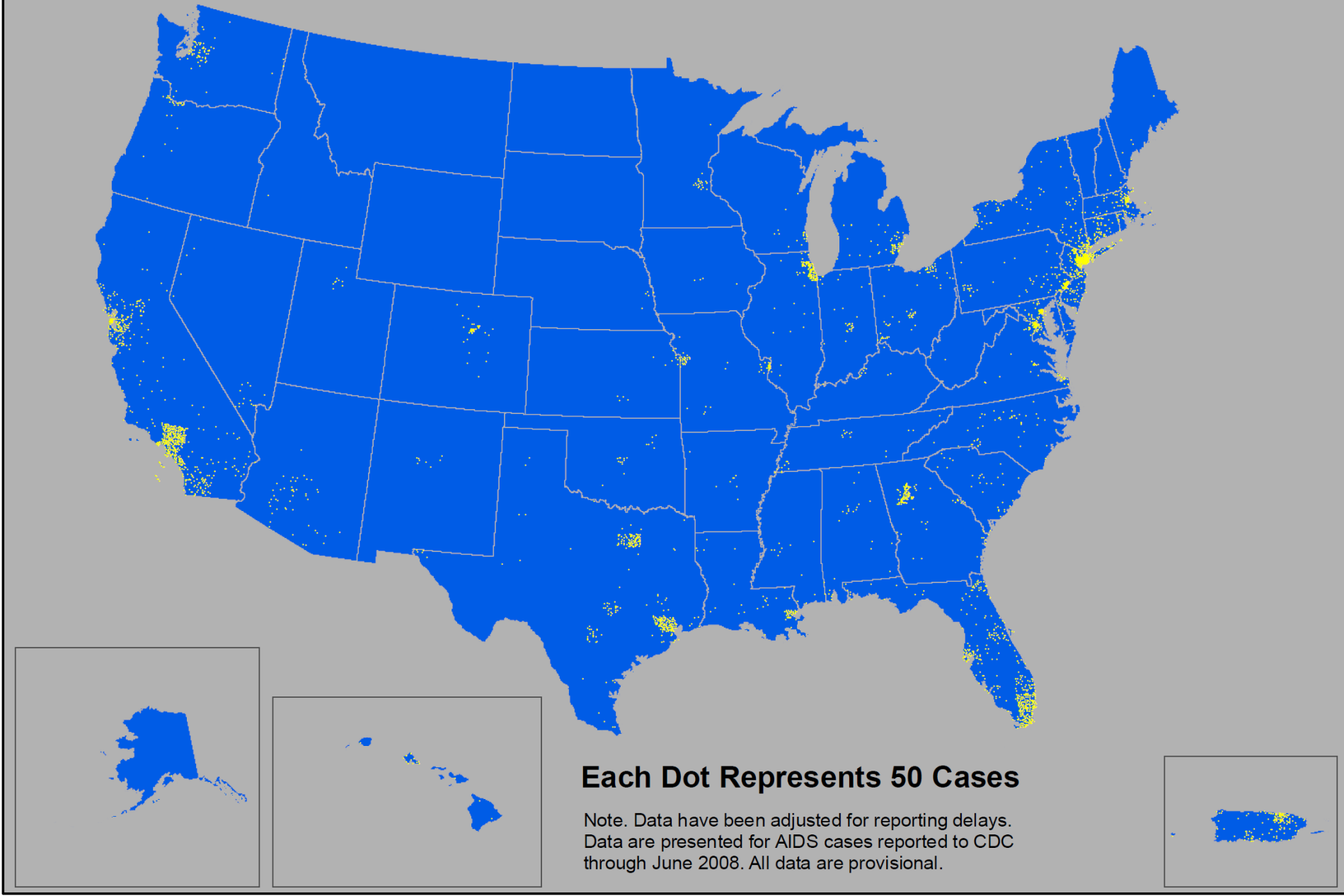
Estimated AIDS Cases in the United States and Puerto Rico
Cumulative through 1987 N = 71,189



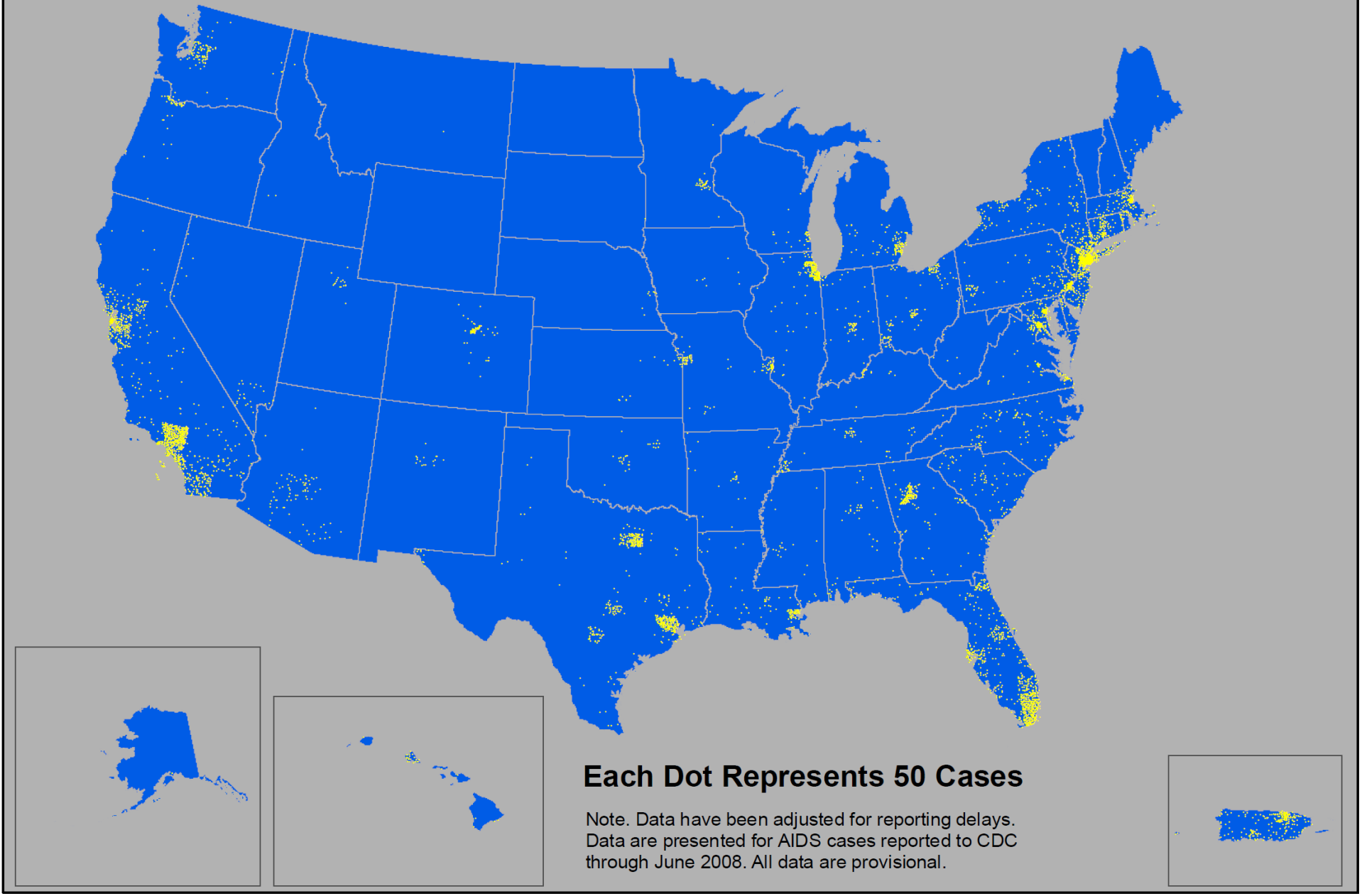
Estimated AIDS Cases in the United States and Puerto Rico
Cumulative through 1989 N = 149,528



