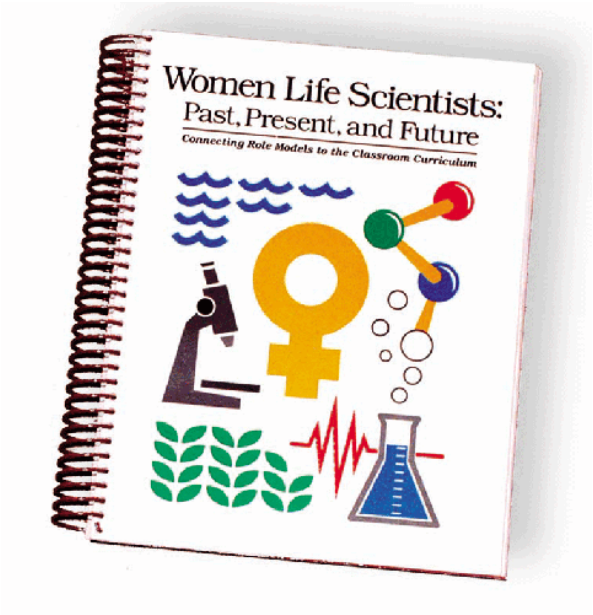

Linda Laubenstein

Citation:
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Please note: In Dr. Laubenstein's biography, it was erroneously stated that Larry Kramer, the author of the play, *Normal Heart,* had died. The error was prompted by incorrect reports of his death via Internet sources. The authors apologize for the error and direct the reader to learn more about Mr. Kramer's work as a dramatist, author, and gay rights activist at Wikipedia (http://en.wikipedia.org/wiki/Larry_Kramer).

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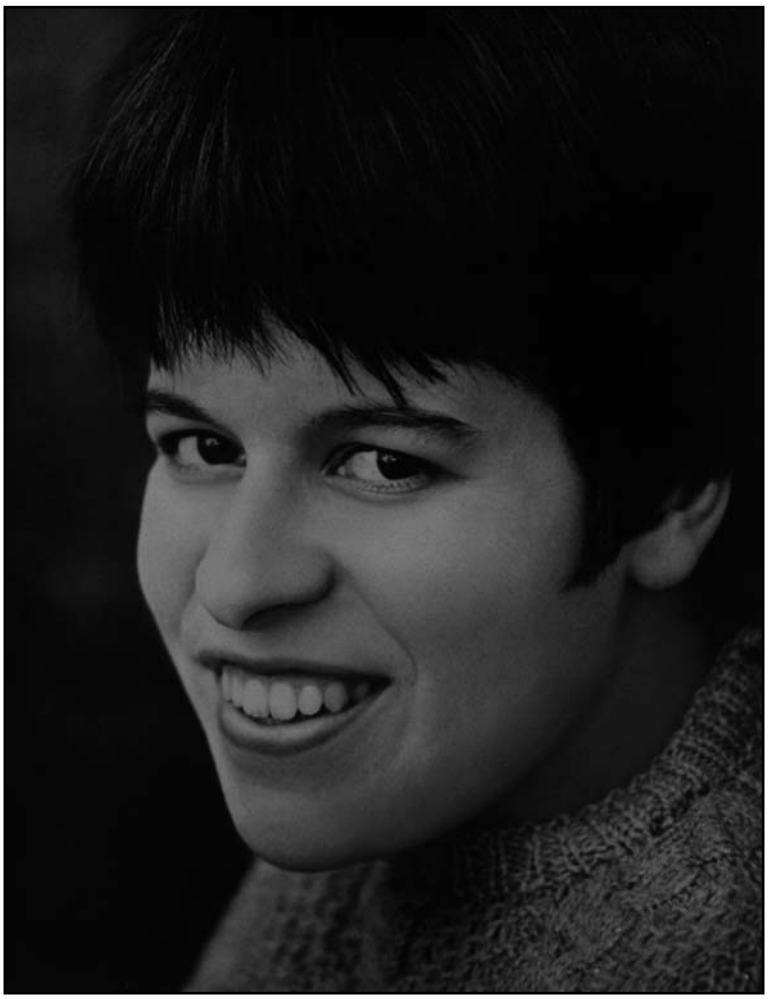
Linda Laubenstein
AIDS Researcher
1947-1992



