Solthis Newsletter

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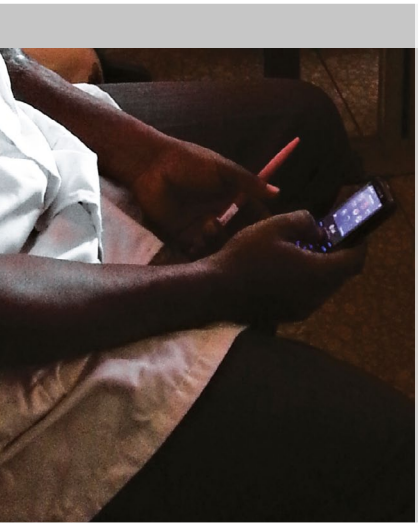
Solthis
Therapeutic Solidarity
and Initiatives for Health



Everyone has the right to health care! Let's act together!

Pre-exposure prophylaxis: when will we achieve equality for young women?

Guillaume Breton
Scientific Director

Oral PrEP, based on the use of TDF only or combined with FTC, reduces the risk of HIV infection[1]. Large-scale implementation of PrEP is recommended by WHO, a strategy which, combined with immediate ARV treatment for all HIV-infected patients, raises hopes that we can finally act on the progress of the epidemic.

However, in studies carried out with serodiscordant couples, made up of heterosexual men and women in a highly endemic zone, pooled efficacy data for PrEP show a reduction in the risk of HIV infection that is generally higher among men (62%) than women (43%), men who have sex with men, transgender people and people who inject drugs[1].

Observance is key to the efficacy of PrEP

Young women living in sub-Saharan African countries with a high incidence of HIV are particularly affected by the epidemic, and represent a priority population for PrEP[1]. The efficacy results from four PrEP trials including women in eastern and southern Africa, however, are somewhat contradictory. Two trials (Partners PrEP, which studied 4,747 serodiscordant couples and TDF2, which studied 1,219 people, including 489 women) show an efficacy rate of between 49 and 75%, with no difference between men and women; the two other trials (FEM-PrEP and VOICE), which studied 2,120 and 3,019 women respectively, showed no efficacy[2-5]. These differences are principally due to differences in observance: PrEP is only effective if people take it! The VOICE trial shows that PrEP observance is correlated with an accurate estimate of the risk of HIV exposure, but also that the youngest women, who are the most at risk, are also those who estimate the risk less accurately[5]. PrEP is not a lifelong treatment in the way that treatment for HIV infection is, but an appropriate strategy at a period of life when the risk of HIV exposure is high. More specifically, improving observance means working on the perception of risk to help individuals make an accurate estimate of their risk and evaluate it over time, so that they can adapt their observance accordingly[6].

> PrEP is only effective if people take it! Observance is correlated with an accurate estimate of the risk of HIV exposure

Other strategies that could simplify observance are being developed, such as long-acting injectable treatments (cabotegravir and rilpivirine), subcutaneous ARV implants and local treatments (microbiocides, gels or ARV-impregnated vaginal rings). The ASPIRE trial, which tested a vaginal ring impregnated with dapivirine, was conducted in east Africa and studied 2,614 women; the results were disappointing, at 27% efficacy. Although efficacy increases to 61% among women over the age of 25, women under the age of 21, whose risk of HIV infection is twice as high, get no benefit from the strategy, again because of difficulties associated with observance[7]. This demonstrates the limits of biomedical solutions and suggests that improving observance remains a critical issue.

> Increasing the perception of risk must be a priority

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Daily oral PrEP offers the possibility of limiting new infections among women living in sub-Saharan Africa, but the youngest of them, who need it most, and who combine the highest risks of HIV exposure and non-observance, are paradoxically those who benefit least from the strategy. As a consequence, increasing these young women's perception of risk so that they can adjust their observance of PrEP must be a priority, so that they can benefit from it before it is too late.

