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AIDS ALERT

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IN THIS ISSUE

In This Issue **continued on next page**

The next big challenge: Managing HIV infection in an age of higher resistance

Time may be running out before AIDS deaths rise

Drug-resistant HIV either will be a big problem in coming decades or a manageable obstacle, depending on whether the more optimistic or pessimistic predictions come true.

However, researchers say there is no question that resistance has increased dramatically in recent years and that it will continue to rise.

A recently published study that used a mathematical model to understand HIV drug resistance from 1996 to 2001 in San Francisco and then to predict resistance from 2001 to 2005 has found that the current prevalence of resistance is high and will continue to increase.[1]

"We predict a prevalence of drug-resistant HIV of 42% by 2005," says **Sally Blower**, PhD, professor of biomathematics at the AIDS Institute at the University of California - Los Angeles School of Medicine. Blower was one of the investigators who wrote about the HIV resistance study, published in the September issue of *Nature Medicine*.

The mathematical model indicates that antiretroviral resistance among HIV infections in San Francisco currently is about 30%. The study also predicts that the transmission rate of drug-resistant HIV will be about 15% by the year 2005.

What is happening in San Francisco likely will be seen across the country, as well as the world.

"I think San Francisco has been on the leading edge of the epidemic in this country," says **James Kahn**, MD, associate professor of medicine at the

(Continued on page 155)

In This Issue **continued from page 153**

COMING IN FUTURE ISSUES

■ Bioterrorism, bioterrorism, bioterrorism, and, oh yes, the HIV epidemic too: Besides anthrax, here's what was new at the IDSA conference

■ ER as test site: HIV testing in the ER reaches minority at-risk population, study shows

■ New NNRTI drug demonstrates potency: TMC125 shows potency as a monotherapy

■ Latinos and HIV: Survey highlights problems with stopping epidemic in Hispanic communities

■ Protein is key to virus growth: New research shows how the virus uses the Tsg101 protein to escape from cells

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Editor: **Melinda Young**, (828) 859-2066.
Vice President/Group Publisher: **Donald R. Johnston**, (404) 262-5439, (don.johnston@ahcpub.com).
Editorial Group Head: **Glen Harris**, (404) 262-5461, (glen.harris@ahcpub.com).
Managing Editor: **Robin Mason**, (404) 262-5517, (robin.mason@ahcpub.com).
Production Editor: **Brent Winter**.

Editorial Questions

For questions or comments, call **Melinda Young** at (828) 859-2066.

AIDS Cases and Deaths, by Year and Age Group, Through December 2000, United States

	Adults/adolescents		Children <13 years old	
Year	Cases diagnosed during interval	Deaths occurring during interval	Cases diagnosed during interval	Deaths occurring during interval
Before 1981	92	29	8	1
1981	321	122	16	8
1982	1,168	452	31	13
1982	3,075	1,480	77	30
1984	6,243	3,470	121	52
1985	11,783	6,872	250	119
1986	19,040	11,988	339	167
1987	28,586	16,167	506	294
1988	36,481	20,883	618	321
1989	42,744	27,639	730	372
1990	48,697	31,382	814	400
1991	59,706	36,635	813	398
1992	78,646	41,197	949	426
1993	78,948	44,914	923	542
1994	72,174	49,548	814	586
1995	69,098	50,260	676	538
1996	60,216	37,049	500	426
1997	48,467	21,188	300	211
1998	40,567	17,186	217	118
1999	36,575	15,147	150	107
2000	23,932	8,867	56	44
Total	**765,559**	**442,882**	**8,908**	**5,178**

1. Persons whose vital status is unknown are included in counts of diagnosed cases, but excluded from counts of deaths. Reported deaths are not necessarily caused by HIV-related disease.
2. Death totals include 407 adults/adolescents and 5 children known to have died, but whose dates of death are unknown.

Source: Centers for Disease Control and Prevention, Divisions of HIV/AIDS Prevention.

University of California - San Francisco. Kahn is a co-author on the HIV drug-resistance study.

"It's not only what this study means in our country, but also in developing countries where there's been a huge push to bring antiretroviral treatments," Kahn says. "So what is happening in San Francisco is relevant for the country and for the rest of the world."

The key to whether antiretroviral-resistant HIV leads to a rise in AIDS deaths has to do with the fitness of drug-resistant strains relative to drug-sensitive strains, Blower and Kahn say. **(See CDC chart listing AIDS cases and deaths through 2000, above.)**

"We don't know how these resistant viruses will behave," Kahn says. "Will you sustain some immunologic benefit even with resistant virus, or will resistant virus be more pathogenic?"

The answer to that question will probably not be known for another year as researchers continue to study antiretroviral-resistant HIV and its impact on viral load, disease progression, and CD4 cell counts, Kahn adds.

Blower says she believes the current research supports the optimistic view that despite a growth in drug-resistant HIV, the current HIV incidence rate and mortality rates will continue to decline, at least in the short term.

"It's complicated, but all the things we've looked at in the short term, 10-year predictions in terms of mortality and morbidity, show that the effects are beneficial even with the drugs we have now," Blower says. "Drug resistance in some ways is not so serious in HIV infection because people are going to die from the disease anyway, since we do not have drugs that cure people."