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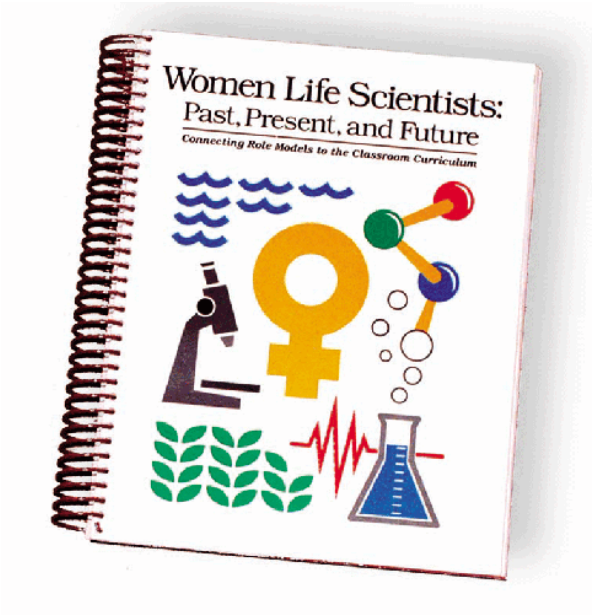

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Who was Linda Laubenstein?

Linda Laubenstein was a pioneer in the diagnosis of the deadly disease called *acquired immunodeficiency syndrome*, or *AIDS*. Although confined to a wheelchair because of childhood polio, Dr. Laubenstein's efforts to pursue medicine were not hampered.

Linda Laubenstein was born on May 21, 1947, in Boston, Massachusetts, to George and Priscilla Laubenstein. She grew up in Barrington, Rhode Island. Her father was a purchasing agent for the Providence Gas Company. Linda contracted polio when she was five years old, just months before the Salk vaccine for polio was announced. As a result of the disease, Linda became a *paraplegic*, that is, the lower part of her body, including her legs, was paralyzed. She used a wheelchair for the remainder of her life. The polio forced Linda to spend many months in the hospital. As a result, she was unable to attend school and was taught by a teacher who frequently came to her home. Her parents were instrumental in helping Linda accept her disability. In fact, her mother, motivated by her daughter's illness, decided to become a special education preschool teacher.

Her interest in medicine

Linda's determination and interest in medicine helped her to earn an undergraduate degree from Barnard College in New York City in 1969. From 1969 to 1978, she attended the New York University School of Medicine, where she had an internship and residency as well as held a fellowship. Linda specialized in *hematology* (the study of blood and the organs that make it) and *oncology* (the study of cancer). She accepted a position at the New York University Medical Center as a clinical professor, working with both students and patients.

Her first AIDS case

Dr. Laubenstein saw her first AIDS case while working at the New York University Medical Center. The patient was a young man who had purple spots behind his ears. He was diagnosed as having *Kaposi's sarcoma*, a type of cancer often found in patients whose immune systems are not functioning properly. The young man initially responded to the medical treatment prescribed by Dr. Laubenstein, but died eighteen months later. Many similar mysterious cases followed. Dr. Laubenstein and one of her colleagues, Dr. Alvin Friedman-Kien, conducted the first basic studies of AIDS-related Kaposi's sarcoma and reported the first cases to the Centers for Disease Control in Atlanta, Georgia, in April 1981. They also co-authored a paper published in a medical journal on the same subject. News of Dr. Laubenstein's work with AIDS patients quickly spread. By May 1982, she had seen 62 patients with AIDS. This was 25% of the national total of recorded cases at the time.

Dr. Laubenstein knew that AIDS would be an epidemic that would not go away easily. She worked tirelessly, researching and caring for cancer and AIDS patients. She was not only a doctor, but a friend to those she treated. When asked about how she dealt with a practice surrounded by death, she responded, "The way I look at it, I'm not losing them, because by treating them I get to know them and become a part of them. I'll always have that" (Gordon, 1993).

