

WELCOME
TO THE SAN FRANCISCO AIDS FOUNDATION
SCIENCE ORACLE!

Congratulations on penetrating the computer network to this point! Getting here was the hard part; the rest should be a breeze. Take a few minutes to read the following guide to the Oracle, and the latest relevant material from the most fascinating science and medical journals will be just a few keystrokes away. Ready?

What does the Oracle do?

Like its counterpart in the days of Apollo, the Oracle provides answers not easily found in other places to questions of supreme importance in our daily lives. Unlike its counterpart, the SFAF Oracle doesn't speak Greek; that is, its answers are, ideally, straightforward and accessible--no enigmatic messages hidden in poetic images. The other major difference is that the questions are asked for you. There is no opportunity to pose your own query and see the answer miraculously appear on the screen. In that sense, SFAF technology has yet to catch up with Delphi.

What can you expect from the Oracle?

All pertinent science articles that pass through the Hotline will be read and then digested into the Oracle. Every entry follows the same format:

- a one-sentence description of the article's subject,
- a summary of the meaty (read: technical) parts of the piece,
- and an "implications" section which discusses the article's importance within the context of the epidemic and then attempts to give specific answers to questions that might be of concern to Hotline callers.
- Finally, key words in the text, the source of the article and the name of the person who filed the update can be found at the bottom of each entry.

Anyone who has further questions or who wishes to read the entire article can find it conveniently filed in the Hotline area. Just ask!

How can you make use of this exciting new resource?

You're already doing so. Pretty simple, no? To enter the depths of the Oracle, though, one or two steps remain. Immediately following this memo you will find an "Explanatory Note" which you can skip since it pertains only to those wishing to enter data into the Oracle. (If you do not have writing privileges within the Oracle and feel that you need or want them, please see Scott.) After the "Note", there is a Table of Contents which lists all the updates available for viewing. This table is organized by I. HEADINGS and A. Subheadings that are identical to the entries in the Hotline Encyclopedia. To find an article on a specific topic, simply scan down the table, locate the topic that interests you, and every pertinent update will be listed beneath that heading. All you have to do then is to look at the page number of the update you wish to read, and then type CTRL-HOME. In the left-hand, bottom corner of the screen you will see the words "Go to". Type in the page number and hit ENTER. Voilà!

Another option that is always available is to use the SEARCH mode to find a particular word or phrase that interests you. For example, if you are interested in PCR testing and want to find the first reference to that test in the Oracle, type F2 and the prompt ->Srch: will appear in the bottom lefthand corner. This is your cue to enter the word or phrase you wish the Oracle to locate. (In the case of the PCR, you can type PCR or PCR testing or whatever you want, but remember, the more specific you are, the more specific the Oracle will be in looking for your phrase. It's a rational beast.) Then type F2 again, and the cursor will miraculously plant itself at the end of the first appearance of that word or phrase. Hit F2 twice to keep repeating that process until there are no more occurrences of your word(s). To change the phrase you're looking for, just type in the new one when you hit F2. You can't go wrong.

To obtain a hardcopy of the update, keep the cursor on the page you wish to print, and type SHIFT-F7. Hit 2 to print that page, and repeat those steps whenever necessary. You can even make your very own SFAF Science Oracle Binder!

To exit the Oracle, use F7 the way you would normally exit WordPerfect. It's that simple. No kidding.

If you have any questions or suggestions regarding the Oracle, search for or call Scott (ext. 2084). All comments are welcome.

* * * * *

Now stop reading all this explanation and get to work.
Hit PgDn three times to reach the Table of Contents.
Good luck!

EXPLANATORY NOTE FOR ORACLE CONTRIBUTORS

Entering data into the Oracle is a simple process, and one which can be mastered quickly. One of the objectives in creating this file was to have a consistent format in which to process the ever-increasing number of articles that come into the Hotline each week. Another objective was to make sure that the information be presented in a user-friendly way. If you have any doubts about your approach, feel free to refer to completed updates already on file as a guideline.