However, the more pessimistic view is that it is only a matter of time before a more virulent drug-resistant virus occurs, and then clinicians will see a sharp rise in AIDS opportunistic infections and deaths.

"So far, the drug-resistant virus is not associated with fast progression to AIDS, although it can still cause AIDS deaths at a lower rate than wild-type, drug-sensitive virus," says **Robert Grant**, MD, MPH, assistant investigator and assistant professor at the Gladstone Institute of Virology and Immunology in San Francisco.

There is one point about drug-resistant virus that has researchers in agreement: There is no

corroborating evidence showing that an individual who already is infected with a particular strain of HIV can become infected with another strain that is drug-resistant. Despite an anecdotal report from Canada about a possible case of super-infection, this has not been documented, Grant says.

"In clade B epidemics like we have in the U.S., where almost everyone is infected with clade B, we haven not yet seen documented cases of where people have acquired a second virus after one has been established," Grant states.

"The first virus that enters a person interferes with additional viruses that may challenge the person," Grant explains. "The first virus may use up many of the cells required for viral replication, so the new virus that challenges or attempts to re-infect the person may not find enough target cells to replicate."

While there are many cases in which a person acquired more than one form of HIV initially, there are no confirmed cases of a person who is already infected with one type of HIV becoming re-infected with another, Grant adds. "We don't know whether or not that can occur."

For this reason, researchers are confident in predicting that the majority of antiretroviral resistance cases will continue to involve people who have been treated with highly active antiretroviral therapy whose own virus has begun to show resistance to one or more of the drugs in their regimen.

This means clinicians can do a great deal to slow the growth of antiretroviral-resistant virus by tailoring therapy with that possibility in mind.

For example, initial antiretroviral therapy should be delayed as long as possible, Blower suggests.

"This is on the basis of what's best for the individual, but also what's best at the population level," Blower says.

By delaying the initial treatment, a clinician also can assess the patient's readiness in starting therapy and commitment to taking the drugs as prescribed, Grant says.

"If a patient is not ready to start therapy, it's inappropriate for them to try, because they'll be less able to take their medicines well," Grant adds.

Because resistance occurs when there's some drug selection pressure, but not enough to completely suppress viral replication, it's very important that patients are committed to taking all of their medications as prescribed or to stopping treatment altogether until a new regimen can be found.

"We need to do a better job of keeping people on their medicine, trying to identify reasons why treatment fails our patients," Kahn says. "We need to be more clever in having drug levels monitored in our patients."

It's important to continually attempt to achieve the safest drug regimen that also has the best potential for suppressing the virus, Kahn adds.

"A more toxic drug may not have more added benefit than the patient's current treatment, because it takes a greater cost in toxicity that may backfire if patients are less inclined to take the medication," Kahn explains. "That's what we're struggling with, and that's the key question."

The second strategy is to shift HIV treatment to specialized HIV physicians and clinics where patients can be given the most up-to-date and effective treatments for suppressing the wild virus as well as drug-resistant strains, Blower says.

It's becoming increasingly important for clinicians to understand resistance and how to develop a therapy that will produce the best virological response. This includes using resistance tests to predict drug resistance and to prevent the emergence of resistance, Grant says.

The Food and Drug Administration approved on Sept. 28, 2001, the genotypic test called TrueGene HIV-1 Genotyping Kit, made by Visible Genetics Inc. in Toronto, Ontario. With the FDA's approval, the test will be more readily available in clinical labs.

Although transmission of drug-resistant virus to uninfected people will continue to remain relatively low, it can be reduced even further through continued prevention messages targeting HIV-infected people.

Prevention is still best medical strategy

The study found that the number of new infections occurring each year would actually be decreasing, even with the transmission of antiretroviral-resistant strains, if it were not for the fact that risky behavior has been increasing.

Prevention programs should keep in mind that safe sex might mean different things depending on a person's HIV status and sexual behavior. For example, HIV-positive people who are having sex with a variety of partners should use condoms and other safe-sex strategies to prevent transmitting the virus to their uninfected partners and

also to protect themselves against gonorrhea, syphilis, hepatitis, herpes, and other sexually transmitted diseases (STDs), Kahn says.

Alternatively, if an HIV-infected person is in a long-term relationship with another HIV-infected person, it might be better to encourage them to have sex without using condoms, so long as they remain monogamous, Grant says.

"It may allow them to stay together and have a more happy sex life," Grant explains. "And the safest thing for them and their potential partners is to encourage mutual monogamy by giving them appropriate information about the risk of superinfection, which may be very low."

Reference

1. Blower SM, Aschenbach AN, Gershengorn HB, Kahn JO. Predicting the unpredictable: Transmission of drug-resistant HIV. *Nature Medicine* 2001; 9:1016-1020. ■

Can advocates keep Congress focused on HIV?

Improving president's budget proves harder now

By the time this issue of *AIDS Alert* goes to press, there may be an approved appropriations budget for federal HIV / AIDS funding, but it's unlikely that many AIDS advocacy groups will be complaining about it, even if it falls far short of their desires.

Lobbying for more HIV money has become a difficult job in these times of bioterrorism and emergency war budgets.

