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CDC pioneers family-based "preventive care" in Uganda as framework for rollout

Developing a basic package of preventive care

In the last few years, there has been a substantial increase in funding for HIV programmes, but how can antiretroviral treatment be delivered in a setting where few people have access to even the most basic health care?

"To begin to cope with providing HIV care in this context" said Dr. Mermin "we felt that it would be important to prevent illness as well as treat it. particularly in rural areas where the majority of people live several kilometres from a health centre and health centres have only limited diagnostic and treatment capacity."

Rather than make people travel to care, his team explored what types of basic care could be delivered to people directly in their own homes, by providing people with as many of the tools for prevention of illness as possible.

"Our goal was to develop a standard package of evidence-based preventions that will reduce morbidity and mortality among persons with HIV and lower the chance of HIV transmission," said Dr. Mermin.

Since people with HIV live within a family and community context in rural Africa, the CDC approached interventions through the lens of treating the whole family. Focusing on the family increases the chances of success because it improves support for adherence and disclosure of HIV status - including negotiations about safer-sex.

Voluntary counselling and testing for family members

The first component of the programme is voluntary HIV counselling and testing (VCT), which is the entry point for care, support and prevention. The CDC felt that a logical expansion of traditional VCT would be to offer it to family members for two reasons.

First, people with HIV often assume their partner has HIV, and therefore neglect to practice safe sex. However, many relationships are actually sero-discordant - meaning one sexual partner has HIV and the other doesn't. Knowing both partners HIV status could reduce transmission.

Also, when one person is HIV-infected, a substantial proportion of family usually have undiagnosed HIV.

But most care and treatment programme do not currently provide VCT to family members. PMTCT programmes are at the forefront but they have had very limited success in getting partners to come to the clinic for testing.

To see whether taking VCT to families could work, the CDC conducted two studies in rural Uganda. "95% of 6,000 household members of persons with HIV accepted VCT - 98% in their home," said Dr. Mermin. The studies found that 35% of married HIV-infected subjects were in sero-discordant relationships and that 10% of children below 5 years of age were HIV-positive. Most of these infections were unknown to the parents.

Cotrimoxazole prophylaxis

The next component in the CDC's programme is cotrimoxazole prophylaxis, which, prevents infections and prolongs life in children

and adults in Africa. A study in Uganda recently showed a 46% reduction in mortality and a 30-70% decrease in malaria, diarrhoea, and hospitalisation.

Taking cotrimoxazole was associated with a reduced rate of decline in CD4 cell count and slowed the increase in viral load (as compared to untreated patients). Only 2% of people had adverse effects over one and a half years of follow-up.

Rates of clinical malaria in persons over five years of age fell dramatically over the course of the cotrimoxazole study - in both HIV positive and HIV-negative members of the household. At the start of the study rates of malaria were twice as high in people with HIV - but the rate fell by over 75% after going on prophylaxis.

Rates of malaria fell 35% in people without HIV in the household when HIV-positive household members took cotrimoxazole. Finally, having an adult take cotrimoxazole was associated with a 63% reduction in death among HIV-negative children < 10 years old.

Diarrhoea and safe water vessels

In Africa, people with HIV have six times the usual rate of diarrhoea because of the lack of safe drinking water. To address this problem, the CDC and WHO have developed a safe water vessel (SWV) which involves chlorination and storage of water in home.

A randomised controlled trial of SWV use among 509 persons with HIV showed 25% fewer diarrhoea episodes, 33% fewer days with diarrhoea and less dysentery. They also benefited HIV-negative family members.

At a cost of only \$4 per year per family, the CDC was quick to incorporate SWVs into the preventive package.

Bed nets

The CDC has recently introduced insecticide-treated bed nets to prevent malaria into the package, at a cost of \$5 per net. Nets reduce malaria by 50% among children. Although never specifically evaluated among persons with HIV- who are at high risk of malaria, they are theoretically useful.

Other possible interventions being considered for the package

● Isoniazid (INH) prophylaxis

In people with HIV and a positive tuberculin skin test, INH prophylaxis for six to 12 months has been associated with a 60% decrease in active TB and a 20% reduction in mortality. However, active TB must first be screened out to prevent INH resistance.

● Multivitamins

Among pregnant women in Tanzania, multivitamins reduced progression to AIDS or death, reduced mother-to-child transmission of HIV, increased birth weight, and had a beneficial effects on CD4 count and viral load. Among children with HIV in Tanzania, vitamin A was associated with 63% reduction in mortality.

Other interventions

- Fluconazole prophylaxis may reduce incidence of cryptococcal disease, which is a significant cause of death in some settings. A study of fluconazole in Uganda is ongoing.
- Acyclovir prophylaxis - associated with reduction in mortality and lower risk of herpes and shingles outside of Africa.
- Food supplementation, which has never been clinically evaluated in Africa where many people are malnourished.

Adding antiretrovirals

Currently, the CDC is exploring whether their home-based AIDS care program (HBAC) can be expanded to deliver TB treatment and antiretroviral therapy (ART).

The programme identifies people with HIV, and enrolls their whole family who are provided with VCT at home and sexual behaviour and drug adherence counselling. Treatment is provided to all adults and children in household with weekly home visits by lay workers. There are no scheduled clinic visits after enrolment.

The CDC is evaluating the programme with a 3-arm randomised controlled trial enrolling 1,000 people with AIDS and their family members. Arm A receives home visits, CD4 cell counts and viral loads; Arm B: home visits and CD4 cell counts and Arm C just receives home visits. The objectives of the study are to determine the need for routine viral load and CD4 cell counts and assess its cost-effectiveness.

Dr. Mermin shared some of the early HBAC experience. So far 2,127 persons with HIV have been screened. 1064 (50%) are eligible for ART by CD4 count <250 or clinical criteria. At screening, 8% had active TB. 49 children currently on ART

After one year, there have only been 71 deaths (7%); 61% of these occurred during first 12 weeks of therapy.

Adherence by pill count has been excellent (>99%). There has also been a 50% reduction in unprotected sex after six months with a 82% reduction in HIV transmission risk when reductions in viral load included in model.

In conclusion, Dr. Mermin said: "implementation of effective preventive care could save resources, and prolong lives of millions of people in Africa. [and, that] addition of ART and TB care to [the] package is possible."

Reference

Mermin J. Family-based Approach to Preventive Care and Antiretroviral Therapy in Africa. 12th Conference on Retroviruses and Opportunistic Infections, Boston, abstract 2A, 2005.

about HATiP

A regular electronic newsletter for health care workers and community-based organisations on HIV treatment in resource-limited settings.

The newsletter is edited by Theo Smart (Cape Town) and Keith Alcorn, NAM's Senior Editor (London).

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