To begin the process, you have to make a decision about where in the Encyclopedia the update is to be filed. Since the Table of Contents generates itself based on the location of the command (all **Update Titles** will be filed under the **A. Subheading** immediately preceding it), it is importantísimo that you write the update exactly where you want it to appear in the Table of Contents. In order to do that, refer to the Table of Contents for the page number of the **A. Subheading** under which you wish to enter your update. Then use **CTRL-HOME, PAGE #** to go to the last page in that section. At that point, type **CTRL-ENTER** to create a new page, and you can begin writing. (NOTE: You'll notice that all the **I. HEADINGS** and **A. Subheadings** are listed on separate pages immediately following the Table of Contents. Use those pages as you would the dividers in the Encyclopedia, and begin your text on the next page. When the Oracle starts to fill up, it won't seem quite as strange.)

The format for the update has already been created and can be accessed as a macro. Make sure that you are on the page that you selected above and then type **ALT-F10**. At the prompt "**Macro**", type **Update**. The macro will guide you through the questions you need to answer and provide hints as to the best way to approach the questions. It is essential that you hit **ENTER** whenever requested before continuing, or a good part of your work will be erased before your eyes.

If you find that you need to write more paragraphs than the macro provides, you will have to hit **ENTER** until you are at the end of the format, and then move the cursor back up and fill in the rest. I know that's not the most efficient system, but we're limited by the software. I would like to know, though, if there is one section in particular which needs to be expanded to accommodate the information requested. Consider the Oracle a project under research and critique it as such.

Also, when the screen asks you for the "Source", please use the following bibliographic format:

1st author (surname first), 2nd author, "Title of Article", Name of Journal, Year, Volume, Number, Pages.

The only other trick you'll have to learn is how to add your update to the Table of Contents. It's not difficult but does require some practice to learn the steps. Here goes:

1) WordPerfect generates a Table of Contents from data already entered. Therefore you have to identify the text you wish to use as a title for your update. Remember: the text will appear in the Table of Contents exactly as it appears in the article update. So, if you want certain words to be capitalized, etc., make sure that you write them that way originally. Okay? To proceed: first, BLOCK the text (ALT-F4),

2) then type ALT-F5. That's the "Mark Text" menu. Option number 1 says "ToC". That's what you want. Then the screen will ask you for the "ToC Level". Type 3, and the BLOCK on your text should disappear.

3) All you need to do now is to tell WordPerfect to generate a new table including your entry. Type ALT-F5 again, and then type 6 for Other Options. The last thing on that menu is number 8, the command to Generate Tables and Indexes. After typing 8, you will be confronted with the frightening message: "Existing tables, etc., will be replaced. Continue (Y/N): Y?" Be brave and say "Y". You won't regret it, especially when you see your text entered in the Table of Contents for all the world to view.

That's it. In the beginning I expect we'll all have to struggle, no matter how slightly, until we feel comfortable with the system, and I hope that you will let me know every time there is a problem or suggestion. The goal is to keep modifying the program until it works best for us. Just continue to imagine the entire Hotline Encyclopedia on the computer network. This is the beginning of the future. Hmmm.

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JOURNAL ARTICLE UPDATE

Section: E.1 Symptoms

WHAT'S THE ARTICLE ABOUT?

Symptoms of the AIDS dementia complex

WHAT DOES IT SAY?

Direct infection of the brain by HIV can result in a progressive dementing illness "that can affect a large number of PWAs and is one of the greatest sources of their morbidity". The effects vary from early loss of memory to profound dementia that requires full-time institutional care. Early complaints include forgetfulness, poor concentration and mental slowing. "Patients notice that they 'lose track' of conversations or thoughts, experience increased difficulty in the performance of more complex daily tasks, which also take longer to complete, and have difficulty attending to the content or plot of books or television". The article also mentions as early symptoms: poor balance, poor coordination, changes in handwriting and gait.

The study included four groups (16 to 44 persons in each) that were HIV-, HIV+, Early AIDS and Late AIDS. The participants went through a neuropsychological examination, language tests, memory tests, visuospatial performance, attention assessment, sequential problem solving tests, motor control tests, and a psychiatric interview. There were no significant differences between groups in performance in naming, verbal fluency, vocabulary, similarity, immediate or delay recall in verbal and visual memory tests. In contrast, visuospatial performance decreased significantly across groups, as well as the capacity to solve sequential problems. Motor control tests yielded significant group differences.

The number of abnormal results was determined for each participant and put in a scale of impairment (impairment was considered mild to moderate with two or three abnormal results; severe with four or more abnormal results). The study found no significant indication of abnormality in the HIV- group and only two out of 16 participants in the HIV+ group had certain degree of abnormality. In the early AIDS group 27% showed mild impairment and 5% severe impairment (n=44) and in the late AIDS group 61% showed evidence of severe impairment, 29% showed no abnormalities and 10% had mild impairment (n=40).