"We are concerned that bioterrorism and anthrax and other related things that are health issues don't completely take our attention away from HIV / AIDS," says **Mark Vogel**, a spokesman for the HIV Medicine Association in Alexandria, VA, which is part of the Chicago-based Infectious Disease Society of America (IDSA).

Exactly a week before the Sept. 11, 2001, terrorist attacks in Washington, DC, and New York, the HIV Medicine Association sent out a media alert claiming that thousands of people with AIDS would lose their access to care due to the inadequacies of the fiscal year 2002 budget. A national "Call to Commitment Day" had been scheduled for Oct. 1, and the organization had been reasonably assured that such a campaign would receive extensive media coverage, given all of the renewed attention given to HIV / AIDS in the past year.

However, so much of the media's and the nation's focus and priorities changed on that Tuesday in September that AIDS lobbyists had to tone down their appeals and essentially lie low, waiting for a more opportune time to remind politicians that more than 450,000 people have died from AIDS in this country.

"At first the AIDS advocacy groups were sensitive to the timing issue, but appropriations budget moved a lot faster than we thought it would," Vogel says.

Ironically, while AIDS groups took a wait-and-see approach, the House of Representatives on Oct. 11, 2001, passed its version of the Labor, Health and Human Services Appropriations bill, providing $112 million in increased funding for the Ryan White CARE Act.

"It was Congress' initiative to move it forward," Vogel says.

In mid-October, it was at times impossible to reach Senators and Representatives to talk about keeping increases in the final appropriations bill because the anthrax scare in Washington, DC, blocked the usual avenues of communication, including mail service, telephone, and e-mail.

"For the last week, all of the congressional offices have been closed, and they can't get external e-mail hook-up because of security issues at remote facilities, so you can't find people," says **Tanya Ehrmann**, director of public policy at AIDS Action in Washington, DC. Ehrmann's comments came in mid-October, at a time when her own office had not received mail for two days because of the anthrax scare.

"So we're trying to schedule meetings and keep track of what's happening, but it's pretty hard when there are people in space suits going through buildings," Ehrmann adds.

Repercussions could be long-lasting

What AIDS advocacy groups are left with is a fear that even if the final 2002 appropriations are an improvement over the president's proposal, there will be other and perhaps longer-lasting repercussions from America's new war with regard to the HIV / AIDS epidemic.

On the one hand, what will happen next year when the nation needs to pay for its anti-terrorism spending?

"It's hard to speculate on the 2003 budget because it depends on what happens with anthrax and the war, but if anything did happen, it would be across-the-board cuts that would include HIV/AIDS but wouldn't necessarily be unique to it," Vogel predicts.

Ehrmann agrees. "We're hearing a lot now that this year's budget will be what it can be, and it will be okay, but next year will be really hard," she says.

"Congress is so eager to be helpful by spending all of these resources on fighting bioterrorism, providing relief to the families in New York and Washington, and sustaining businesses in our economy," Ehrmann adds. "But when they come back next year, there will be questions about how to support all of these things without taking away from other programs."

Then there are the repercussions that might be cause for optimism. For example, it is possible that the nation's focus on bioterrorism will lead to increased funding for public health departments, which could be a first step in rebuilding the public health infrastructure. This would benefit HIV/AIDS issues, as well as preventing outbreaks of anthrax and smallpox, Ehrmann suggests.

"The IDSA's position is that one of the best ways to prepare for a response to bioterrorism is to maintain the public health infrastructure," Vogel says, adding that he doubts the federal government will make any meaningful changes to boost health departments.

"It doesn't seem very likely," Vogel says. "The response so far has been more specific, such as stockpiling antibiotics for treating anthrax."

Patent laws might be weakened

Another repercussion could be a weakening of federal pharmaceutical patent laws through the precedent of the government strong-arming Bayer Corp. into lowering the price on its antibiotic ciprofloxacin (Cipro) from $1.77 per tablet to 95 cents per tablet sold to the federal government. The deal, arranged near the end of October, was a compromise that was expected to prevent the government from pushing Bayer to allow generic versions of its drug to be made, thus breaking its patent.

"The reason the Bush administration and Bayer are so unwilling to have Bayer's patent broken on Cipro is because they know the impact it will have on the discussion about AIDS drugs," Ehrmann says.

"They're not going to be able to support maintaining HIV drug patent law over 25 million people around the world, whereas we have a limited number of people here who have been exposed to anthrax," Ehrmann adds.

That very issue was raised at the October IDSA conference in San Francisco, Vogel says.

"One speaker said that in AIDS communities in other countries there has been a push for years to get generic drugs available, while it sounds like for a handful of anthrax cases in the last couple of weeks, we're on the brink of getting generic ciprofloxacin," Vogel says. ■

Behavioral help brings safer sex practices

Intervention resulted in more condom use

A theory-based behavioral intervention program has shown that HIV-positive men and women will reduce unprotected sexual activity over a six-month follow-up period.

"In a nutshell, what we learned was that after six months we saw the HIV-positive risk reduction group was using condoms more and having less unprotected sex, particularly with partners who were not HIV-positive," says **Seth C. Kalichman**, PhD, psychologist and professor in the department of psychiatry at the Medical College of Wisconsin and the Center for AIDS Intervention Research in Milwaukee.