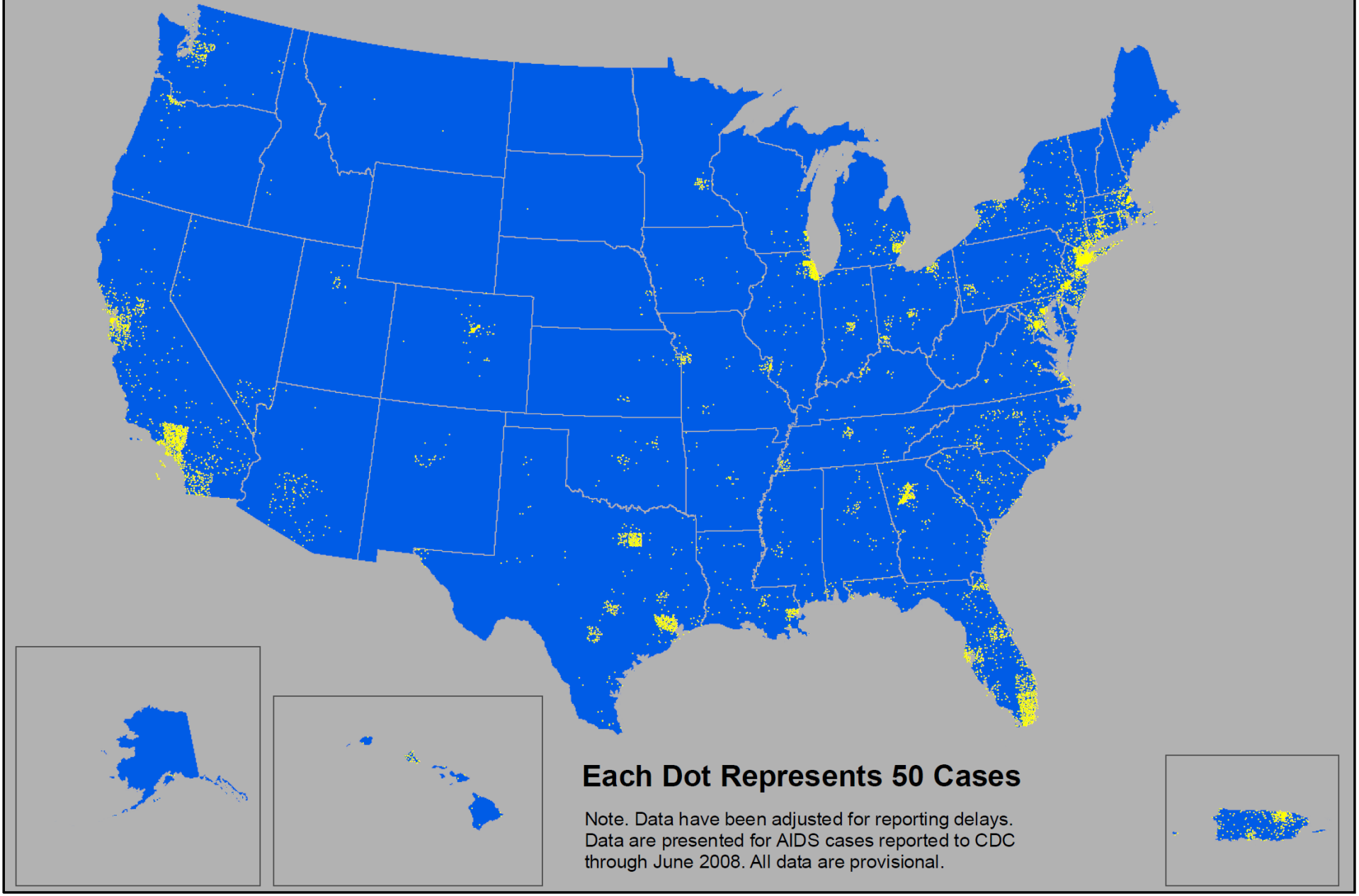
Estimated AIDS Cases in the United States and Puerto Rico
Cumulative through 1991 N = 257,594



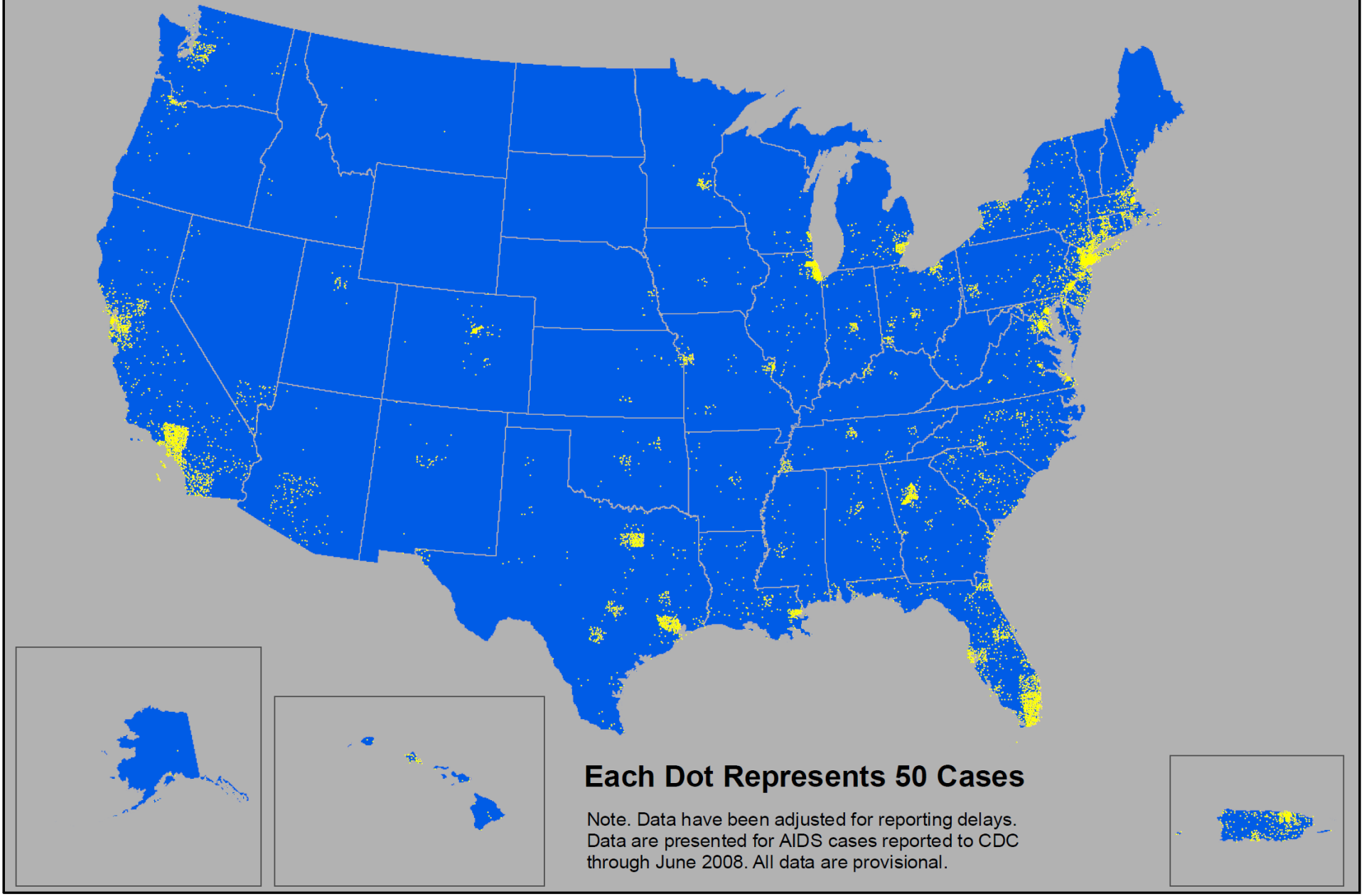
Estimated AIDS Cases in the United States and Puerto Rico
Cumulative through 1993 N = 413,074



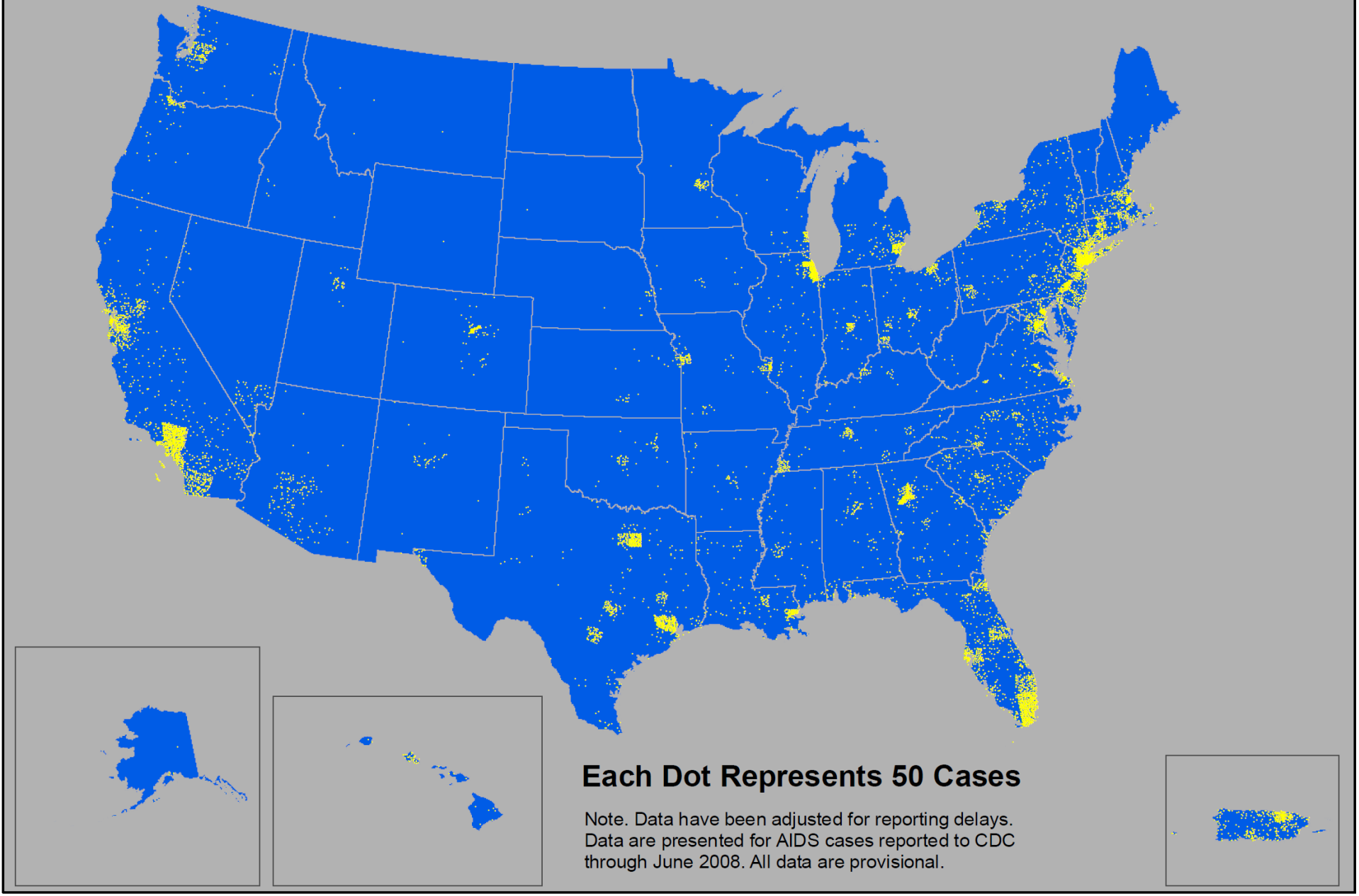
Estimated AIDS Cases in the United States and Puerto Rico
Cumulative through 1995 N = 552,002