WHAT DOES IT MEAN FOR THE HOTLINE?

General implications: The study provides a better perspective of the degree to which neurological implications of HIV occur in different stages of the infection. The most

interesting finding is the correlation between stages of infection and degree of impairment. It is also very important that the study mentions the fact that different tests can lead to different conclusions about the effects of HIV in the brain and that more understanding is needed to establish criteria to determine the presence of the dementia complex.

Specific responses to possible caller concerns: It is difficult to assess whether an HIV+ or PWA is experiencing some neurological consequences of HIV. However, if someone expresses noticeable changes in his/her motor functions, coordination, memory, attention span, etc. it would be important to have those symptoms checked by a neurologist that has some experience dealing with the AIDS related dementia complex.

SOURCE: Tross, Susan; Price, Richard W.; et. al.
"Neuropsychological Characterization of the AIDS
Dementia Complex: A Preliminary Report" AIDS 1988, vol
2, no 2, pp. 81-88.

KEY WORDS: AIDS Dementia Complex, Symptoms, Impairment,
Abnormalities.

FILED BY: Hector Carrillo

DATE: September 26, 1988

JOURNAL ARTICLE UPDATE

Section: E.3 Sexual Routes

WHAT'S THE ARTICLE ABOUT?

Genital ulcers as a cofactor for HIV infection

WHAT DOES IT SAY?

This study included 115 heterosexual men with genital ulcers at a STD's clinic in Nairobi. Antibodies to HIV were found in 19 (16.5%) of the 115 men. Seropositivity was associated with a reported past history of genital ulceration and with lack of circumcision. "Previous genital ulceration was reported by 12 (63%) of the seropositives versus 30 (31%) of the 96 who were seronegative. HIV infection was not correlated with serological evidence of previous genital herpes or syphilis.

The study points out that "the possibility that past genital ulceration only represented a covariate of some other primary risk factor for HIV infection is reduced by the fact that all subjects had genital ulcers at the time of enrolment". What this means is that all the participants had similar risk factors except for the length of time that the ulcers were present. My question is if time by itself is not a possible cofactor that increases the possibilities of being exposed in someone that has genital ulcers.

The study does not clearly explain why the lack of circumcision was correlated with HIV seropositivity, although it suggests that other variables such as tribal ethnic identity and past history of genital ulceration could be involved.

The study's explanation to how genital ulcers could be a cofactor for HIV transmission is: "interruption of the epidermis or mucous membranes...the host immune response to pathogens causing genital ulceration may bring activated lymphocytes and macrophages to areas of surface disruption, thereby exposing target cells for HIV at the ulcer bed". The study indicates that "the role of genital ulceration as a risk factor for HIV transmission requires further exploration", that "future research should examine the relationship between HIV infection and the number of preceding episodes of genital ulceration", and that "future studies should address the problem of separating the tissue effects of STD's, which may facilitate HIV infection, from the covariance resulting from a common mode of transmission [due to specific behaviors]". Finally, the study suggests a possible role of genital ulcers in the incidence of heterosexual transmission in Africa.

WHAT DOES IT MEAN FOR THE HOTLINE?

General implications: This article adds some further evidence to the theory that openings in the genital areas can be important cofactors in the transmission of HIV. It also points out some of the methodological problems that arise in separating the interdependence of variables such as STDs and risk behavior. I particularly appreciated the explanation of how genital ulcers could expose target cells to HIV.

Specific responses to possible caller concerns:

Q: Can genital ulcers (warts) increase the risk for HIV infection?

A: It is possible. There are several studies that have found a possible relationship between HIV transmission and a past history of genital ulcers. Many scientists believe that openings in the genital areas increase the possibilities of the virus to directly infect blood cells, and the statistical studies seem to support this theory. A person could be at a higher risk of getting infected or transmitting the virus if s/he has open sores in the groin, vagina, anus or penis.

Q: Is circumcision a cofactor for HIV transmission?

A: Several recent studies suggest that the lack of circumcision could be a cofactor for transmission but the theory has not been proven.

SOURCE: Greenblatt, Ruth M., Lukehart, Sheila A. et. al.
"Genital Ulceration as a Risk Factor for Human
Immunodeficiency Virus Infection". AIDS 1988, vol 2, no
1, pp.47-50.