The study found that participants who were involved in the intervention program had lower rates of self-reported anal and vaginal intercourse across all sexual partners and reportedly exposed seronegative or unknown serostatus partners to HIV at a reduced rate when compared with the health maintenance comparison group of participants.[1]

"A colleague did a statistical modeling of the effects, and it suggested that if this kind of intervention was implemented in a community, it would likely prevent new HIV infection," adds Kalichman.

The study focused on both condom use and on reduction in unprotected acts, including a variety of different strategies for safer sex and how to reinforce these strategies.

There were 230 HIV-positive men and 98 HIV-positive women participants who were recruited from AIDS services and infectious disease clinics in Atlanta. Eligibility criteria were to be living with HIV / AIDS and voluntary willingness to complete the study activities. The mean age was 40.1 years; 52% of the sample identified themselves as gay, and another 9% identified as bisexual. African-Americans accounted for 74% of the participants, while 22% were white and 4% were other ethnic backgrounds. Nearly half had completed at least 12 years of education.

Participants were randomly assigned to a transmission risk reduction intervention and a health maintenance control condition. In both groups, participants met in groups of six to 10 people for five 120-minute sessions, consisting of two sessions per week over 2.5 weeks. All participants received $10 for each group session attended and $35 for completing each assessment.

The control condition consisted of a social support group modeled after support groups offered in the community. These sessions included education and updates on HIV disease, management of health problems, medication adherence, health care and insurance concerns, and nutrition. These participants were expected to develop a personalized health maintenance plan at the end of the final group session.

The intervention staff, which consisted of one female and one male facilitator, worked with the intervention group and the comparison group.

Teaching how to handle disclosure

Here's how the intervention program worked:

• **Teaching ways to disclose HIV serostatus:** Three sessions addressed how to disclose HIV serostatus to sexual partners and other people. The intervention program used role-playing and movie clips to stimulate discussion within the group, Kalichman says.

"For the family and friends disclosure session, we focused on how to make an effective decision, and we clipped out popular film scenes lasting two or three minutes and providing a good situation for the group to assess and evaluate," Kalichman says.

For example, one movie scene that was very effective was from the movie *Philadelphia*, showing the character played by Tom Hanks disclosing to the lawyer portrayed by Denzel Washington that he has AIDS.

"We showed the scene and then asked the group, 'What do you think about how he did it?'" Kalichman says. "'How would you have done it?'"

Other movie scenes used came from the films *An Early Frost* and *Boys on the Side*, starring Whoopi Goldberg.

The role-playing typically involved having participants act out six different scenes depicting how to disclose their HIV status to family and friends.

"This was an essential part of how we ran the groups, and people really liked it," Kalichman says.

Message: 'All unprotected sex is risky'

• **Explaining hazards of co-infection with other STDs:** The session that dealt with risk behaviors emphasized the importance of maintaining safer sexual practices over the long term of infection. Facilitators explained how unsafe sex could place HIV-positive people at risk for sexually transmitted diseases (STDs), which might be more dangerous to a person with AIDS.

"There are some researchers who have a philosophy that if people only have sex with an HIV-positive partner, then it's a good risk reduction strategy," Kalichman says. "But we were very clear that all unprotected sex is risky."

STDs can be difficult to treat in people with HIV / AIDS, and herpes is an AIDS-defining diagnosis, Kalichman says.

"We discussed this a lot, because it was our view that it was a significant health problem for people with HIV," he adds.

Besides providing discussions and education about unsafe sexual practices, facilitators gave participants a personalized feedback report about their own risk practices based on the baseline assessments.

"We also used personalized feedback as an emotional strategy, giving people feedback on their behavior and their specific risky situations," Kalichman says.

Then the groups discussed strategies for protecting oneself and one's partner while maintaining satisfying relationships.

• **Exploring negative attitudes about condoms:** The intervention program had a big segment on condom desensitization and how to get over barriers to using condoms.

For example, facilitators helped participants explore their negative attitudes toward condoms, and they conducted practice sessions using male

and female condoms on anatomical models.

"In a more therapeutic kind of approach, we tried to deal with the issue of using condoms 100% of the time, and we put condoms on wooden penis models as a desensitization test," Kalichman says.

This session also featured movie clips that dealt with the anticipation of sexual activity, such as a scene from Eddie Murphy's movie *Coming to America* and *One Night Stand* with Wesley Snipes.

• **Identifying problem-solving strategies:** The intervention program taught participants how to negotiate safer sex and how to make decisions.

Participants were asked to think about how they set their own expectations for their own behavior with HIV-positive and negative partners.

"We used role-playing a lot with those elements and used movie clips to drive the role-playing," Kalichman says.

Participants were asked to identify problem-solving strategies and to discuss barriers to practicing safer sexual behavior. The intervention concluded with participants filling out an individualized sexual health and relationship plan, including personal decision criteria for disclosing HIV serostatus and strategies for maintaining safer sexual behavior.

Program addresses broader picture

"Our study wasn't just about condom use," Kalichman notes. "It was about reduction in unprotected acts, the broader picture."