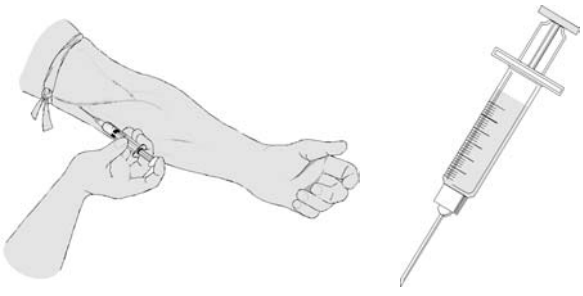
Dr. Laubenstein was always compassionate to those labeled as outcasts by society. She and Dr. Jeffrey B. Greene, an infectious disease specialist, set up a nonprofit organization to employ people infected with *HIV*, the virus that causes AIDS. This organization, Multitasking, Inc., was incorporated in 1986 and offers office services, word processing, and desktop publishing services to businesses.

What happened to Dr. Laubenstein in her final days?

In 1990, Dr. Laubenstein became very ill with *gastroenteritis* (inflammation of the lining of the stomach and intestines) and respiratory failure. She continued to work until her final days. In August 1992, she died of heart failure at the age of 45. She was the inspiration for the character Dr. Emma Brookner in the play, *Normal Heart*. The play was written by Larry Kramer, an AIDS activist who later died of AIDS. Linda Laubenstein is remembered by family, friends, and colleagues for her commitment, determination, devotion, and compassion.

Did You Know...?

AIDS can be spread from person
to person when drug users share needles.



What other ways can AIDS be spread?

SUGGESTIONS FOR TEACHERS

ACTIVITY #1: AIDS? Who, Me? — A Disease Transmission Simulation

Purpose

To illustrate how diseases can be spread directly from person to person and can infect large numbers of individuals.

Objectives

1) To learn how disease organisms can travel from host to host via skin contact and contact between body fluids.
2) To learn that the spread of disease from a carrier can be exponential.
3) To discover how epidemiologists use contact data to trace the original source of an infectious disease organism.
4) To practice organizing and interpreting data.
5) To provide opportunities to work cooperatively in a small team. Hint: This is a great activity for one of the first days of school. Since the classes have not yet developed a personality, it allows the instructor to emphasize, early in the year, the importance of cooperation.

Materials

- 1 test tube or plastic souffle cup per student
- 1 eyedropper per student
- 2-4 ml distilled water per student
- 0.1 N NaOH (10 ml)
- turmeric (spice from grocery store)
- isopropyl (rubbing) alcohol

Before You Begin

1) Try this activity ahead of time to make sure that the pH of your distilled water allows detection of the NaOH after five 1:1 dilutions. If not, use 0.001 N HCl instead of distilled water (see Dickey, 1989).
2) Before class begins, prepare a simple base indicator by mixing approximately 1/4 teaspoon of turmeric in approximately 1/3 cup of isopropyl (rubbing) alcohol. Stir well. This yellow indicator will turn dark orange in the presence of a base; you may see a dark red precipitate, as well. If you prefer, use phenophthalein as a detector.
3) Before students come into the room, prepare a test tube or souffle cup for each student. The test tubes contain only distilled water, with the exception of the "infected" test tube, which contains 0.1 N NaOH. You may want to give each tube a sample number to be able to track the "infected" sample.
4) Use the following number of exchanges: classes of 18-25, four exchanges; 25-35, five exchanges; larger classes, six exchanges. If you do too many exchanges, the problem becomes very difficult to solve because the base becomes too diluted to detect. Some students need to remain "disease free." Students should only exchange on your signal, and with only one person at a time. If there is an odd number of students in the class, you will need to participate.
5) If you use test tubes, use small ones. When a full dropper of solution is removed, about half of the solution should remain. If you use plastic cups, simply fill the cups just under half full and have students mix their solutions together.

Safety Considerations

- Follow standard guidelines for working with chemical reagents. The 0.1 N NaOH is a fairly dilute solution, but have an acid/base spill kit ready in case of accidents.
- Warn students that isopropyl alcohol is toxic when taken internally.
- Students should wear goggles when working with chemicals, and there should be no hand-to-mouth contact during the laboratory.
- Students should wash their hands after the activity.

