SURE Rapid Response

Does specific intervention prevent illness in HIV positive persons?

March 2013

This Rapid Response was prepared by the Cameroon team of the Evidence-Informed Policy Network **(EVIPNet)** in Africa.

Key Messages

Opportunistic infections (OI) are the leading cause of mortality among people living with HIV (AIDS) because OI and HIV mutually fuel one another. Several simple interventions prevent illness, prolong life, or prevent HIV transmission in PLHIV in Africa. These include:

- Insecticide-treated bed nets;
- Safe water system;
- Latrine facilities and hygiene practices;
- Safe infant feeding and nutrition;
- Cotrimoxazole chemoprophylaxis
- Vaccination;
- Family voluntary counselling and testing (VCT) and;
- Oral hygiene and care.

For Best Practices in Health
CDBPS-H
Pour des Bonnes Pratiques en Santé

SURE
Supporting the Use of Research Evidence

EVIPNet
EVIDENCE-INFORMED POLICY NETWORK

Who requested this rapid response?

This document was prepared in response to a specific question from the president of the African Action on AIDS association

! This rapid response includes:

- Key findings from seven evidence based research articles on this topic.
- Considerations about the relevance of this research for health system decisions in Africa.

X Not included:

- Recommendations
- Detailed descriptions
- Cost assessments

What is SURE Rapid Response?

SURE Rapid Responses address the needs of policymakers and managers for research evidence that has been appraised and contextualised. They are produced within a few days of receiveing the request. s. The Responses address questions about arrangements for organising, financing and governing health systems, and strategies for implementing changes.

What is SURE?

SURE – Supporting the Use of Research Evidence (SURE) for policy in African health systems - is a collaborative project that builds on and supports the Evidence-Informed Policy Network **(EVIPNet) in** Africa and the Regional East African Community Health **(REACH)** Policy Initiative. SURE is funded by the European Commission's 7th Framework Programme.

www.evipnet.org/sure

How this Response was prepared

After clarifying the question being asked, we searched for systematic reviews, and other relevant research. The methods used by the SURE Rapid Response Service to find, select and assess research evidence are described here:

www.evipnet.org/sure/rr/methods

Background

This Rapid Response was prepared upon the request of the president of the African Action on Aids (AAA), a Cameroon based association vested in the fight against HIV/AIDS to inform deliberations on whether specific intervention can delay illness in HIV positive persons. While considerable attention has been given to increasing the availability of antiretroviral therapy (ART), few advocates have focused on more easily accessed interventions for preventing opportunistic infections. A 'basic preventive care package' specifically designed for persons with HIV in Africa would be useful for several reasons: (1) some of the infections such as Mycobacterium avium complex are rare in Africa and the beneficial effect of prophylaxis for persons with HIV in the region has never been evaluated; (2) certain illnesses not discussed in current recommendations, such as malaria, are common in sub-Saharan Africa; (3) interventions, such as provision of clean drinking water, are regularly provided by governmental services in the industrialized world, but less available in Africa; and (4) some medications for prophylaxis have limited availability in sub Saharan Africa. There is a need for standardized, evidence-based recommendations on preventive measures that can be used by health practitioners, Ministries of Health, and non-governmental organizations.

What we found

Opportunistic infections (OI) present severe challenges to people living with HIV in sub Saharan Africa, in the realm of limited access to ART, suboptimal palliative care en, and poor environmental conditions that increase the risk of infection. To help prevent HIV transmission and reduce morbidity, a basic care and prevention package (BCP) is necessary for people living with HIV and appears to be a promising approach to palliative and preventive care for people with HIV though the accessibility to this is not often guaranteed. Of the different BCP interventions, Cotrimoxazole is the most widely used, and several studies attest of its efficacy. A candidate component of BCP should fulfill some requirements especially being affordable so as to optimize the outcomes, being easy to implement and for which PLHIV can take responsibility.

Insecticide-treated bed nets

Severe complications from malaria, including death, are probably more common among PLHIV; at least in areas with episodic transmission. Among people with HIV, malaria is more common and more severe and may increase HIV viral load and decrease CD4 cell count. ITNs reduce the risk of malaria in PLHIV-. Theoretically, bed nets should be as effective among persons with PLHIV as they are for those without, and ethical considerations may preclude the implementation of randomized controlled trials.

Safe water System

The main objective of the water supply sector is to improve people's health by providing access to safe water supply and (environmental) sanitation. Water is needed for bathing patients, washing soiled clothing and linen and keeping the home environment clean. Within the HIV/AIDS context, this becomes even more urgent because water and sanitation borne illnesses (diarrhea, skin diseases) are among the most common OI. The Safe Water (SWS) is a household-based water quality intervention that has been shown to reduce the risk of diarrhea through treatment of water with sodium hypochlorite solution, safe water storage, and behavior change techniques. A study in Uganda demonstrated that use of the SWS reduced the number of episodes and duration of diarrhea among people with HIV by 36%.