Although condoms are an important option, they're not the answer for everyone, so the intervention sessions focused on a variety of strategies for making sexual behavior safer, he adds.

"Not only did we get an increase in condom use, but we also saw a reduction in unprotected acts," Kalichman says.

(Editor's note: Intervention manuals are available upon request. For more information, contact Seth C. Kalichman, PhD, Center for AIDS Intervention Research, Medical College of Wisconsin, 8701 Watertown Plank Road, Milwaukee, WI 53226. E-mail: sethk@mcw.edu.)

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1. Kalichman SC, Rompa D, Cage M, et al. Effectiveness of an intervention to reduce HIV transmission risks in HIV-positive people. *Am J Prev Med* 2001; 21:84-92. ■

Community-based efforts chalk up successes

Sites in NC and Maryland have tale to tell

There is a good reason why officials with the Centers for Disease Control and Prevention in Atlanta mention HIV prevention work done in North Carolina and Maryland when asked for success stories.

Joint state-federal programs based in North Carolina and Baltimore have reached at-risk populations that traditionally are difficult to find, and they've demonstrated positive outcomes.

The nontraditional counseling program in North Carolina has a greater proportion of high-risk clients undergoing HIV testing than the local health departments have, says **Marti Eisenberg Nicolaysen**, nontraditional counseling, testing, and referral sites (NTS) coordinator and public health advisor assigned to the North Carolina STD Prevention and Care branch of the CDC in Raleigh.

Targeting high-risk populations

Through the NTS program, 21% of the clients tested in 2000 were people who had the risk factors of being men who have sex with men (MSM) and / or injection drug users (IDUs). Another 15% tested were people who exchange sex for money and / or people who have sex while using drugs, Nicolaysen says. By comparison, local health departments and other publicly funded sites had only 5% of their HIV-tested clients in the MSM and IDU categories and only 7% in the sex worker or drugs-during-sex categories.

"So we're reaching people who are at higher risk," Nicolaysen says. "We're only testing 5,000 people, and the public health department tests 100,000, but we're targeting the high-risk population and neighborhoods where high-risk activity takes place."

As a result, the North Carolina NTS program has a high HIV-positive rate, which in 2000 was 1.1% among those tested. The local health department's positive rate among the 100,474 people tested for HIV was 0.7%. Of 4,617 people tested through the program in 2000, there were 52 people testing positive for the virus. Of 3,732 tested for syphilis, there were 72 testing positive or 1.9%, Nicolaysen says.

An HIV prevention and testing program in Baltimore also targets neighborhoods where at-risk individuals might be found, says **Carol Christmyer**, RN, MS, assistant director for HIV services for the Maryland State AIDS Administration in Baltimore.

"In Baltimore, a mobile van goes to predetermined neighborhoods where there are a lot of urban problems — poverty, lead paint poisoning, sexually transmitted diseases [STDs] — and where people are very poor and are dealing in drugs," Christmyer says.

"The van provides health screening, HIV testing, and treatment," she adds. "And if we find people who are positive, we link them with a clinical setting where they can get care and intensive case management." **(See story on Maryland's van prevention program, p. 163.)**

Providing more than HIV tests

One key to the success of community prevention programs is that they provide HIV screening and testing as part of a package of health care products, which makes it more attractive to potential clients.

For example, while the cornerstone of a program in Greensboro, NC, is HIV prevention and counseling, the same program also tests clients for syphilis and screens for blood glucose, lead poisoning, sickle cell anemia, and other health concerns, depending on what services a particular community needs, says **Caroline Moseley**, MEd, CHES, health education manager at the Guilford County Department of Public Health in Greensboro. **(See story about North Carolina's HIV outreach programs, at right.)**

The program is located at five sites throughout the county, including homeless shelters, drug treatment centers, jails, and community-based organizations.

An advantage to combining HIV services with general health screening is that it takes the stigma out of visiting the program and is more likely to attract the targeted population, Moseley says.

Also, the North Carolina NTS projects provide bilingual outreach staff in Hispanic communities, and they each make referrals for STD and tuberculosis testing and treatment, substance abuse counseling, family planning, domestic violence, and case management for HIV-positive and early intervention clients.

Before long, the outreach program will provide more HIV tests than the health department does in some areas, and this is another reason why the program should be used to screen for other STDs, as well, Moseley says.

"Early on, we realized that HIV probably was not the only service people needed in the community and that we should test for other STDs," Moseley says. "So we've offered syphilis testing pretty much since we started the HIV program in the mid-1990s, even when it was not funded." ■

NC testing projects get to the heart of the problem

Nurses, health vans go to those most at risk

They're labor-intensive and costly, but prevention projects in North Carolina show that clinicians and public health officials can reach people most at risk for HIV if they go directly to their street corners, colleges, gay nightclubs, homes, neighborhoods, and shelters.

These programs work well partly because they offer additional health services at-risk people, including blood pressure screenings, screening for other sexually transmitted diseases (STDs), and referrals for housing and health care.