Questions to Ask

- Do doctors and nurses have a right to know whether their patients carry a contagious disease? Likewise, do patients have the right to find out whether their health care professionals are infected?

- Should teachers and students have the right to be aware of health problems others in the same room might have? Would you be willing to work with a lab partner carrying a contagious disease or is the individual's right to privacy the overriding concern? Does the method of disease transmission matter?
- Does the severity of the disease matter in these issues? Would you set the same policy for someone with strep throat? With chicken pox? With AIDS?
- Should life or health insurance companies be able to deny coverage to people who are known to be ill? Would you be willing to pay twice as much money for your coverage so that others who are ill could be insured? Three times as much money?
- Should drug users receive clean needles at taxpayer expense to prevent the spread of disease?

Where to Go From Here

- After the carrier is identified, ask the class to figure out how many people would have been infected if the transmission had been only via the carrier (that is, when you became infected, you didn't pass it on). This geometric rate of transmission (as opposed to the previous example which was exponential) infects far fewer people and is easier to trace.
- Try holding a written or oral debate on one of the questions above — encourage students to base arguments on factual information, not emotional appeal.
- Invite a public health official to discuss what measures your community takes to prevent the spread of contagious diseases.
- Call a local or national AIDS hotline to get a breakout of the numbers of teens who are HIV-positive and how this is changing over time.

Ideas for Assessment

- Have students develop a problem that involves either an exponential or geometric transmission pattern. Provide the raw data and ask students to identify the carrier, decide whether the transmission is exponential or geometric, and provide an example of a disease that is transmitted in this fashion. The latter will require research in reference texts and resources.
- Have students prepare a reaction paper that addresses one of the questions above and is tied to the data collected during the simulation.

References and Resources

✓*About Linda Laubenstein:*

Gordon, M. (May 1993). The woman who discovered AIDS. *McCall's*, p. 110-119.

Lambert B. (August 17, 1992). Linda Laubenstein, 45, physician and leader in detection of AIDS. *The New York Times*, p. B8.

✓*About HIV and AIDS:*

National AIDS Clinical Trials Information Services, (800) 874-2572.

National AIDS Clearinghouse, (800) 458-5231.

Centers for Disease Control (CDC), (404) 639-5231.

CDC National AIDS Hotline, (800) 342-2437.

✓*Related information:*

Dickey, J. L. (1989). A quick and easy simulation of disease transmission. *The American Biology Teacher, 51 (6)*, p. 364-365.

Fox, C. H. (1996). How HIV causes disease. *Carolina Tips, 59 (2)*, p. 1-3.

Scott, N. (1994). Typhoid who? *Works in Progress 1994*. Bethesda, MD: American Physiological Society.

Service, R. F. (September 9, 1994). Triggering the first line of defense: Vaccines that activate mucosal immunity.... *Science, 265*, p. 1522-1524.

✓*For science supplies:*

Carolina Biological Supply Company, 2700 York Road, Burlington, NC 27215, (800) 334-5551.

Fisher Scientific, Educational Division, 485 South Frontage Road, Burr Ridge, IL 60521, (800) 955-1177.

Flinn Scientific, P.O. Box 219, Batavia, IL 60510, (630) 761-8518.

WARD'S, 5100 West Henrietta Road, P.O. Box 92912, Rochester, NY 14692-9012, (800) 962-2660.

✓*Photo credit:*

Photo on page 107 courtesy of the Linda Laubenstein family, Harwich Port, MA.

Activity #1: AIDS? Who, Me? — A Disease Transmission Simulation

Purpose

In this activity, you will find that a single carrier of a disease can infect large numbers of individuals when the spread of the disease is exponential rather than geometric. Also, you will learn how epidemiologists can trace the original source of an infectious disease organism. You will also sharpen your data collection and analysis skills.

