Columbia Gay Health Advocacy Project
Minutes of Meetings
Fall 1985

15 October

Present were: Laura Pinsky, Bruce Francis, Michael Sueski?, Barton Lewis, Rich Porta, Paul Henkey?, Eric Rystrom, David Usdan Paul Douglas, Michael Dowling, Murray Sexton, Anastasios Kalamiros, Kevin Hall, Adam Rosenberg.

Next week's meeting: ER will discuss normal immunology.

Week after next: ER will discuss AIDS

Handouts: Read Claman article for 10/22. Kassler book is good for all but AIDS info, on which topic it is outdated.

Good people to see at the health service are:
- Nurse Practitioner Rose Inman
- Dr. Al Cohen (evenings, Sat. morning, check)
- Dr. Elena Levine

LP's quick AIDS spiel:

In 1981, cases of *pneumocystis carinii pneumonia* (PCP), a hitherto rare disease, crop up in five young gay men. These cases were the first noted occurrences of AIDS. Since then, fourteen thousand cases of full-blown AIDS have been diagnosed: half of those people have died.

Four thousand cases have been diagnosed in New York City alone. The breakdown by risk group of all cases nationwide is:

Gay with no IV drug use	60%
Gay with IV drug use	13%
IV drug use alone	17%
Transfusion recipients	2%
Haemophiliacs	1%
Sexual contact with carrier	1%
Non-characteristic or unknown	6%

860 people with AIDS (PWA's) are female, and half of those are IV drug users. The number of cases is predicted to rise to thirty thousand by 1986.

AIDS is caused by a virus called either *human T-cell lymphotropic virus, variety three* (HTLV-III), or *lymphadenopathy associated virus* (LAV). The

virus infects and damages a particular kind of white blood cell. White blood cells come in many varieties, among which are *macrophages* and *neutrophils* (which eat up foreign materials and organisms), and *lymphocytes* (which function as a more complicated part of the immune system). Lymphocytes come in two kinds: B-cells, and T-cells. B-cells make antibodies. T-cells help protect against parasites, fungi, and malignant or infected body cells and also help regulate the activity of B-cells. T-cells come in many varieties too, but the two kinds that regulate B-cell activity concern us most: the *helper* cells, and the *suppressor* cells. AIDS seems to be a lack of helper cells in relation to suppressor cells. That is, AIDS is a *low* helper/suppressor ratio.

The effect of this low ratio is that the immune system loses its ability to fight off new infections. A PWA becomes severely *immuno-suppressed*. This allows infections that would not otherwise never bother you to become serious. These infections are called *opportunistic infections*. Things besides AIDS can also suppress your immune system to various degrees, but few destroy the system as badly as AIDS. Opportunistic infections include:

- Protozoans and parasites, as in PCP
- Viruses, as in cytomegalovirus (CMV)
- Fungi, as in histoplasmosis, or candida (oral thrush)
- Bacteria, as in tuberculosis (TB)
- Cancer, as in Kaposi's sarcoma (KS), which is the main cause of death for gay PWA's.

PWA's usually die from a combination of several of the above types of opportunistic infections. You don't die from HTLV-III infection itself, but from the associated diseases.

No cure has been found. Various experimental treatments are being investigated. They fall into three strategies:

- Treat the opportunistic infections
- Build up the immune system
- Attack the HTLV-III virus

The Centers for Disease Control (CDC) define the worst consequence of HTLV-III infection, cases of full-blown AIDS, by the following criteria:

- The patient is under 60 years old
- There is no other reason for immuno-suppression
- The patient has at least one of the characteristic opportunistic infections, or the patient has some other disease and also tests postive for the HTLV-II antibody (which is known as being *sero-postive*).

The above conditions are what constitute *CDC-definition AIDS.*

HTLV-III infection may also result in a milder condition than CDC-definition AIDS. This condition is called *AIDS -related complex* (ARC). A person is thought of having ARC if they belong to risk group and have three or more of the following symptoms:

- lymph adenopathy (swelling, lumps, tenderness) other than in the groin.
- fatigue
- persistent diarrhea
- night sweats
- thrush
- persistent dry cough

It must be emphasized that all these symptoms are very common, and can be caused by most any harmless infection. They can also be caused by anxiety. It is estimated that there are ten times as many people with ARC as there are PWA's. Of those with ARC, ten to twenty percent will go on to develop full-blown AIDS.