Notes

1 **WHO,** Guideline on when to start antiretroviral therapy and on pre-exposure prophylaxis for HIV, Genève, World Health Organization, 2015
2 **PM Mumane, C Celum, N Mugo et al.** Efficacy of preexposure prophylaxis for HIV-1 prevention among high-risk heterosexuals: subgroup analyses from a randomized trial, AIDS 2013; 27:2155-2160.
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Operational research in Guinea: Diavina and Tivina

Taking action for HIV-infected pregnant women and their newborns

Guillaume Breton
Scientific Director

In 2013, it was estimated that more than 90% of the 240,000 HIV-infected children in the world live in sub-Saharan Africa, where care and resources are the most limited. These infections are most often of maternal-foetal origin, a consequence of pregnant women having very little access to programmes regarding the prevention and transmission of HIV from mother to child. It is estimated that a third of pregnant women with HIV in the 22 priority countries of the Global Plan did not receive ARV drugs to prevent mother-to-child transmission (MTCT) in 2013[1].

Moreover, access to virological diagnoses for exposed infants is still limited, since it requires a PCR test, which is not widely implemented. In 2013, only 56% (520,000) of exposed infants in low- and middle-income countries were able to benefit from access to PCR diagnoses[1]. Furthermore, even though WHO recommends performing a virological diagnosis at 6 weeks old, the delay between physical examinations, taking samples, transporting them to a suitably equipped laboratory, sending out results and then treating the infants adds up to almost seven months. Half the babies who are confirmed for HIV are lost from sight before even starting treatment[2]. Without treatment, infants who are infected during the perinatal period (in the womb or during labour) have a high risk of death (50%) during their first year[3]. By comparison, the death rate for children who are not infected with HIV in sub-Saharan Africa is 8%. The peak mortality rate linked to HIV among infants occurs around 2-3 months old, leaving just a small margin for detection and treatment[4].

All these factors illustrate that many infected infants rapidly progress to an advanced stage of the disease before they have the opportunity to be treated. Recent data on the ideal time to screen infants suggests there is a benefit to very early screening after birth to quickly identify infants infected in utero and thus prevent their early death by initiating ARV treatment very promptly[5]. In France, for example, screening for the virus in exposed infants is carried out at birth (0-3 days old) and at 1, 3 and 6 months. Strengthening the preventative MTCT treatment in infants is recommended if the mother did not re-

ceive ARV treatment during pregnancy. All this data therefore shows it is essential to screen for HIV infection very promptly after the baby is born to ensure a fast return of test results and start ARV treatment right from birth. For exposed newborns, only the detection of intracellular viruses or plasmatic viruses can diagnose if the infant is infected; since maternal anti-HIV antibodies can persist in the child until 18 months old, serological tests cannot be used before this age.

Evolution of WHO recommendations: improved prophylactic treatment for newborns with a high risk of infection

In their latest international recommendations in 2015, WHO proposed that all newborn babies of HIV-infected mothers should receive six weeks of nevirapine monotherapy as a prophylaxis. This could potentially be extended to 12 weeks and combined with AZT if the mother is discovered to have HIV around the time of birth and therefore did not have ARV treatment during pregnancy[6]. WHO also recommends performing an initial HIV virological diagnosis by PCR when the infant is 4-6 weeks old. Performing an HIV virological diagnosis at birth for exposed newborns is an option that WHO is currently contemplating, particularly if the mother did not receive ARV during pregnancy. However, this strategy still needs to be evaluated in countries with limited resources. Research in different contexts is necessary, in the very short term, to evaluate if diagnosis at birth could improve the early start of treatment for newborns and retain them within the health system. Different experiments with PMTCT programmes using current guidelines showed variable results on early detection rates for infants and a significant rate of screened babies being lost to follow-up.

Interest in very early treatment for infants

The benefits of early treatment for infants infected at birth, independently of CD4 percentage, are well established; such treatment is recommended by WHO[6]. In fact, CHER study results show that early treatment (at 7.4 months) reduces mortality and the occurrence of AIDS events compared with delayed treatment (at 20 months)[7]. The improvement in survival rate with even earlier treatment, initiated during the first few hours of life, has not yet been assessed, but preliminary studies show it could potentially be beneficial.

> Very early treatment for newborns infected during the perinatal period before the 8th or 12th week at the time of the primary infection limits the formation of a latent HIV cell and tissue reservoir[8].