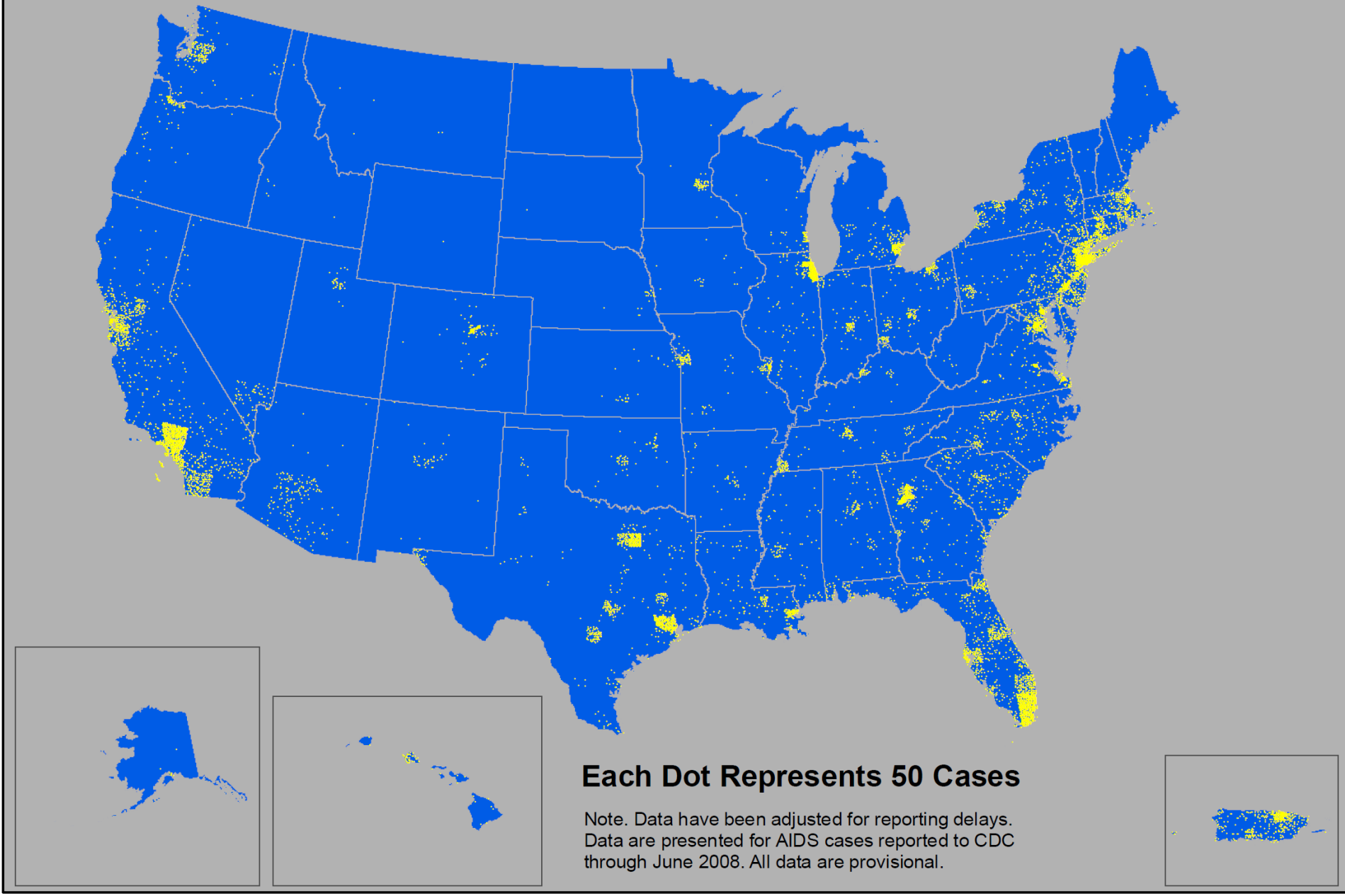
Estimated AIDS Cases in the United States and Puerto Rico
Cumulative through 1997 N = 660,763



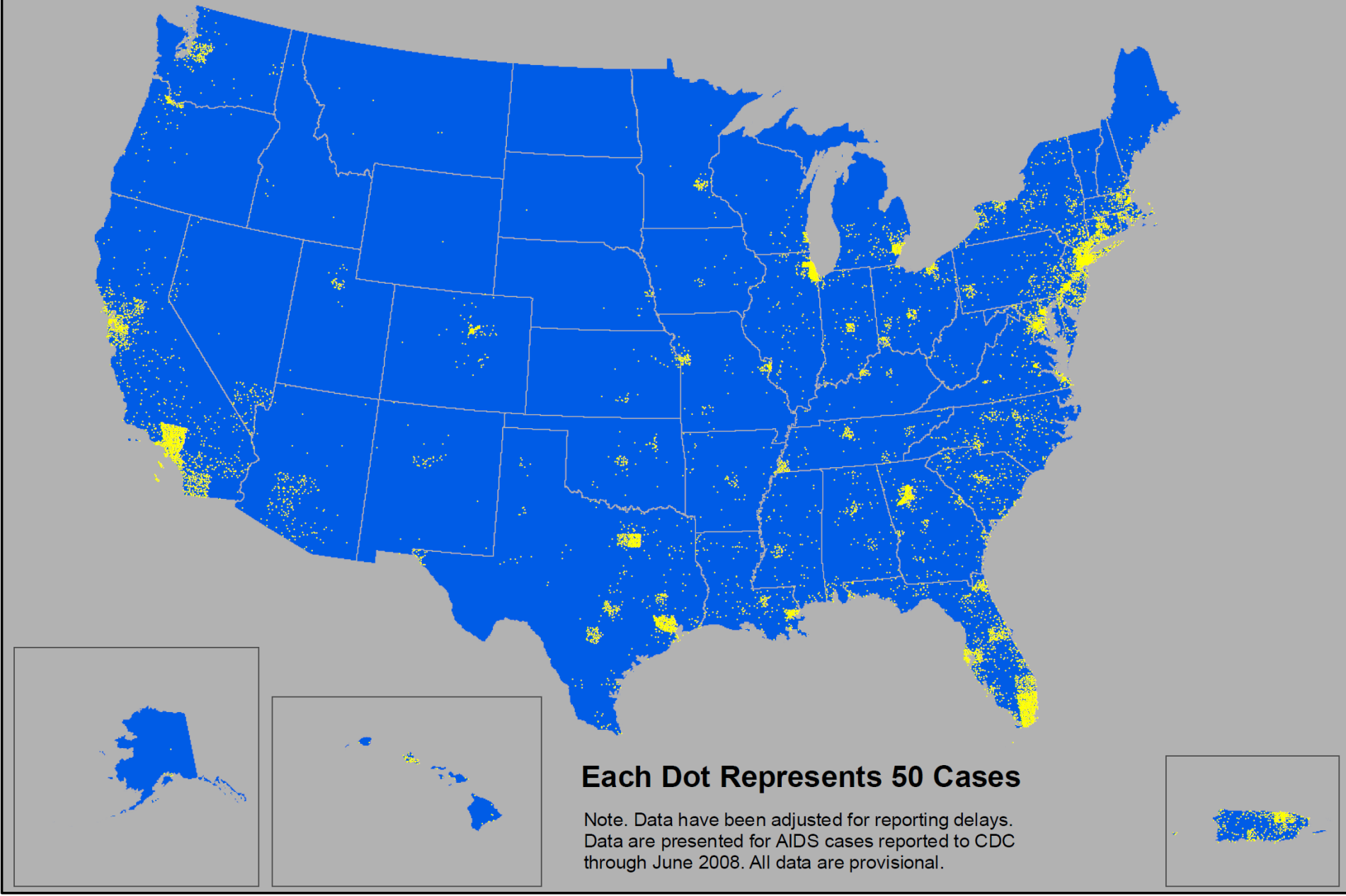
Estimated AIDS Cases in the United States and Puerto Rico
Cumulative through 1999 N = 742,557