22 October

LP reports that Barton Lewis has dropped out of the GHA because of time pressures.

PD & BF reported comments made at the "AIDS: What Is To Be Done?" forum held 10/21. Participants stressed the need for, and current lack of, intermediate care for PWA's. Dr. Mathilde Krim said that recent results concerning the structure of the protein shell of HTLV-III gave hope that a vaccine could be synthesized using recombinant DNA techniques in a matter of some months.

LP continues the quick AIDS lecture:

Transmission of the virus occurs in two ways: through sexual contact with exchange of fluids, particularly semen; and through the direct transfusion of blood or blood product from one person to another.

We are confident that the virus cannot be transmitted in other ways, especially not through casual contact. Reasons for this include the following facts:

- The virus is fragile. HTLV-III is easily killed by drying, soap, bleach: in general the virus cannot survive for any length of time outside the body.

- No health workers outside the risk groups have gotten sick.

- No family members of PWA's outside of sexual partners and children *in utero* have gotten sick, despite unhygienic living conditions in many cases.

Some facts to mention to women worried about getting AIDS:

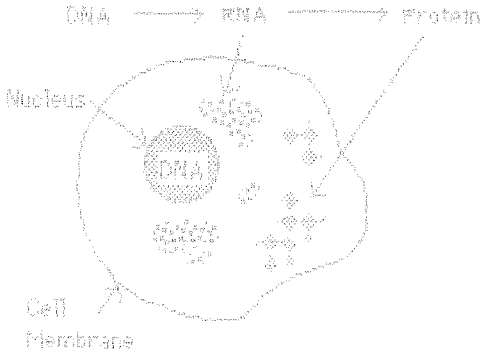
- Only 870 women have AIDS out of the more than 14,000 PWA's diagnosed so far. Of these 870, half are IV drug users, and 100 are transfusion recipients. The remaining 350 or so were infected through sexual contact with a member of a risk group (usually an IV drug user).

- AIDS is transmissible through vaginal intercourse. The direction of infection is usually from man to woman, and much less frequently from woman to man. This is due to the nature of fluid transfer during vaginal intercourse in which semen is deposited in the vagina.

- If a woman is worried, she should follow the risk reduction guidelines, but she should not be anxious: her chances of contracting AIDS are very low to begin with, and following the guidelines will make her even safer.

ER begins his discussion of normal immunology:

First, some basic biology:
Diagrams of a cell and a virus:



Cell

Virus

A cell consists of a nucleus floating in fluid inside a protective wall, the cell membrane. The nucleus contains genetic material, instructions for the manufacture of proteins, coded onto strands of DNA (deoxyribonucleic acid). The DNA's instructions are transcribed onto another type of molecule called RNA (ribonucleic acid), which then moves outside the nucleus. There the RNA is used to make proteins. One fundamental chracteristic of cells is their ability to reproduce. Examples of cells are human body cells, and bacteria.

A *virus* is not a cell, but is just a little packet of DNA surrounded by a protein coat called the *capsid*. A virus cannot reproduce on its own. Instead it must find a host cell which it can trick into making more copies of the virus. The virus does this by injecting its DNA into the host cell and subverting the cell's normal protein manufacturing.

Note the difference between viruses and bacteria: bacteria do not need to invade cells to reproduce and cause infection but viruses must get inside host cells to reproduce. Bacteria and viruses can sometimes cause the same diseases, as in pneumonia. Certain diseases are strictly viral or strictly bacterial, as in colds and flu which can only be caused by viruses. There are some unusual bacteria (examples are syphilis, rickettsia, and legionella) that operate in manners similar to viruses: they actually invade cells themselves. These are exceptions to the general rule.

There is a odd kind of virus called a *retrovirus* that does not contain DNA inside its protein shell. Instead it carries RNA and an enzyme called *reverse transcriptase*. Once inside the host cell, the reverse transcriptase acts on

the RNA to produce DNA, and from there the process proceeds as for ordinary viruses. Retroviruses are still something of a mystery, but they are improtant to us because HTLV-III is a retrovirus. Other retroviruses are cytomegalovirus and herpes. (???)