Nurse performs tests at homeless shelter

Here are how the North Carolina prevention and testing programs work:

• **Bring HIV prevention services to those most at risk.**

In Asheville, NC, a nurse practitioner visits a local homeless shelter to provide HIV testing and counseling, as well as STD prevention and referrals for other health problems, says **Marti Eisenberg Nicolaysen**, a nontraditional counseling, testing, and referral sites coordinator and public health advisor with the Atlanta-based Centers for Disease Control and Prevention. Nicolaysen is assigned to the state of North Carolina STD Prevention and Care Branch in Raleigh.

"There is a comprehensive program that reaches homeless adults who have risk behaviors," Nicolaysen adds.

CDC statistics show that the greater Asheville

area has had an exploding HIV epidemic. For example, there was an increase of 60% in the AIDS case rate in Asheville and surrounding areas between 1991 and 1997. This is compared to an AIDS case rate increase of 43% in large metropolitan areas during the same time period.

Also, the HIV infection rate nationwide is three times higher in the homeless population, and 69% of homeless adults are engaged in HIV risk behaviors.

The Greensboro area brings prevention services to a housing authority community center, churches, homeless shelters, jails, drug treatment facilities, and even to street corners, says **Caroline Moseley**, MEd, CHES, health education manager at the Guilford County Department of Public Health in Greensboro.

"We go into the communities on a regular basis, pass out condoms and information, make referrals to whatever people need, and also provide HIV and syphilis testing," Moseley explains. "It's labor-intensive, but we really are reaching the people we need to reach."

While the health department's clinic is easy to access in a location near downtown, the majority of people who come into the clinic are what Moseley calls the "well worried."

"These are people who don't know a whole lot about HIV and aren't engaging in very high-risk behaviors," Moseley says. "Those at high risk are not accessing traditional health care services at all, unless they end up sick in the hospital."

Partnership uses van to provide services

In Rocky Mount in eastern North Carolina, one prevention project uses a mobile area health clinic van to reach minority women of childbearing age and their partners. The van has also visited neighborhoods, trailer parks, and emergency evacuation areas where there has been flooding.

A nurse visits target communities and offers counseling, women's health screenings, blood pressure screening, risk assessment, and HIV and syphilis testing and referrals. Sometimes the van has provided screening for tuberculosis infection, glucose monitoring, pregnancy tests, and even minor dental work, Nicolaysen says.

The additional health services were the result of the program's collaboration with an agency called Down East Partnership for Children, which provides children with dental screening and immunizations.

"They also do outreach and distribute fliers to make sure people know when the van is coming to their area," Nicolaysen says. "It's been very successful."

• **Provide follow-up with results and counseling.**

Outreach workers will return to the same sites where they provided testing and counseling to give follow-up information and treatment to those who need it, Moseley says.

"We'll bring back results to people on the street, and if treatment is needed, we'll transport them to a hospital," Moseley says.

It's difficult sometimes to find the people who were tested in these community locations, but it can be done, she says. For example, in one quarter this year, the program tested 441 people, finding three who were positive for HIV, and outreach workers provided follow-up post-test counseling to 163 people, Moseley says.

"The CDC is pushing to have more people get their results, even if they are negative, but that's hard to do with this population because they're very transient," Moseley adds. "They may be tested and then end up in someone else's county, and we don't see them for six months."

The post-test counseling session focuses on reminding clients of a risk reduction plan and will discuss whether they will need a follow-up HIV test, depending on when they last might have been exposed to the virus. These sessions may last 20 minutes at a community setting or about 10 minutes when conducted on a street corner.

"Our counselors are skilled at asking questions and getting clients to think very quickly about their risks," Moseley says. "I'm a firm believer that the kind of prevention that works is one-on-one intensive counseling."

• **Use a multidisciplinary team.**

A typical street corner outreach session in Greensboro may take an entire afternoon. It will be conducted by a team consisting of health department employees and professionals from community-based organizations (CBOs). The team often will have a health educator, a phlebotomist, a social worker, a peer counselor from an AIDS service organization, an addict in recovery from a local drug treatment center, nurses, and others, Moseley says.

"It's important that our outreach team is well-versed in community services, even though our primary agenda is to prevent HIV and help people find out their status," Moseley explains. "But

a lot of times HIV is not the clients' agenda, and they may need housing or food first."

So the multidisciplinary team's first concern is to provide clients with the services and help they need. "We've had clients who knew we were there to test them for HIV, but they most needed shelter," Moseley says. "So we hooked them up with a shelter, which also is one of our testing sites, and then two months later when they came back to that shelter, they were ready to be tested."

• **Obtain joint funding and support.**

North Carolina started the outreach prevention programs and has obtained support and/or funding from the CDC, the Guilford Community AIDS Partnership, People Stopping Syphilis Today, the North Carolina Syphilis Elimination Project, and other organizations.

"We started out funding HIV prevention service delivery because we were in an emergency mode and someone had to do something," Moseley says.

Since 1997, the CDC has been involved. Currently there are nine projects (costing $475,000) that use state and CDC money, including projects formed by six community-based organizations and three local health departments, Nicolaysen says.

Projects given leeway for spending

"We fund them to have these community sites offer HIV and STD prevention and testing, STD expanded services, and how they do it is up to them," Nicolaysen says.

• **Promote special events.**

The Guilford County Department of Public Health in North Carolina has a strong relationship with CBOs, which help to sponsor special events where HIV education and testing may be provided.