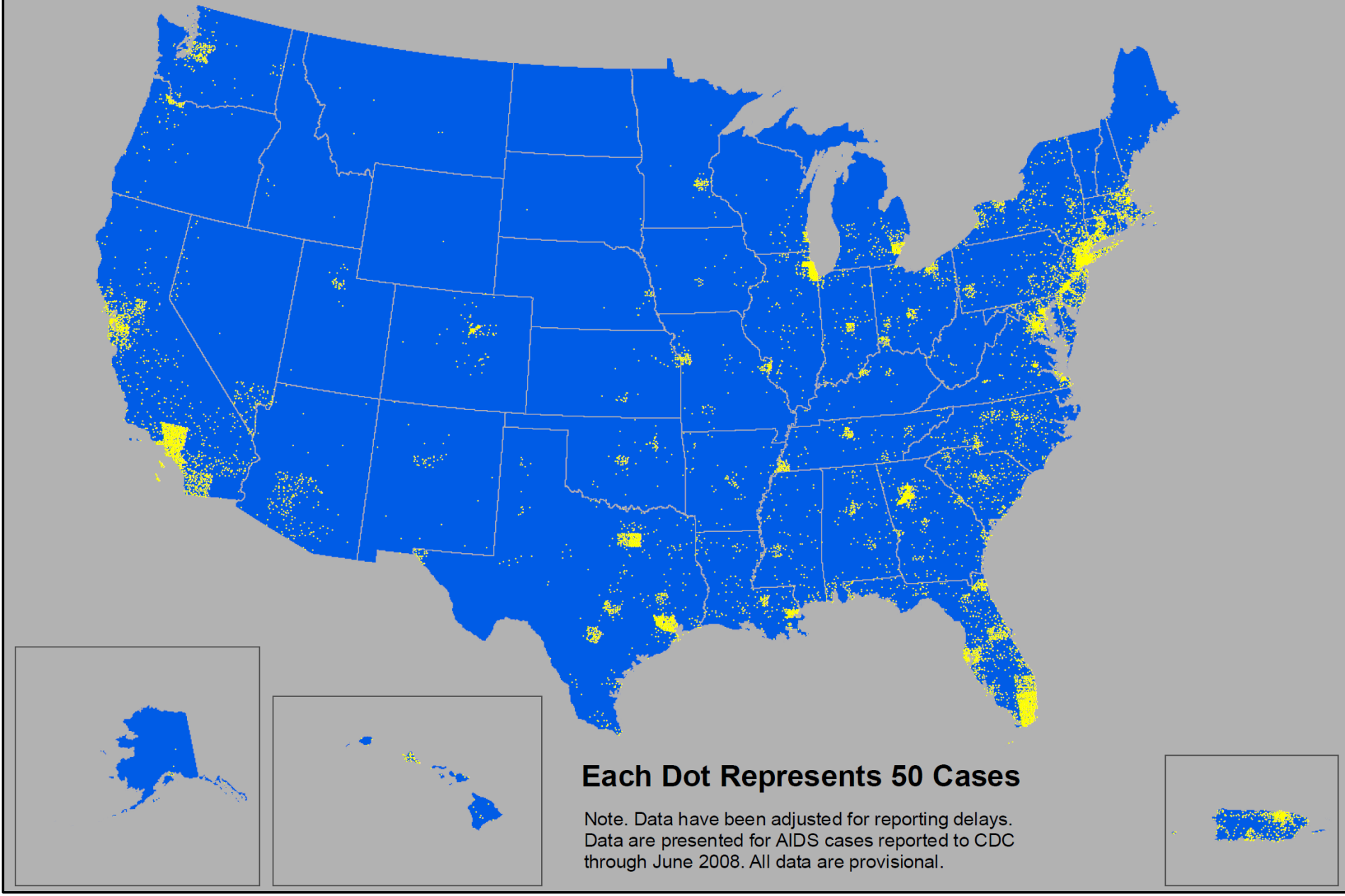
Estimated AIDS Cases in the United States and Puerto Rico
Cumulative through 2001 N = 821,566



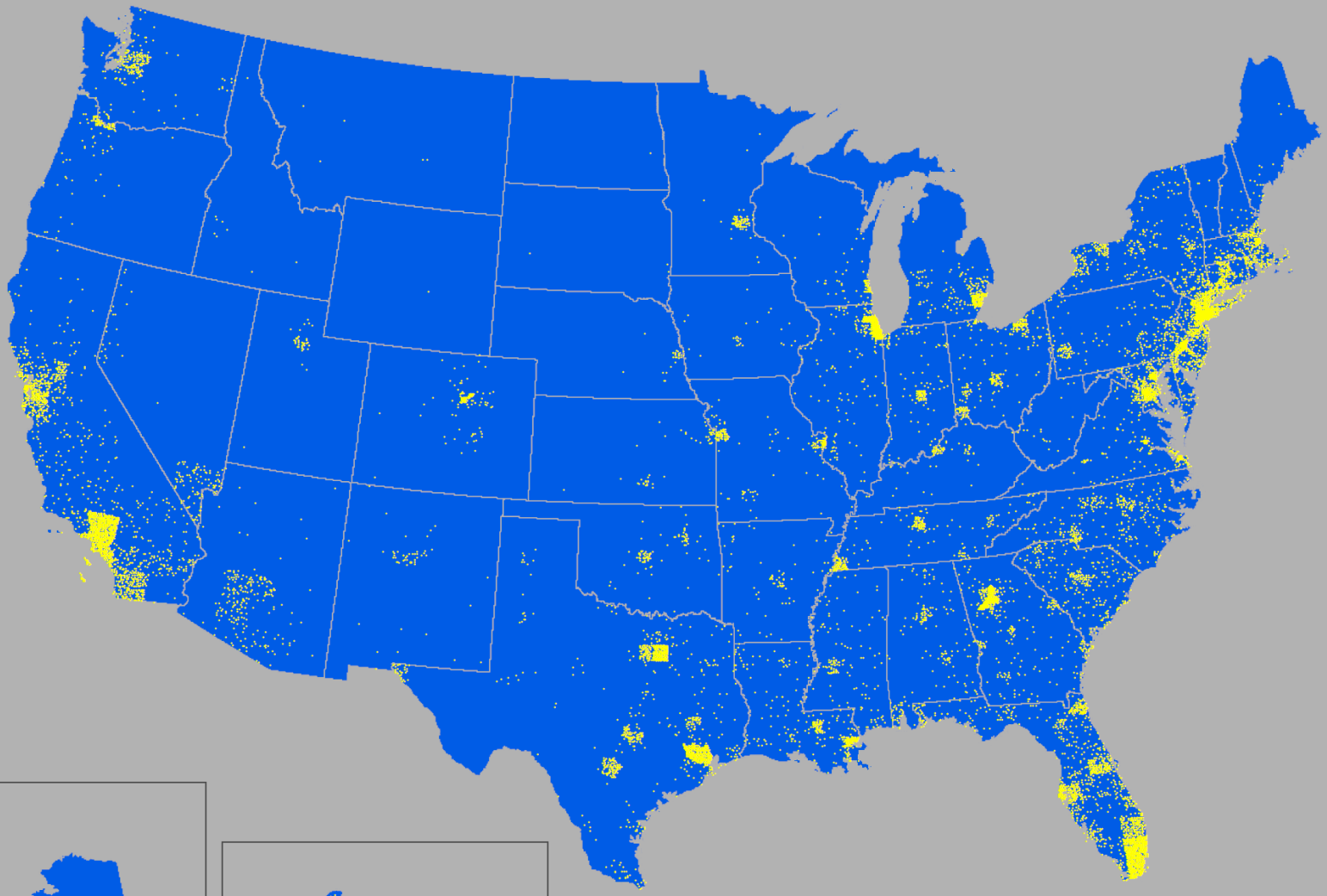
Estimated AIDS Cases in the United States and Puerto Rico
Cumulative through 2003 N = 900,883

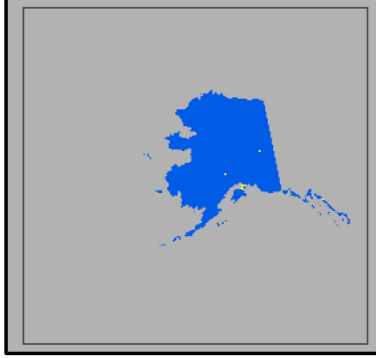


Estimated AIDS Cases in the United States and Puerto Rico
Cumulative through 2005 N = 976,474



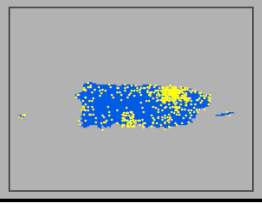
Estimated AIDS Cases in the United States and Puerto Rico
Cumulative through 2007 N = 1,049,714





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.