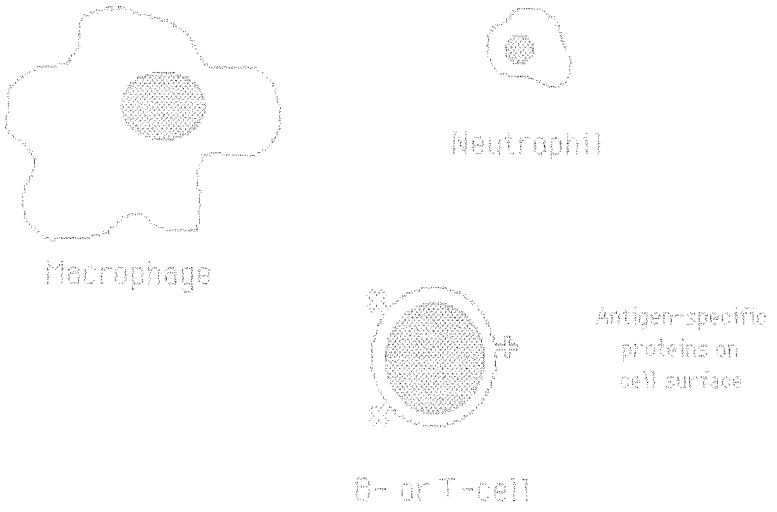
The way most viruses make you sick is by multiplying within cells and causing them to rupture, spreading the many copies of the virus the cell contained. Viruses often have cells of preference in which they like to live, e.g., hepatitis likes to live in liver cells, HTLV-III likes to live in certain white blood cells called T-cells. Viruses damage the cells they infect, and thereby impair the normal functioning of those cells.

Some viruses don't always rupture their host cells, and can in fact travel directly from cell to cell without ever leaving the protection of a host. The hosts and the viruses both live longer. To recognize and fight a virus, an antibody must be able to "see" a particular part of the virus's outer coat, the *antigen*. If the virus is hidden inside the host, its coat isn't accessible to antibodies. One reason that some viruses (such as flu) are difficult to find vaccines for is that they change the shape of their coats frequently through mutation, moving the antigen from an easy-to-see outer fold to an inaccessible inner fold. No one antibody stays effective for long as the mutations accumulate. Unfortunately, HTLV-III behaves like this.

The blood is about 50% red cells (oxygen carriers), about 20% white cells, and the rest is plasma (fluid). The blood is not the only circulating fluid, however. White cells migrate out of the capillaries into the surrounding tissue. The lymphatic system reabsorbs the white cells and eventually returns them to the blood supply in the chest.

The lymph nodes act as filters: white cells hang out in the nodes waiting to jump on unwary pathogens. When lymph nodes swell, it's becasue white blood cells have discovered a pathogen and are reproducing to fight the infection. The lymph nodes are clustered in the neck, armpits, groin, in back of the knees, and all through the trunk. The spleen also swells as part of the lymphatic system. All blood gets filtered through the spleen.

There are many types of white blood cells, including *macrophages, neutrophils, B-cells and T-cells:*



Macrophages are big white blood cells that run around eating anything that is foreign to the body. They are not programmed to fight specific enemies. Macrophages get very excited when they encounter anything coated with antibodies: they react by wanting to eat the invader, by reproducing, and by secreting chemicals to attract more macrophages.

Neutrophils are quite similar to macrophages, only smaller.

B-cells and *T-cells* are very similar. The main difference is that B-cells have more proteins on their surfaces. These cells get their names because T-cells come from the thymus gland, and B-cells are thought to come from the bones. T-cells may live for a very long time. This is significant because it means a T-cell infected with HTLV-III may stick around for a very long time, even if the virus doesn't reproduce. In other words, infection with HTLV-III is likely to be for life.

B-cells exist to make *antibodies*. Antibodies are special proteins (called *immunoglobulins)* that recognize foreign proteins so that the body can destroy them. Each antibody recognizes exactly one antigen, just as a key opens its lock. B-cells have little copies of the antibody they make embedded in the cell membrane. When a B-cell recognizes its antigen, it reproduces and starts making its antibody like crazy. The antibodies excite macrophages and neutrophils, which come to much the invader. Antibodies also activate a process by which enzymes in the blood called *complement* act to *lyse*, or dissolve, pathogens. Complement is a different system from the action of macrophages, and opertaes via chemical lysis, not

phagocytosis. Antibody also causes its victims to clump, making them easier targets.