The reservoir is as low as the treatment is early[8]. Very early reduction of the viral reservoir could allow some patients to reach a state of "post-treatment control" (PTC) after the secondary stopping of the antiretroviral therapy. However, even though such a situation has already been described in several dozen patients infected in adulthood, only one case of a PTC teenager infected during the perinatal period has been reported to date[9]. All the other attempts to stop ARV treatment in children/teenagers have been followed by an immediate or delayed virological rebound, even in cases where the viral reservoir was very low before the treatment was discontinued. The importance of maintaining as low a reservoir as possible is supported by studies in adults. The reservoir of infected cells is correlated with the amount of total HIV-DNA in the peripheral blood mononuclear cells (PBMC), which has a prognostic value of immunological and clinical development regardless of the number of CD4 lymphocytes and the plasma HIV RNA viral load. In the ANRS Visconti study, having a very low reservoir level was associated with long term control of virus replication after treatment was discontinued in subjects treated early at the time of the primary infection, as had already been observed in patients with controlled HIV[10]. From an immunological perspective, early treatment in adults has a possible benefit with regards to maintaining the digestive mucosa and on the secondary inflammation it generates. Given the important role of the digestive mucosa in the first few years of life to develop numerous immune responses, the benefit for children could be significant. Identifying adult patients in the primary infection stage remains difficult in clinical practice due to its non-specific clinical presentation. The situation of maternal-foetal transmission has a separate place in this regard and allows very early detection in newborns and infants. Very early initiation of treatment therefore seems beneficial for improving the clinical outcome of children and could potentially improve responses to future remission strategies, such as neutralising antibodies or therapeutic vaccines.

Operational research project in West Africa

In Guinea, with the ANRS 12344 DIAVINA (DIAgnostic Virologique et Initiation à la Naissance, "Virological Diagnosis and Initiation at Birth") study supported by ANRS and the Paris City Hall, we intend to evaluate the operability of a combined strategy, HIV diagnosis and stronger prophylaxis with triple antiretroviral therapy from birth among newborns with a high risk of infection whose mothers were not treated during the final month of pregnancy – since most often they were not screened for HIV before giving birth. Together with the DIAVINA study, we will carry out a cohort study of HIV-infected infants through the TIVINA project (Traitement Immédiat des nouveaux nés Infectés par la VIH à la Naissance, "Immediate Treatment of Newborns Infected with HIV at Birth"), which will evaluate the impact of a strategy involving very early antiretroviral therapy with the optimisation of preventive treatments combining vaccinations, malaria and tuberculosis prevention, nutritional support and stronger adherence, on morbidity and mortality and the HIV reservoir in newborns infected by HIV-1 during the perinatal period.

These two studies will come under the OPP-ERA project and use the laboratory facilities and staff trained in HIV viral load in Conakry. It is expected to include 300 mother-child pairs and approximately 30 HIV-infected newborn babies. HIV screening will be offered to pregnant woman who arrive to give birth in the maternity ward of Ignace Deen Hospital. If the diagnosis is positive and the women agree to participate in the study, their newborn baby will benefit from an HIV virological diagnosis at birth and, without waiting for the result, a prophylactic treatment reinforced by triple ARV therapy will be initiated within the first few hours of life and continued for 12 weeks.

The suggested treatment regimen will be: zidovudine, lamivudine and nevirapine in cases of HIV-1 infection (nevirapine will be discontinued at the age of 10 weeks), and zidovudine, lamivudine, lopinavir and ritonvir in cases of HIV-2. This treatment will be discontinued at 12 weeks old if the first PCR carried out at birth is negative, regardless of the feeding method. If the test is positive, treatment will be modified (or resumed) with zidovudine, lamivudine, lopinavir and ritonavir at curative doses.

> Evaluate the operability of a combined strategy, HIV diagnosis and stronger prophylaxis with triple antiretroviral therapy

Infants infected with HIV at birth or during the first 18 months of being monitored will benefit from pneumococcus and rotavirus vaccinations, intra-familial HIV and tuberculosis screening along with preventive treatment with isoniazid, support for adherence, nutritional support, the provision of insecticide-treated nets and a water filter for the infant and family.