Adequate water supply and sanitation are of utmost importance for PLHIV infected people to remain healthy as long as possible and for people living with AIDS to reduce their exposure to OI. Water and sanitation is critical to ensuring one is healthy. Safe drinking water is needed for taking medicines and making food easier to eat for patients suffering from mouth ulcers. Households with PLHIV are frequently advise to boil water for drinking Interventions to improve the microbiological quality of water and can be grouped into four main categories: (i)Physical removal of pathogens (eg filtration, adsorption, or sedimentation), (ii) chemically treating water to kill or deactivate pathogens, most commonly with chlorine, (iii) disinfection by heat (e.g. boiling or pasteurization) and ultraviolet (UV) radiation, either using the sun (solar disinfection) or an artificial UV lamp, (iv) a combination of these approaches (eg filtration or flocculation combined with disinfection).

Latrine facilities and hygiene practices

In most settings latrines do not meet the quality criteria, though this is no different to latrine standards in the wider community. However, for PLHIV, poor latrine standards can create two additional problems: (i) Inadequate sanitation increases the chances of opportunistic infections and therefore a risk to users, (ii) The poor quality of latrine facilities could fuel stigma against PLHIV. Clean and adequate sanitation is vital in protecting PLHIV and their families from the spread of water related diseases and essential for recovery from illnesses. It also ensures that PLHIV are able to return to work and assume their day to day life as quickly as possible. Hygiene practices such as hand washing, food preparation, safe water storage and disposal of household and human waste are all equally essential for all the family to protect those who are more vulnerable within the household. Water supply points and latrines have to be accessible and close to where they are needed to reduce the burden of distance and to maintain a sense of dignity for patients and caregivers.

Safe infant feeding and nutrition

If a mother is HIV positive, there is a risk that she may transmit the virus to her baby through breastfeeding, even if the child is born HIV negative. The 'obvious' solution would be not to breastfeed the child. However, this has proven to be very difficult because of social, cultural and financial reasons, including the cost and availability of powdered milk, stigma and tradition. Whether breast feeding or not, clean water is crucial for infant feeding and HIV positive babies need to be protected even more from unsafe water because it will weaken their resistance and shorten their lives.

Malnutrition associated with HIV infection comprise two categories: starvation and cachexia. While during starvation the body does not receive the quantity and quality of nutrients required due to lack of food intake and inability to absorb nutrients, cachexia is severe weight loss due to changes in metabolism due in response to HIV infection. The latter is characterized by greater loss of lean body mass mostly in muscles and organs such as liver, heart, lungs and kidneys. The metabolic changes of cachexia are thought to be regulated by the same chemical messengers that control immune function.

In HIV infected children the clinical picture is complicated by metabolic demands underlying growth and development. The required caloric intake of normally growing children with HIV infection is about one third higher than the standard requirement. Both the resting energy expenditure (REE) and the total energy expenditure (TEE) are increased in HIV infected individuals and have recently been correlated with viral load. Dietary therapy is an important adjunct in the clinical care of patients infected with HIV. It is believed that achieving and maintaining optimal balanced dietary therapy will improve the individuals' immune function; reduce the incidence of complications associated with HIV infection; attenuate the progression of HIV infection; improve the quality of life and ultimately reduce mortality associated to HIV infection. These effects should also lead to a reduction in the overall cost of health care.

Cotrimoxazole chemoprophylaxis

There has been increasing evidence of effectiveness, even in areas with high bacterial resistance to Cotrimoxazole. Daily Cotrimoxazole prophylaxis has been associated with 25-46% less mortality and reduction in malaria, diarrhea, and hospitalization among persons with HIV both with and without TB. The cost of the medication is low; generally less than US$15 per year and the cost per life year saved is US$160. Cotrimoxazole prophylaxis is the most widely accepted and used with greater than 95% reporting daily use. This very high acceptance rate is likely due to several factors. Respondents of a survey believed that the drug had a beneficial impact on their health including mortality reduction, a perception that was congruent with health impact data from several efficacy studies.

Vaccination

Vaccination with a 9-valent pneumococcal conjugate vaccine reduced the incidence of radiologically confirmed pneumonia. The vaccine also reduced the incidence of vaccine- serotype and antibiotic-resistant invasive pneumococcal disease among children with and those without HIV infection. The mortality rate was reduced by 5 percent among all children (229 deaths among vaccine recipients and 242 among controls, P=0.58) and by 6 percent among HIV-infected children (166 and 176 deaths, respectively; P=0.63).

Counseling and testing

HIV voluntary counseling and testing (VCT) among family members of PLHIV (family VCT) effectively identifies children and adults with HIV as well as HIV-discordant couples. While providing family counseling and testing may have positive effects for the initial PLHIV, substantial benefit primarily accrues to family members. Providing couples with HIV testing and counseling decreases high risk sexual behavior and HIV transmission.

Oral care

Access to and utilization of dental care is important to PLHIV because, according to some estimates, over 90% of PLHIV will have at least one oral manifestation during the course of their infection. In addition, oral health problems of PLHIV are often more severe and difficult to treat than those of the general population. Dental care is one of the greatest unmet health care needs among PLHIV that appears to be more than twice as prevalent as unmet medical needs and were associated with low income and lack of insurance.