There are several classes of immunoglobulins. Each class contains millions of possible proteins. The classes are:

- IgA, which is secreted, and therefore can act against infections of the body's lining such as parasites, fungi, and other respiratory and gastrointestinal (GI) infections.
- IgE, which operates on allergies.
- IgM, which B-cells make only at first, before switching to...
- IgG, the class of immunoglobulin associated with the HTLV-III antibody. (the ELISA test tests for this)
- IgD is the final class of immunoglobulins. Their function is unknown.

29 October

LP: "Early Frost" screening November 8th.

LP: Curriculum info: tentative, open for emendation
Medical Info:

AIDS	ARC
Immune system	Epidemiological issues
Antibody test	Substance abuse
AIDS co-factors	
Hepatitis B and vaccine	
GI problems incl' parasites (should Dr. Kottle talk?)	
Other STD's	
Getting medical care	Self-examination

Political issues (M. Dowling):
- Insurance

Counseling:
- Behavior changes -- general context
- Research -- John Martin
- Group discussion re safer sex:
  - What helps/hinders?
  - Condom use.
  - Relation to coming out
- AIDS anxiety
- General counseling issues
- Referrals

Miscellaneous:
- Session with PWA (Ed Prieto)

Meeting with Dr. Carlson (head of CUHS)
Feedback re CUHS care?
What is to be done?
Where? Outreach
Hot line
Reaching the "general population"
Generating literature

Advocates were urges to bring in relevant articles and documents to the group for general reading and discussion. It was suggested that we divvy up the major periodicals and read them systematically. Begging, borrowing, or stealing a clipping service was also suggested.

It was decided to clarify our goals first, and only then to move on to identify specific projects and settings for our activities. Initial brainstorming tonight, full discussion next week. Brainstorming results:

GHA priorites are to reach and help the following groups (in order):

- PWA's
- Risk groups
- "Worried well"
- General public

An overarching goal is to influence and improve the official campus health services for all these groups. A particular goal is getting the administration to allocate money for a new CUHS physician to handle campus needs in regard to AIDS.

Issues for further discussion:

- We agree on the more passive aspects of GHA's role, such as providing one-to-one AIDS counseling and information services to those who seek them out. What more active roles should we play in addition? What scope should out outreach activities have? What specific form should our outreach take?
- We are committed to providing some services to the twenty thousand members of the Columbia community. Who else can we help? Should we conceive of ourselves as providing services to the community at large?
- Is it good or bad to provide Columbia versions of services available elsewhere, as in hotlines?

ER reviews last week's normal immunology info and answers questions. Information not covered last week included:

Almost all the B-cells generated in response to an infection die off after the infection is conquered. Certain cells called *memory cells* do not die off. They are like B-cells, but are longer-lived and quite trigger-happy -- that is they swiftly reproduce and produce antibodies when next they encounter their specific antigen. Being immune to a disease means having a population of memory cells for the correct antigen.

T-cells don't produce antibodies, but they are nevertheless specific to antigens and can recognize antigens that are inside cells. This is possible because an infected cell will cause some of the antigen to migrate to the cell membrane where it can be detected by the T-cells. The T-cells release enzymes that then destroy both the infected cell and the T-cell itself.

Autoimmune diseases such as *systematic lupus erythematosa* (SLE) are caused by T-cells that go crazy and start destroying perfectly healthy body cells.

Two of the many kinds of T-cells are the *helper cells* and the *suppressor cells*. These do not lyse infected cells directly, as do other types of T-cell, but instead act to regulate the behavior of both B-cells and T-cells.

T-cells mediate what is known as the *general immune response*. They do this by:

- secreting enzymes to attract macrophages and neutrophils to the area.
- making capillaries "leaky" so that white cells can enter the area easily.
- secreting a chemical that keeps macrophages and neutrophils from leaving once they arrive.
- helping other white cells reproduce once they are nearby.

Hypersensitivity is a relatively unusual kind of immune reaction that needs only T-cells to operate. Examples are the reactions to poison ivy and poison oak. The initial exposure to the antigen causes no reaction, but subsequent exposures are met with an immediate and violent response.

B-cells usually need helper T-cells to start producing antibodies. IgA production relies on helper T-cells. It is this system that is often broken in PWA's. This explains why so many PWA's suffer from infections of the GI tract such as parasites, or infections of the respiratory tract such as PCP. These infections are the types usually kept in check by IgA secreted from the body.