KEY WORDS: transmission, cofactors, STDs, genital ulcers

FILED BY: Hector Carrillo

DATE: September 26, 1988

JOURNAL ARTICLE UPDATE

Section: E.4 Technical
specifics

WHAT'S THE ARTICLE ABOUT?

Characteristics and limitations of the Western Blot

WHAT DOES IT SAY?

This article has been written by the Consortium for Retrovirus Serology Administration. It includes a very good summary of the effectivity and limitations of the Western Blot test. Among the problems, it points out that "the greatest disadvantage of the Western Blot test is the lack of standardization for reagents, test methods, and test interpretation criteria". It seems clear that the test is very accurate, but variations occur in the quality of the testing kits and in the technician's skill to interpret the results.

The test splits the proteins of purified HIV on a special gel and then transfers those separated proteins to a nitrocellulose membrane. This membrane is then cut into strips and reacted with the blood sample. If HIV is present in the blood sample, the antibodies will bind to the specific HIV proteins in the membrane (the membrane is incubated for about 48hrs.) After incubation, the strips go through an enzymatic reaction that creates bands where the binding occurred.

Because of differences in quality, different methods can result in a different number of bands for the same blood sample. Some standards have been proposed for the minimum number of bands that are needed to establish a positive result. The possible bands are related to antibodies to the following antigen proteins (p) and glycoproteins (gp): gp160 and gp120 (virus's envelope); p66; p55; p51; gp41 (envelope); p31; p24 and p17 (core). Different labs have different criteria about what bands are necessary to give a positive result. The PHS (Public Health Service) Consultation Group proposes that antibodies to p24, p31 and gp41 or gp120/gp160 provide an unequivocal positive result. However, if this criteria is used, more than 50% of PWAs would be put into the "probably positive" category. The consortium proposes to declare as unequivocally positive two of the categories of the "probably positive" group: (1) antibodies to p24 and gp41 or gp120/gp160; (2) antibodies to p31 and gp41 or gp120/gp160. (This would include about 79% of the PWAs). Except for the complete absence of bands, all other combinations should be considered indeterminate, and subsequent testing should be used to evaluate them.

Among the conclusions, the article reports: (1) Western Blot is currently the most sensitive and specific assay for HIV serodiagnosis [via antibodies]; (2) the test should only be performed by labs that "demonstrate adequate proficiency by

frequent test runs, use of appropriate controls, and participation in a rigorous external proficiency-testing program"; (3) standardization is needed and the use of optimal reagents (especially the HIV antigen), procedures and technical skill.

WHAT DOES IT MEAN FOR THE HOTLINE?

General implications: Currently, we rely a lot on the Western Blot as a confirmatory or supplementary test for the diagnosis of HIV infection. It is important, however, to be aware that, as any other test, the Western Blot is subject to problems of standardization and human error. Given the enormous diversity of methods and labs that are performing the test, it is important to be aware of possible lab problems when a person has been told that his/her results are inconclusive or indeterminate.

Specific responses to possible caller concerns:

Q: I got my test results, and they said that the Western Blot was inconclusive. What does this mean?

A: It means that the lab could not find evidence that you are infected with the virus, but found some proteins that could be a part of HIV. These proteins can be part of some other virus or parasite. A lab only reports a negative Western Blot when it does not find any protein combination that could resemble HIV. In this case it is important to know how reliable the lab is, what method they used and to discuss this with a physician that could interpret the lab's findings. The physician can check with the lab what bands were found in the Western Blot test and assess why the result was declared indeterminate. The physician can also recommend further testing: getting a second Western Blot in a different lab (especially if there is suspicion that the lab made a mistake) or getting some other tests that could provide a profile of HIV infection (p24, PCR, T cell count, IFA). Western Blot is a very reliable test, and the results that provides are accurate in most cases.

Q: I have the written results of my Western Blot test. Could you interpret the bands for me?

A: NO. I cannot do that over the phone. That is something that can only be done by an appropriate technician or a doctor.

SOURCE: Consortium for Retrovirus Serology Standardization.
"Serological Diagnosis of Human Immunodeficiency Virus Infection by Western Blot Testing", JAMA, Aug. 5, 1988, vol. 260, no. 5, pp. 674-679.

KEY WORDS: HIV Testing, Western Blot, Antibodies.

FILED BY: Hector Carrillo

DATE: September 25, 1988

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