Materials

- 1 test tube or cup of prepared fluid
- 1 eyedropper

Procedure

- Each student will receive a test tube or cup of liquid that represents a sample of "blood." All but one of the samples is untainted, or disease free. One of the samples (which looks just like all the others) contains an additional chemical representing a certain strain of disease. Only your instructor knows the identity of the one "infected" individual.

- At your teacher's signal, exchange "blood" with another student in the following way:

  1. Pull about half of the liquid in your tube or cup into the eyedropper; your partner should do the same.
  2. Put the liquid in your eyedropper into your partner's tube; he/she should put the liquid in his/her eyedropper into your tube.
  3. Swirl the liquid in your tube to mix it (or use your eyedropper to mix it with an up and down motion).
  4. Record the name of the person with whom you exchanged "blood" on your "Data Table." It is important that you record your exchanges in the order in which they occurred!

- Next, find a new partner (someone you have NOT exchanged "blood" with before) and wait for your instructor's signal, then repeat *steps 1-4* above.

- When you have made all the exchanges (ask your teacher how many), bring your tube to your teacher to test for "infection." A dark orange color in the tube means that you are infected with the disease. Record whether you are "infected" or "disease free" on your "Data Table."

- By careful sharing, organization, and interpretation of the data, determine who among your classmates had the original "disease carrier" tube or cup. Good luck and start thinking!

Data Table

Exchange number	Exchange person
1	_____
2	_____
3	_____
4	_____
5	_____

After five exchanges, add the indicator to determine whether your "blood" sample is infected with the disease.

Is your sample **"disease free" (yellow)**, or **"infected" (dark orange)**? _____

Who had the original tube/cup that carried the disease? _____

Questions

1. What methods of sharing and organizing data proved most successful in your analysis? What did you do that did not assist in your interpretation of the observations?

2. Is it possible for two people to exchange fluids and, at the conclusion of the exercise, one person be "infected" while the other remains "disease-free"? Is this true for a disease such as AIDS?

3. Who was the original "disease carrier" in your class? How did you come to that conclusion?

4. What other technological or societal issues of our day require extensive exchange and analysis of data in working toward a common goal?

SUGGESTIONS FOR TEACHERS

ACTIVITY #2: What's Your Opinion About AIDS?

Purpose

To provide students with the experience of evaluating social situations involving AIDS.

Objectives

1) To analyze a social situation involving AIDS and form a responsible opinion.
2) To handle controversy in the classroom in a diplomatic fashion.
3) To become familiar with current statistics regarding AIDS in the U.S.

Materials

- Copies of the opinion survey and the AIDS statistics sheet.

Before You Begin

1) Conduct *Activity #1* and discuss background information regarding AIDS. Include a discussion focusing on the Resource Sheet, "AIDS Statistics," on pages 116-117.
2) Suggest ways for students to discuss the survey openly and respectfully.

Safety Considerations

None.

Questions to Ask

- On the basis of the Resource Sheet, "AIDS Statistics," what groups of individuals are at the highest risk for contracting AIDS? What group seems to be least susceptible to contracting AIDS at the current time? Why?
- What conclusions can you reach regarding the life expectancies of a person once he or she is HIV-positive (that is, infected with the HIV virus)?
- Should an HIV-positive person be permitted to play a contact sport at your school? Why? Why not?
- What were the toughest issues for you to deal with on the survey? Why?
- On the basis of your knowledge of the AIDS virus, what kind of medicine or vaccine would you like to develop to combat the virus? How would the medicine or vaccine work?

Where to Go From Here

- Have students call a local or national AIDS hotline to obtain more information (see "References and Resources" section for *Activity #1*).
- Have students create a model of the AIDS virus and demonstrate how your vaccine will work to fight the virus.
- Students can prepare a graph depicting the percentage of groups of individuals with AIDS.

Ideas for Assessment

- Have students create a concept map about AIDS that depicts their current understanding of this disease. They should include the major biological concepts and social concepts in their maps.
- Have students look up and study AIDS statistics dating from the early 1980s to the present. They should develop a graph or chart showing the progression of the disease and incorporate this into a poster designed to inform their peers about AIDS.

References and Resources

See listing at end of *Activity #1*, "Suggestions for Teachers" for more references.