Oral health problems can cause other health problems for PLHIV. Only about one-third of PLHIV reported a usual source of dental care at the time of their HIV diagnosis and half reported having received help getting dental care from anyone since their diagnosis. This highlights the need to have HIV case managers and other HIV medical personnel trained on the importance of addressing oral health care needs among their patient population in order to prevent the negative impact of oral health problems in this population.

Tableau 1: Summary of findings table

Patients or population: PLHIV
Setting: All
Intervention: Global or Specific prevention

Intervention	Country, Year	Outcomes	Impact
SWS	Uganda, 2005	Diarrhea risk and number of days ill	A 25% and 33% reduction rate
SWS combined with co-trimoxazole chemoprophylaxis	Uganda, 2005	Risk of diarrhea	67% reduction
SWS	Nigeria, 2011	diarrhea risk	36% decrease in diarrhea between the pre- and post-intervention phases
Cotrimoxazole prophylaxis	Uganda, 2008	less illness(81%), more energy (46%), less malaria (26%), weight gain (18%), and less diarrhea (8%).	Improved health
Insecticide-treated bed nets	Subsaharan Africa, Lengeler 2004	Malaria prevalence	50% reduction
Vaccine	Soweto, South Africa, 2003	invasive pneumococcal	reduced the incidence of a first episode by 65%,
counselling and testing	Kampala, Uganda. 2003	identifying and preventing new HIV infections	increase support to infected persons and to reduce negative psychological outcomes

Of the research at the base of this Rapid Response

Types	What we searched	What we found
Interventions	Global or specific prevention of illness in HIV infected people	Different strategies of a basic prevention package and their efficacy rate
Participants	young women and girls	People living with HIV
Contexts	LMIC, developing countries, Africa, Cameroon,	LMIC, developing countries, Africa
Résultats	Avoid illness due to HIV	Strategies to prevent illness
Recherche	Systematic reviews, overviews, scientific reviews	Literature reviews, overviews and scientific reviews

Date of the most recent research: January 2013

Limitations: This is an exhaustive literature review, but only few specific reviews were found.

Pertinence of the research relative to the question asked

➔ Findings	▷ Interpretation*
APPLICABILITY	
➔ these strategies have proven effective but must be designed in context	▷ Most of these evidences were gotten from similar setting and thus are quite applicable .
EQUITY	
➔ People living with HIV being often marginalised, equity parameters(especially in accessibility and gender) will need to be incorporated in choice schemes.	
COST	
➔ According to the strategy choosen, a proper costing would need to be done	
MONITORING & EVALUATION	
➔ Baseline data collection system is a weakness As a means for assessing the impact	▷ This may limit the effects, and also the monitoring and Evaluation of the choosen strategies in relation to the population especially as people are not open about their sexual life
➔ Most of the documents found are of moderate quality	▷ Better quality documents being restricted in term of accessibility

* Judgements made by the authors of this response based on the findings of the research and consultation with others (see acknowledgements). For additional details about how these judgements were made see: www.evipnet.org/sure.

References

Nyanzi-Wakholi Barbara, Medina Lara Antonieta, Watera Christine , Munderi Paula , Gilks Charles & Heiner Grosskurth (2009): The role of HIV testing, counselling, and treatment in coping with HIV/AIDS in Uganda: a qualitative analysis, AIDS Care: Psychological and Socio-medical Aspects of AIDS/HIV, 21:7, 903-908

Pereyra Margaret , Metsch Lisa R. , Tomar Scott , Valverde Eduardo , Jeanty Yves , Messinger Shari &Boza Henry (2011): Utilization of dental care services among low-income HIV-positive persons receiving primary care in SouthFlorida, AIDS Care: Psychological and Socio-medical Aspects of AIDS/HIV, 23:1, 98-106

Nkongo Diana and Chonya Christian, Access to Water and Sanitation for People Living with HIV and AIDS: An Exploratory Study. Water Aids 2009

Colindres R. , J. Mermin , E. Ezati , S. Kambabazi , P. Buyungo , L. Sekabembe , F. Baryarama , F Kitabire , S. Mukasa , F. Kizito , C. Fitzgerald & R. Quick (2008): Utilization of a basic care and prevention package by HIV-infected persons in Uganda, AIDS Care: Psychological and Socio-medical Aspects of AIDS/HIV, 20:2, 139-145

Clasen TF, Roberts IG, Rabie T, SchmidtWP, Cairncross S. Interventions to improve water quality for preventing diarrhoea. Cochrane Database of Systematic Reviews 2006, Issue 3. Art. No.: CD004794. DOI: 10.1002/14651858.CD004794.pub2.

Mermin Jonathan, Bunnell Rebecca, Lule John, Opio Alex, Gibbons Amanda, Dybul Mark and Kaplan Jonathan,Developing an evidence-based, preventive care package for persons with HIV in Africa. Tropical Medicine and International Healthvolume. 10 no 10 pp 961–970 october 2005 doi:10.1111/j.1365-3156.2005.01488.x

Keith P. Klugman, Shabir A. Madhet al, A Trial of a 9-Valent Pneumococcal Conjugate Vaccine in Children with and Those without HIV Infection.N Engl J Med 2003;349:1341-8.

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