For example, the health department and CBOs have provided HIV/syphilis testing events, sickle cell anemia screenings, and HIV testing at gay/lesbian bars. They've also held HIV educational events at area colleges and have provided neighborhoods with special health screenings, including blood pressure checks. They may even bring health and HIV services to local motels where migrant populations might be found.

"People may not come in just for HIV testing, so that's why we attach lots of services," Nicolaysen says. "The collaboration with community agencies is very important." ■

Maryland program focuses on HIV 'positives'

Project targets poor neighborhoods, jails

An AIDS prevention project in Baltimore sends a van to neighborhoods known to have the urban hazards of poverty, lead poisoning, high rates of sexually transmitted diseases (STDs), and drug dealing.

The project also involves having health department staff visit local detention centers to offer counseling, testing, HIV services, and case management, says **Claudia Bowlin**, RN, MS, chief of the Center for Education and Training at the Maryland State AIDS Administration in Baltimore.

"The van has outreach workers who go to a site, park the van, and then go into the community within a several-block radius to meet people on the street and invite them to the van for a variety of services, including HIV counseling and testing," Bowlin explains.

Clients can also seek blood pressure testing, pregnancy tests, and other simple medical screenings if they desire. If the van staff can't help them with their medical problem, the staff will refer them to a clinic or emergency department. Outreach workers hand out brochures and condoms.

"The gift of a good outreach worker is that they can talk to people and meet them on their level, appearing to be peers to the individuals they encounter," Bowlin adds. "They know the street language and can convince people that it's in their best interest to go to the van."

The program appears to be successful in reaching its targeted at-risk population, as about 5% of the people tested in the van have been HIV-positive, Bowlin says.

Funded by the Centers for Disease Control and Prevention, the project is called Prevention for HIV-Positive Persons. Its goal is to find the estimated one-third of HIV-positive people who do not know their infection status, says **Carol Christmyer**, RN, MS, assistant director for HIV services with the Maryland State AIDS Administration.

Once clients are tested on the van, they are told to return in two weeks to the same site to receive their HIV results.

"When a test comes back positive, a worker is assigned to look for that person to explain the results and to offer medical services," Bowlin says.

The van has outreach staff teach clients how to negotiate safe sex and how to talk about sexual behavior. They give information on how an addict can enter drug treatment or, if that's not an option, use the city's needle-exchange program to ensure safer use of injection drugs.

"If people are HIV-positive, they are given condoms and told where they can get free condoms," Bowlin says. "We give them a whole range of prevention messages, and it depends on what their behaviors are that put them in jeopardy."

Case managers try to see clients more than one time to reinforce prevention messages, but this has proven difficult, Bowlin notes.

Outreach workers also provide HIV testing and counseling services to people housed in local detention centers. Even here, the two-week waiting period for test results can prove to be a problem because inmates often are released by the time outreach workers return with their test results.

The Maryland HIV prevention project divides the state into five regions and has programs developed according to the specific needs of a particular region.

"In all five regions, youths are a very high priority," Christmyer says. "So a fair amount of programming is developed to target youths and teen-agers."

These programs may take place in a college setting or a drop-in community center.

Another targeted program is aimed at women of childbearing age who may be pregnant or thinking about getting pregnant.

"The media message developed for that encourages these young women to be tested," Christmyer says. "Then another segment is focused on the young men, showing them playing basketball and encouraging them to be tested."

Prevention campaign materials include television ads, radio spots that encourage people to call a hotline number for more information about HIV testing, bus posters, and free gifts, such as pens and cube sticky notes with the program's logo, Christmyer says.

"We'll run the advertising campaign for a period of a month or six weeks, and we'll run the perinatal portion over Mother's Day, for example," Christmyer says. "Then we'll take it off the air and start up again later."

Typically the initial impact is enormous: Calls to the hotline might increase by 1,500% in the months following a campaign, Christmyer says. "It dies down, and then to have another big impact, we'll give it another boost." ■

CE objectives

After reading this issue of *AIDS Alert*, CE participants should be able to:

- identify the particular clinical, legal, or scientific issues related to AIDS patient care;
- describe how those issues affect nurses, physicians, hospitals, clinics, or the health care industry in general;
- cite practical solutions to the problems associated with those issues, based on overall expert guidelines from the Centers for Disease Control and Prevention or other authorities and / or based on independent recommendations from specific clinicians at individual institutions. ■

Common Sense About AIDS.

Tracking red blood count improves life with HIV/AIDS

Anemia can be major problem

A recent survey has shown that a majority of HIV-positive Americans say their doctors have not discussed anemia with them, despite the fact that the condition can be a common problem for people with the disease.

More than four out of five people diagnosed with HIV said they have experienced tiredness, and two-thirds said they have experienced weakness, according to the survey conducted by Harris Interactive of Rochester, NY, on behalf of Ortho Biotech Products of Raritan, NJ.

The survey included 669 interviews with HIV-positive people and was conducted by telephone and on-line, says **Cathy Shores**, vice president of public relations and media research for Harris Interactive in Scarsdale, NY.

Another finding of the study was that while most doctors (86%) ask their HIV-positive patients whether they experience symptoms associated with anemia, fewer than half (46%) of HIV-positive people say their doctor has discussed anemia with them.