✓*About the activity:*

Activity #2 adapted with permission from *AIDS*. (1988). Columbus, OH: Ohio Department of Education, p. 63-64.

Resource Sheet
AIDS Statistics

HOW MANY PEOPLE IN THE U.S. HAVE AIDS AND WHO ARE THEY?

What racial/ethnic groups have AIDS?

Race/Ethnic Group	U.S. Totals
White	256,461
Black	189,004
Hispanic	96,613
Asian/Pacific Islander	3,826
American Indian/ Alaska Native	1,439

Gender	U.S. Totals
Male	465,904
Female	82,198

How many males vs. females have AIDS?

Age (at diagnosis)	Number	% of Total
<13	7,296	1%
13-19	2,574	<1%
20-29	98,028	18%
30-39	248,741	45%
40-49	135,644	25%
50+	55,819	10%
Total	**548,102**	

What age groups are affected?

HOW ARE PEOPLE IN THE U.S. BECOMING INFECTED WITH AIDS?

How are adults getting infected?

Exposure Category Adults/Adolescents	U.S. Totals
Male/male sex	274,192
Injecting drug user (IDU)	137,753
Male/male sex and IDU	35,218
Hemophilia	4,280
Heterosexual contact (total):	44,980
sex w/IDU	*20,307*
sex w/bisexual male	*2,425*
sex w/other HIV-positive person	*22,248*
Transfusion/transplant	7,684
Risk not reported/identified	36,699
Total	**540,806**

How are children getting infected?

Exposure Category Pediatric (<13)	U.S. Totals
Hemophilia	228
Mother with/at risk for HIV	6,586
Transfusion/transplant	367
Risk not reported/identified	115
Total	**7,296**

(Data are cumulative totals through June 1996. *HIV/AIDS Surveillance Report, Vol. 8, No. 1,* from the Centers for Disease Control website at http://www.cdc.gov.)

Activity #2: What's Your Opinion About AIDS?

Procedure

- After reading about the two people described in each example below, decide which person is most like you.
- Mark an **X** anywhere along the line between the two names. You may feel exactly like one of the two persons, or you may have feelings in between.
- Give the reason why you chose your position.

1.

Cleo ——— **Sarah**

Cleo says that if a friend of his developed AIDS he would continue being friends with that person. He would want to help his friend. Cleo believes that his support and understanding would be valuable at this time. Sarah states that she would stop being friends. She would not talk with or visit the person.

Explain your opinion.

2.

Huang ——— **Nate**

Huang believes that the whole community must work together to combat AIDS. He says that he would serve as an AIDS volunteer and be an advocate for more AIDS research and health care services. Nate believes that there are already enough people helping to stop the AIDS epidemic. He also feels he doesn't want to be associated with anything dealing with AIDS.

Explain your opinion.

3.

Ida ——— **Bart**

One of Ida and Bart's classmates has developed AIDS. Ida feels that the classmate should be permitted to continue attending school. She believes the medical authorities who say the AIDS virus is not passed by casual contact. Bart thinks that the classmate with AIDS should be barred from school. He is concerned about getting the AIDS virus by being near the person.

Explain your opinion.

4.

Perez —— **Allen**

Perez believes that the names of persons who have a positive result of the AIDS antibody test should be kept private. That is, only persons chosen by the individual tested and those involved in the health care of the person should know. Allen believes that positive test results should be available to persons wanting them. Employers, school officials, and landlords, for example, have the right to know who has the AIDS virus.

Explain your opinion.

5.

Carlita —— **Sam**

Carlita and Sam use IV (intravenous) drugs. Carlita is very careful not to share needles or syringes to avoid passing on the AIDS virus. She also is starting to realize that it would be smart to stop using IV drugs to protect her health. Sam shares his needles and syringes with friends. He also doesn't worry much about the effects of drugs on his health.

Explain your opinion.

6.

Bob —— **Dora**

Bob believes that it is important to learn all the latest facts about AIDS. He feels that the amount of coverage about AIDS by the media is just right. Dora doubts that the AIDS problem is as bad as shown by the media. She says that she gets tired of hearing all the reports about AIDS.

Explain your opinion.