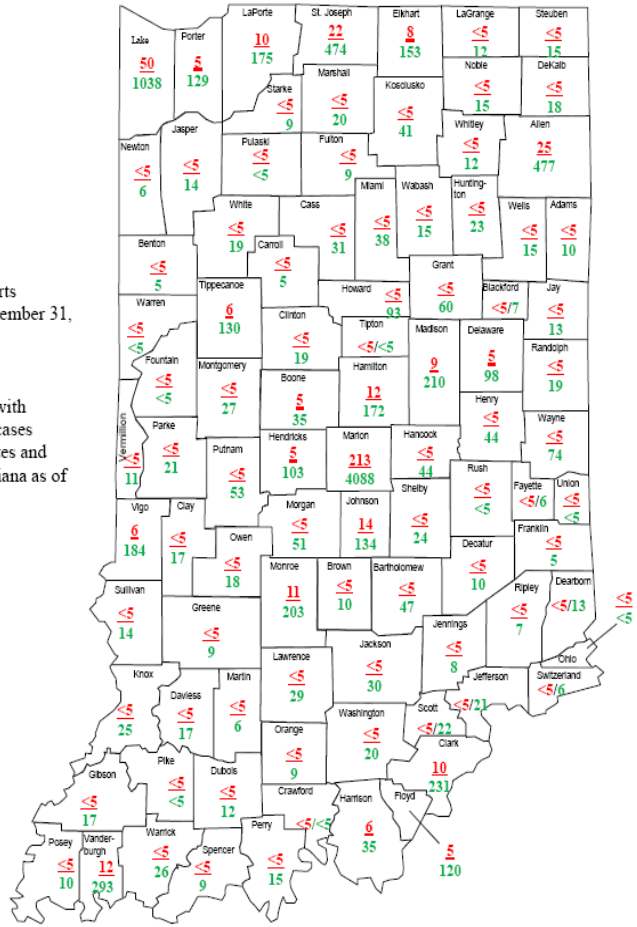


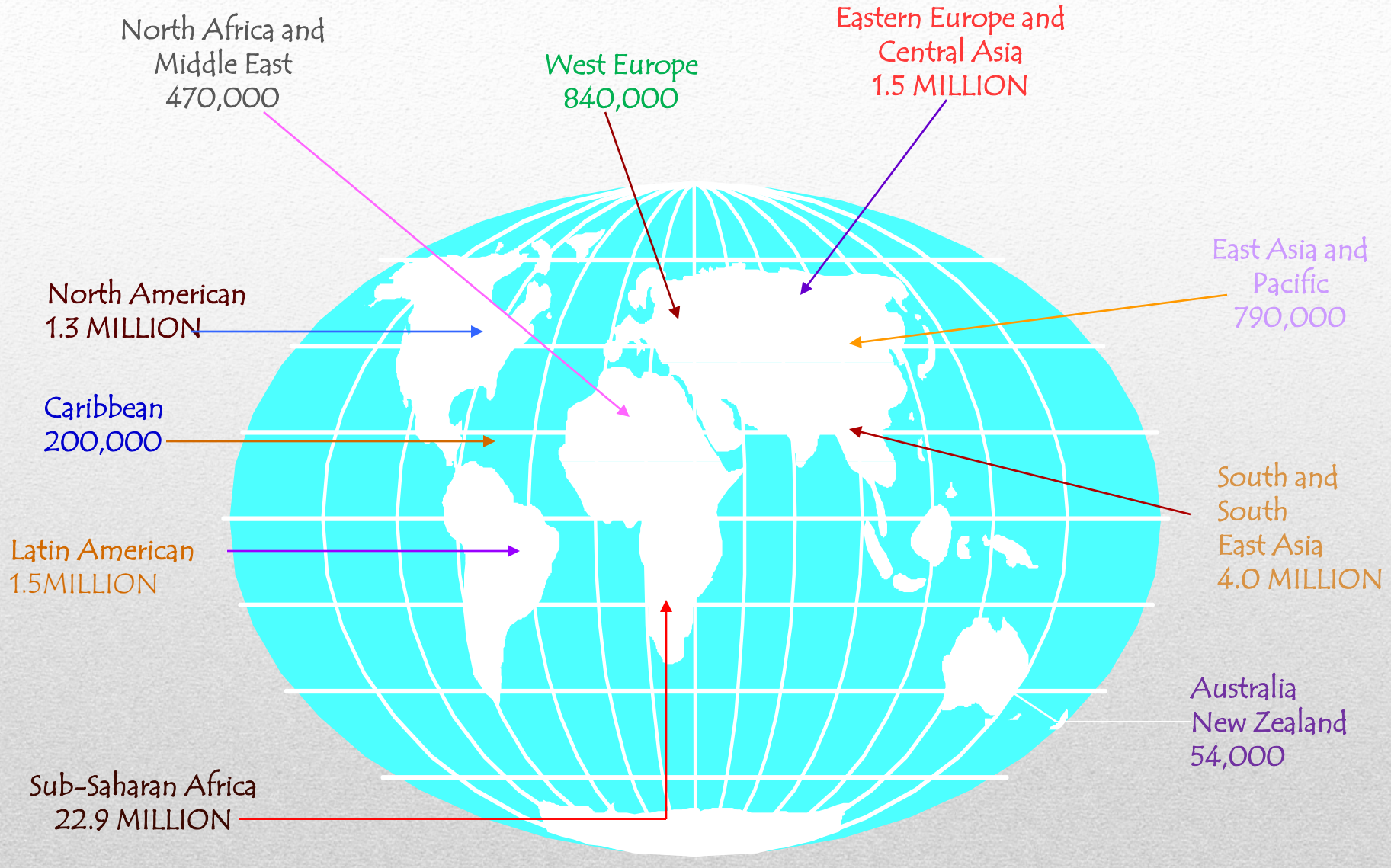
Indiana Data

Indiana Persons Living with HIV/AIDS as of December 31, 2010

Top Number:
New HIV/AIDS Reports January 1, 2010 – December 31, 2010

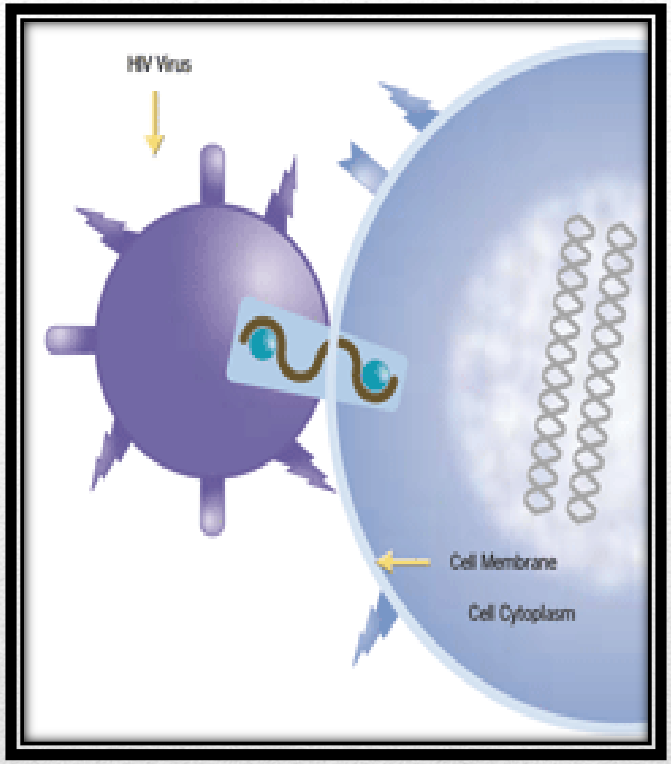
Bottom Number:
Total Persons Living with HIV/AIDS including cases diagnosed in other states and currently living in Indiana as of December 31, 2010





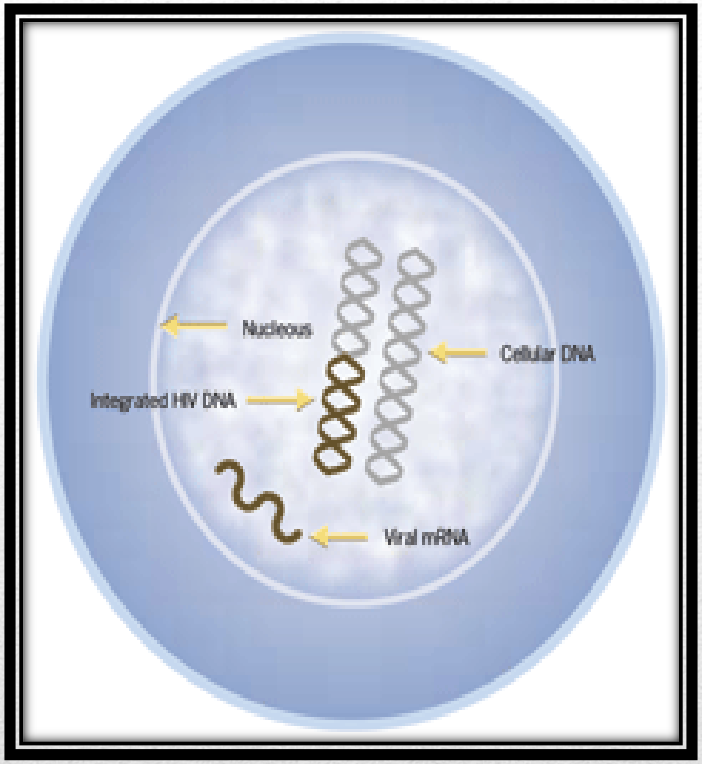
Adults and Children Infected with HIV in 2010

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.