Here are some of the survey's chief findings about HIV / AIDS and anemia:

• Two-thirds of people living with HIV are not sure at what level their red blood cell count would indicate that their health is at risk.

• About 82% of those diagnosed with anemia have had to cut back on everyday activities, such as working, household chores, sexual activities, exercising, and socializing.

• About 58% of people with HIV agree that they need their doctor to better inform them about their blood test results so they can understand the problems they may face.

• While 96% of those surveyed said their doctor regularly monitors their T-cell count and 94% said their viral load is regularly monitored, only 67% said they believe their doctor regularly monitors their red blood cell count.

• Only 18% of HIV-positive individuals surveyed knew at what level their red blood cell count puts their health at risk.

• About 38% of those surveyed said they believe medication can treat anemia.

• About 76% of those surveyed who have anemia said anemia has impacted their life either extremely, severely, or moderately.

• About 28% of those surveyed said they are not sure what HIV-related anemia is.

• Of those surveyed with anemia, 96% said they have felt tired since being diagnosed with HIV, compared with 83% of HIV-infected people without anemia.

• Nearly 60% of those surveyed said anemia interfered with their everyday activities at least somewhat.

• Another 57% of those surveyed said anemia has impacted their social relationships either moderately or severely through these problems:

— 86% said they had experienced weakness;

— 76% experienced a loss of sex drive;

— 71% reported headaches;

— 64% experienced a loss of appetite.

Harris Interactive has put together some detailed information about anemia specifically for people living with HIV / AIDS. Here is some of that information:

About HIV-related Anemia

Simple activities that many people take for granted — such

as climbing stairs, walking the dog, meeting a friend for coffee — can cause people living with HIV / AIDS to feel exhausted and weak. While sometimes this is the result of the disease itself, it can be the result of anemia — a condition that, if left untreated, may become severe enough to interfere with a person's daily activities and overall well-being.

The Condition

Anemia is a condition in which the body does not have as many red blood cells as it should. Red blood cells are produced in bone marrow and contain hemoglobin, the iron-containing protein responsible for carrying oxygen throughout the body.

The natural hormone called erythropoietin (EPO), which is made in the kidneys, stimulates bone marrow production of red blood cells. When an insufficient number of red blood cells is produced, hemoglobin levels drop, and the blood is no longer able to carry enough oxygen to nourish the body's tissues. HIV-related anemia is characterized by symptoms such as muscle weakness, shortness of breath, headache, dizziness, rapid heartbeat, and fatigue and can be a potentially debilitating condition.

Some causes of anemia, such as deficiencies in diet and blood loss, are temporary and treatable. Other chronic causes are often treatment-related and are more difficult to manage. For example, people with HIV are at special risk for anemia because many of the medications they use to treat their condition, such as AZT-containing regimens, can suppress bone marrow and subsequently reduce red blood cell count.

The amount of red blood cells in your body may be determined by measuring hematocrit or hemoglobin. Hematocrit is the volume percentage of red blood cells in whole blood. Hemoglobin is the amount of the oxygen-carrying molecule found in the blood and is measured in grams per deciliter of blood (g / dL). Hemoglobin and hematocrit are assessed using a routine blood test called a complete blood count.

Incidence and Prevalence

Anemia is a common complication among people living with HIV / AIDS. Those with advanced-stage AIDS are at particular risk. Recent reports estimate that anemia occurs in up to 95% of patients over the course of their infection, making it more common than other blood cell conditions, such as platelet depletion (thrombocytopenia) or white blood cell depletion (leukopenia).

Several studies have examined the incidence of anemia in HIV-infected persons and compared the risk of death of patients who developed anemia to those who did not develop the condition. One study, conducted by the Centers for Disease Control and Prevention of Atlanta and based on medical records of more than 32,000 patients, found that the risk of death was 148% greater among those patients (CD4 count > 200 cells / mL) who developed anemia than among those patients who did not.

Treatment

Treating anemia in people with HIV / AIDS may improve the patient's ability to engage in everyday activities and cope with the disease. While physicians have traditionally relied on blood transfusions to raise red blood cell levels and help restore energy, many now try to avoid them because of the potential risk of infection, particularly in those populations with suppressed immune systems.

There are medications that can supplement the body's natural supply of EPO to help increase hematocrit and hemoglobin levels. Patients should consult their health care professional for more information about treatments for anemia.

Anemia is a serious problem for people living with HIV / AIDS. Recognizing the symptoms of anemia, monitoring patient hemoglobin levels, and aggressively treating the condition can help patients resume their normal daily routines.

Here's an action checklist for people living with HIV:

- Learn to recognize the signs and symptoms of anemia.
- Keep a diary of your signs and symptoms. This will help you have a more informed discussion with your doctor.
- Talk to your doctor about your symptoms.
- Ask your doctor about being tested.
- Ask for the results of your blood test.
- Ask your doctor about prescription medications to treat anemia.
- Talk to your doctor about dietary changes, exercise, and rest. ■

To the health care worker:
Common Sense About AIDS is written especially for your patients and other laymen. It explains important issues concerning AIDS in a thorough, yet easy-to-understand style.

AIDS Alert
2001 Index

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