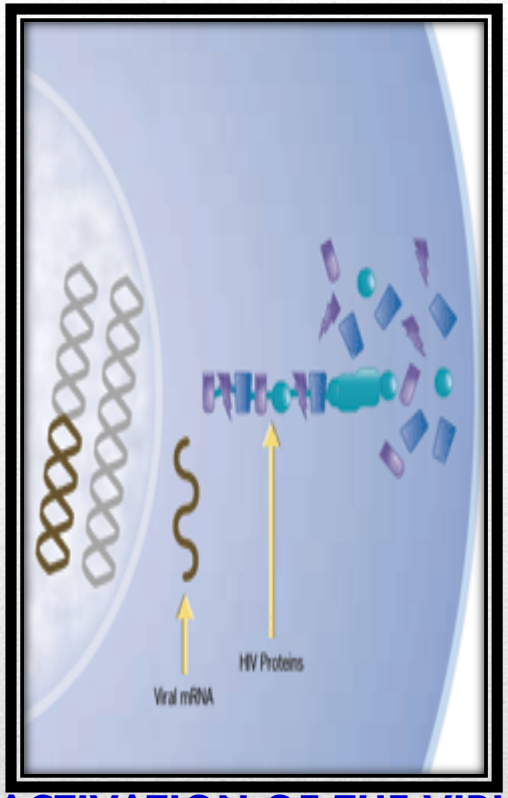


INTEGRATION INTO HOST CELL

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

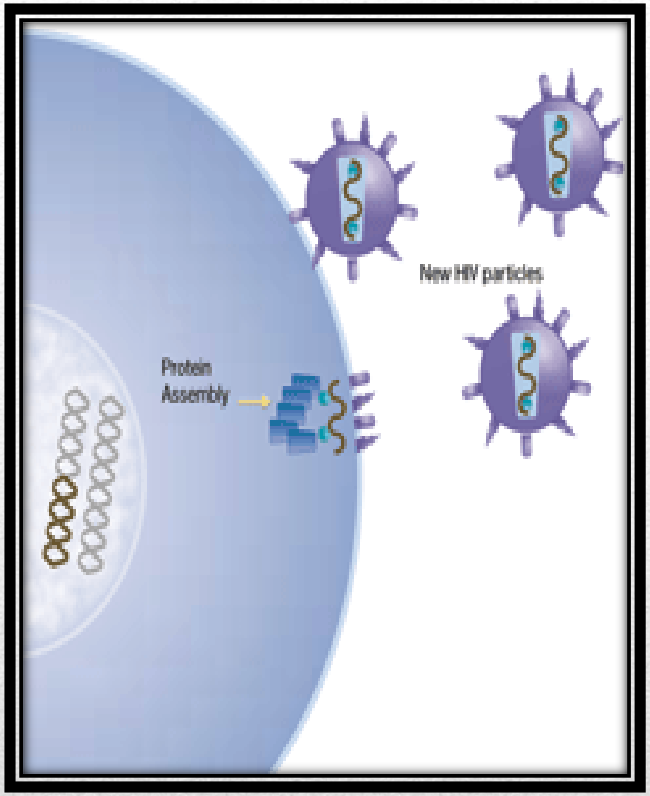
How HIV Works

Source :http://www.bavarian-nordic.com



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

Source :http://www.bavarian-nordic.com

- 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 then here in the United States.

HIV- 2

The Stages of HIV Infection

Person becomes infected with HIV

Acute Infection

Person may have flu-like symptoms—

- Fever
- Headache
- Tiredness
- Enlarged lymph glands

Asymptomatic Period

Person may look healthy and feel well.

Need to wait 3 months after an exposure to be tested.

Symptomatic Period

Person may have enlarged lymph glands, tiredness, weight loss, fever, chronic diarrhea or yeast infections (oral or vaginal) among other conditions.

AIDS

The virus weakens and eventually destroys the immune system. When a person with HIV develops AIDS, his or her body has lost most of its ability to fight off certain bacteria, viruses, fungi, parasites and other germs.

A diagnosis of AIDS is made if—

- T cell count is below 200 ml, and
- There is confirmed appearance of certain severe illnesses called opportunistic infections.

Window Period[1]

Incubation Period[2]

- 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.

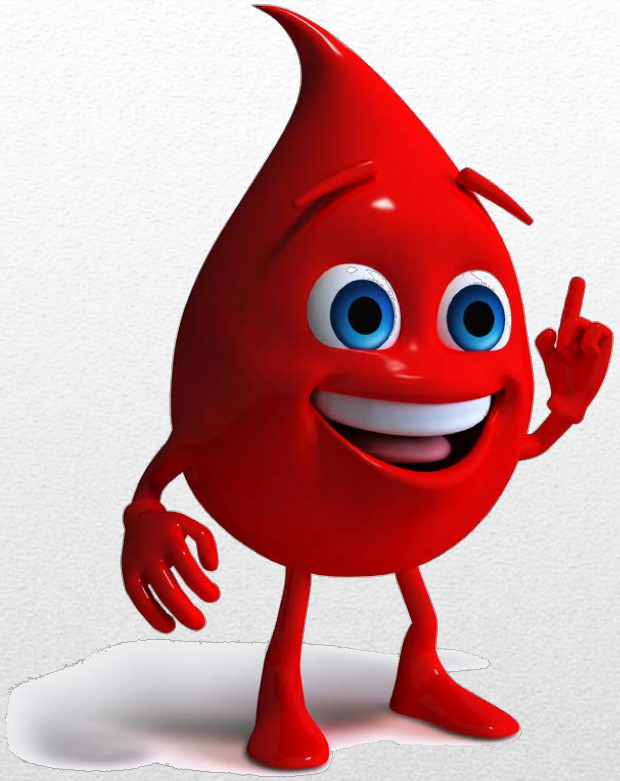
2. Incubation Period: Time from point of infection to development of AIDS.

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.*

Source: ARC

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

- 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 organ s are tested.
  - All blood and organs that test positive for HIV are destroyed.

Blood Supply And HIV

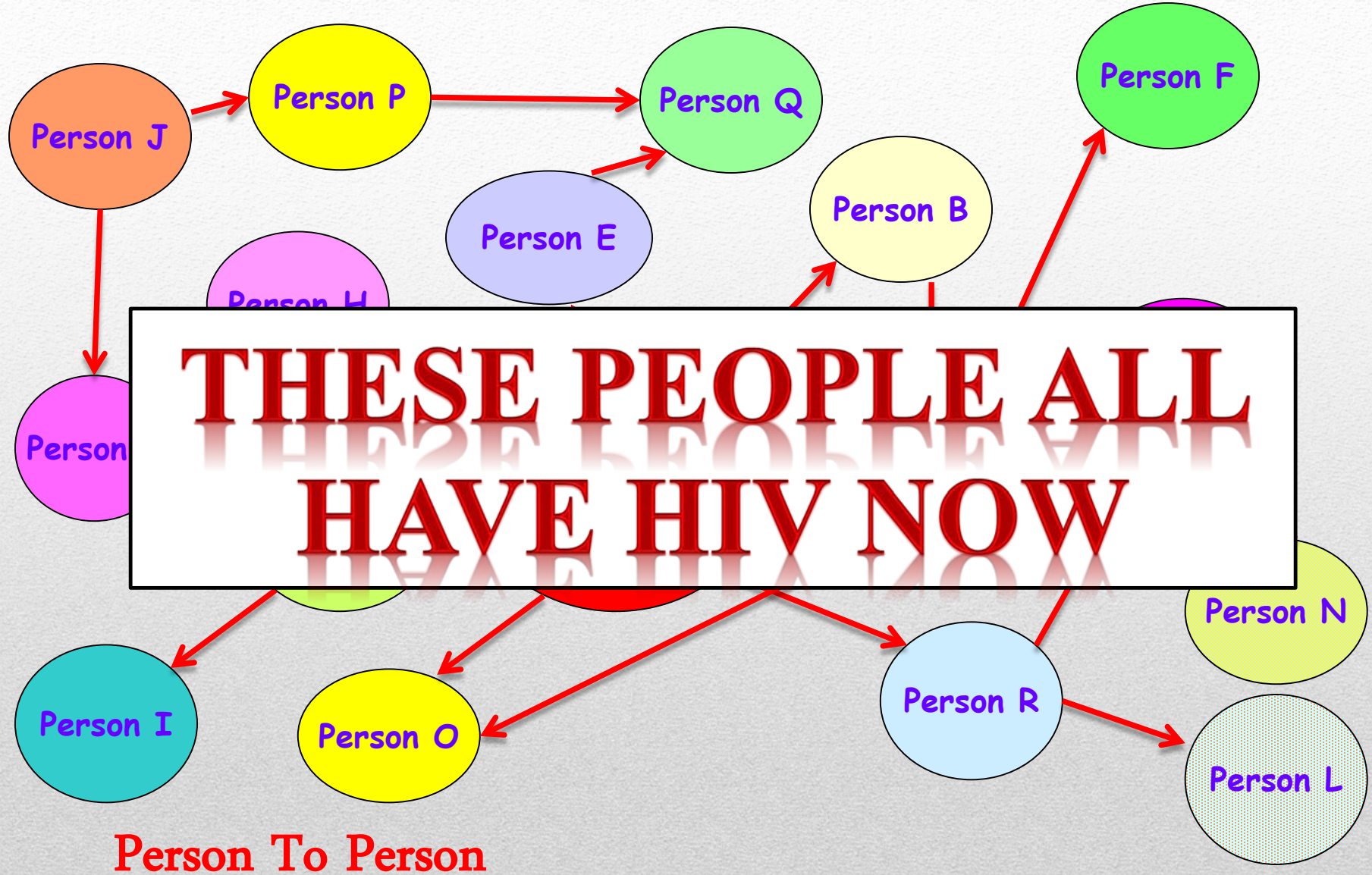
SEXUAL EXPOSURE CHART

(if every person has only the same number of partners as you)

Number of Sexual Partners		Number of People Exposed to
1		1
2		3
3		7
4		15
5		31
6		63
7		127
8		255
9		511
10		1023
11		2047
12		4095

- 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



THESE PEOPLE ALL HAVE HIV NOW

Person To Person

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**

Source: WTH 2/20/10

- 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?

- 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

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

Symptoms Of HIV

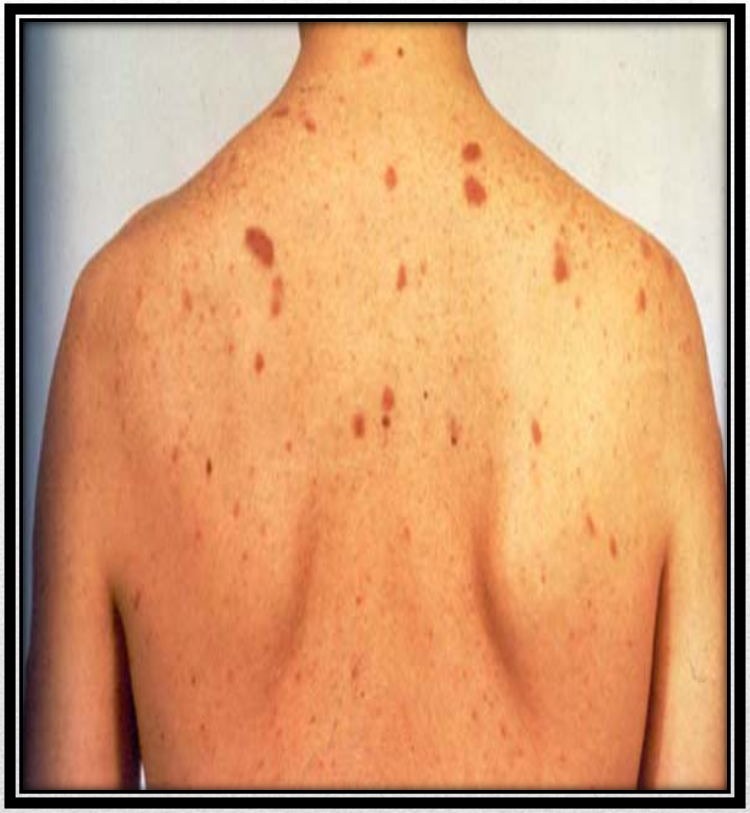
- A person who is HIV + must have three things to move to AIDS:
  - CD4 and T-Cells (white blood cells) must be below 200 to move to AIDS.
  - A person without HIV usually has a CD4 and T-Cell count of 800 to 1,200 or more.(NIH)
  - The person must also have **TWO** of the opportunistic infections to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

HIV To AIDS

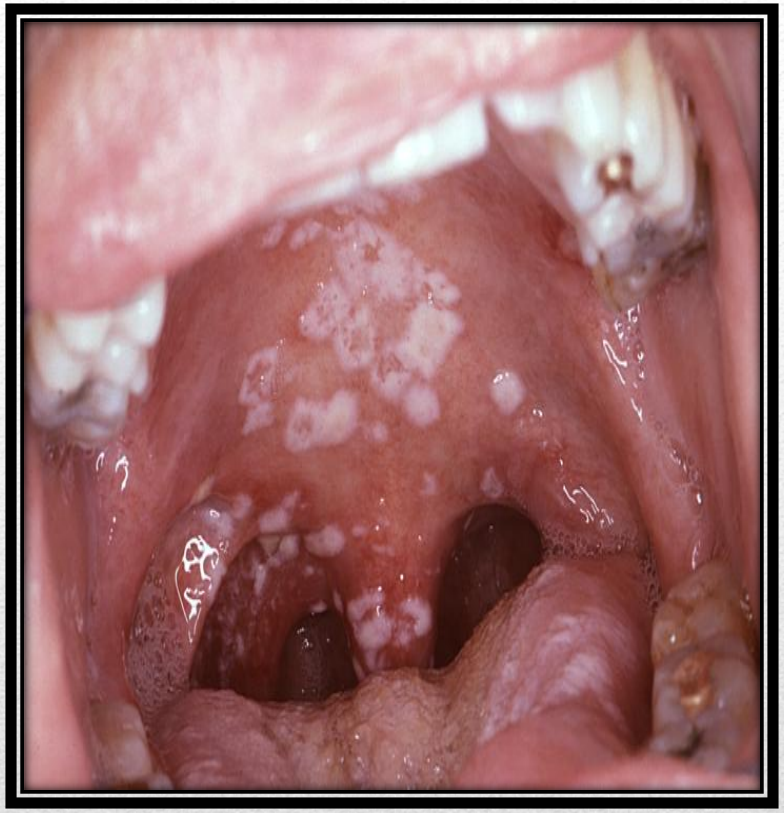
AIDS INDICATOR DISEASES	Initial Diagnosis Def.	Initial Diagnosis Pres.	Initial Date Mo.	Initial Date Yr.
Candidiasis, bronchi, trachea, or lungs	1	NA		
Candidiasis, esophageal	1	2		
Carcinoma, invasive cervical	1	NA		
Coccidioidomycosis, disseminated or extrapulmonary	1	NA		
Cryptococcosis, extrapulmonary	1	NA		
Cryptosporidiosis, chronic intestinal (>1 mo. duration)	1	NA		
Cytomegalovirus disease (other than in liver, spleen, or nodes)	1	NA		
Cytomegalovirus retinitis (with loss of vision)	1	2		
HIV encephalopathy	1	NA		
Herpes simplex: chronic ulcer(s) (>1 mo. duration); or bronchitis, pneumonitis or esophagitis	1	NA		
Histoplasmosis, disseminated or extra pulmonary	1	NA		
Isosporiasis, chronic intestinal (> 1 mo. duration)	1	NA		
Kaposi's sarcoma	1	2		

AIDS INDICATOR DISEASES	Initial Diagnosis Def.	Initial Diagnosis Pres.	Initial Date Mo.	Initial Date Yr.
Lymphoma, Burkitt's (or equivalent term)	1	NA		
Lymphoma, immunoblastic (or equivalent term)	1	NA		
Lymphoma, primary in brain	1	NA		
Mycobacterium avium complex or M. kansasii, disseminated or extrapulmonary	1	2		
*M. tuberculosis, pulmonary**	1	2		
M. tuberculosis, disseminated or extrapulmonary*	1	2		
Mycobacterium, of other species or unidentified species, disseminated or extrapulmonary	1	2		
Pneumocystis carinii pneumonia	1	2		
Pneumonia, recurrent, in 12 mo. period	1	2		
Progressive multifocal leukoencephalopathy	1	NA		
Salmonella septicemia, recurrent	1	NA		
Toxoplasmosis of brain	1	2		
Wasting syndrome due to HIV	1	NA		

Opportunistic Infections



Kaposi's Sarcoma

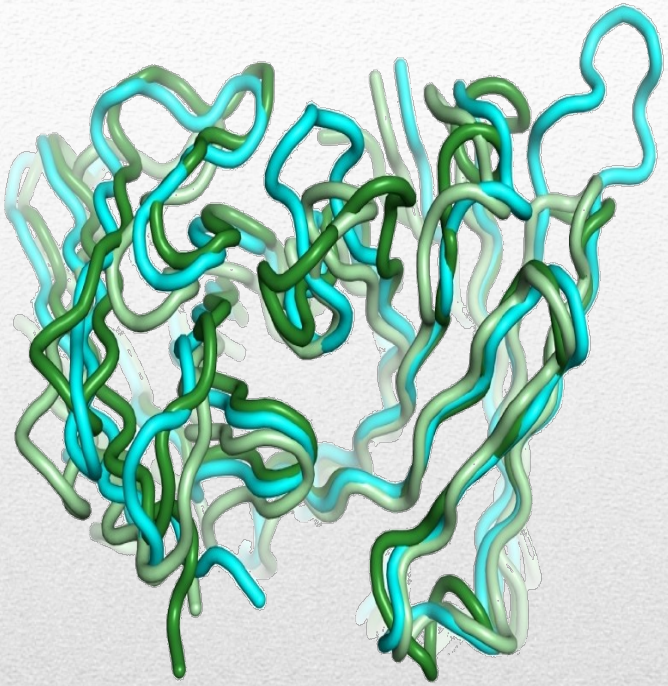


Candidacies Esophageal

Source: www.cdc.gov

Opportunistic Infections

- 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

- 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

- 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

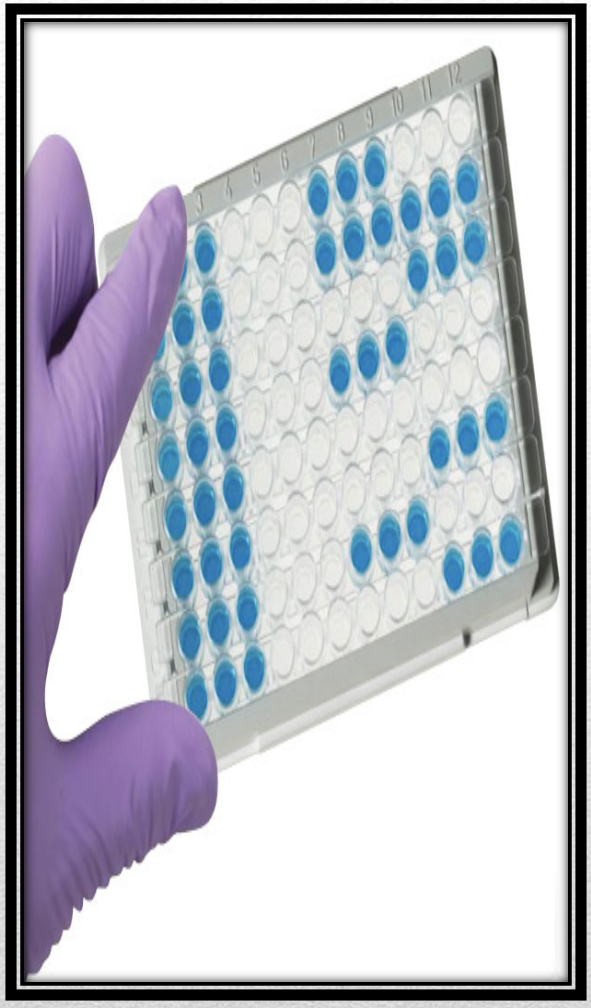
Op Scan Number

Anonymous HIV Testing

- 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

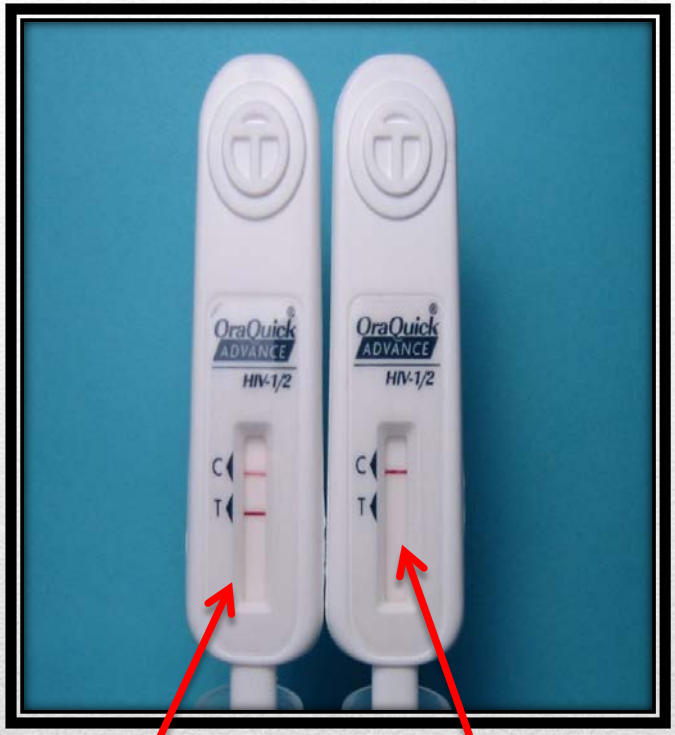
Confidential HIV Testing

- 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

- 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

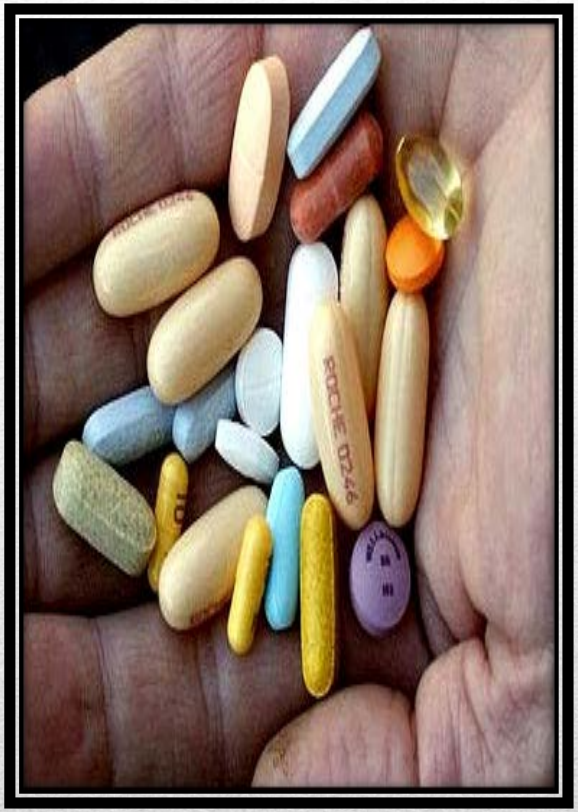
Negative Or Non Reactive

Testing Terms

- 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?

- 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

- 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.

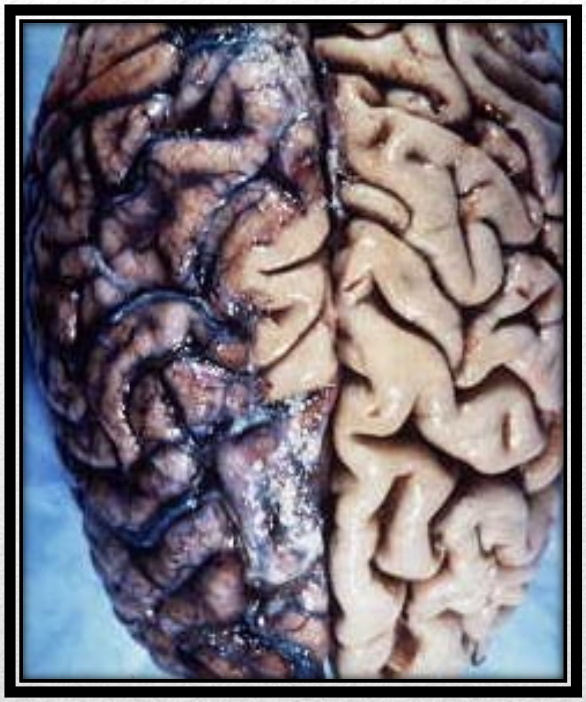
Treatment For HIV/AIDS

- 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

- 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

- **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?

Click On The Links For More Information

- How To Use A Male Condom
- How To Use A Female Condom
- Dental Dam Information
- How To Clean Syringes
- Syringe Disposal Program In Hamilton County

Risk Reduction Information

Available at the
Hamilton County Health Department

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

Click on the red ribbon to find a HIV testing site close to you.

Where To Find Testing

Please Click On The Picture To Complete The Course Evaluation

Course Evaluation

- AIDS.gov
  - www.AIDS.gov
- Centers For Disease Control and Prevention
  - 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
- UNAIDS
  - www.unaids.org

Reference