This operational strategy combining HIV diagnosis from birth for exposed newborns with mothers who were not treated during pregnancy, with a very early initiation of triple ARV therapy as a prophylaxis at the beginning and then as a cure if the diagnosis is confirmed, together with a reinforcement of preventive treatment for infected children, should permit only a small HIV reservoir to form, thus also maintaining immune system development and reducing infant morbidity and mortality rates in the early years of life.

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Digital technologies applied to health in countries with limited resources

Opportunities for improving the health of individuals and strengthening the health systems

Etienne GUILLARD
Director of Health Systems and Services Strengthening

What subject matter is being spoken about?

For more than 40 years, digital technologies have come back into our lives and are part of our daily lives. Some stakeholders put this exponential growth down to the concept of "digital disruption".

Used in health, they encompass numerous terms: e-health, m-health, connected health, ICT in health, with various uses: telemedicine, e-learning, etc.

This big family of e-health technologies has undergone the same growth. At the heart of m-health, which refers to the use of the mobile telephony, it is rapidly expanding, notably using the features offered by smartphones: camera, GPS, sensors, localisation … There would therefore be between 100,000 and one million health smartphone applications, dedicated either to medical uses (chronic diseases, glycemia, database of drugs…) or to well-being (measuring the number of steps, tension, advice, …). These applications would already be used by more than 500 million people.

More recently, the connected objects have used information exchange technologies and advances in miniaturisation today allow having very small connected objects, which may for some be used as medical devices.

Faced with this flurry of activity, we have wanted to make a first overview.

Stakes and challenges for the implementation of ict health projects in countries with limited resources

If the development of ICT in health can provide innovative solutions to health problems , it may also lead to failures. Thus, faced with the multiplication of aborted pilot projects, some recommendations have been developed in order to avoid reproducing these failures and underline the importance of including these tools in larger building projects and not as an end in itself.

Furthermore, besides the technological divide still experienced by countries with limited resources, few of them have national health strategies integrating ICT and they will have to strengthen in order to face this technological wave and the projects associated with it. For this, the mobilisation of new assessments will be essential, in a multi-disciplinary and consequently intersectoral approach: health, telecommunication, education. This will also involve developing skills to accompany the deployment of these solutions, maintain the equipment and develop a digital culture for health professionals in order to promote their adaptability, quick appropriation of tools and their training in their use and in the analysis of data. Lastly, the evaluation and regulation of these technologies, and associated projects, will be necessary for ensuring as much their relevance and quality as the protection of their users and beneficiaries or their efficiency for the health systems.

Anticipating future uses, preparing to adapt

It is likely that we are still only at the beginning of this "digital disruption". The technological solutions of tomorrow will certainly fade away the separations of today, notably with NBICs: nanotechnologies, biotechnologies, information, cognitive.

Beyond technological evolution, our practices by health professionals will have to adapt, with sometimes profound changes to be expected, in particular with the emergence of artificial intelligence solutions.

We will also have to adapt to patients who are more informed about their illnesses and treatments, patients who may also assess our practices ("like" on Facebook) in real time.

It seems essential for health professionals to be prepared to make the most of these changes.

What uses and places for these tools in the health systems?

The various solutions of ICT in health may be used for all health issues, both in terms of the promotion of health, care and monitoring. Sexual and reproductive health and maternal-infant health are currently the areas in which ICT projects are the most numerous. If they all participate more or less directly in improving the health of individuals, they will intervene at different levels.

The table on the front page presents the main emerging uses.

Notes

1 **Digital disruption. See in particular Brian Solis,** the wheel of digital disruption http://thenextweb.com/entrepreneur/2014/04/16/digital-disruption-changing-business-technology-isnt-answer/

2 **For a detailed overview, see mHealth Compendium Volume5:** https://www.msh.org/sites/msh.org/files/2015_08_msh_mhealth_compendium_volume5.pdf

3 **See in particular Greentree consensus -** principes pour le développement numérique: http://digitalprinciples.org/ Et The M.A.P.S. Tool - mHealth Assessment and Planning for Scale: http://tinyurl.com/MAPS-Toolkit-Download

4 **See in particular mHealth alliance & mHealth knowledge** http://mhealthknowledge.org/ et mHealth evidence https://www.mhealthevidence.org/

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Coursera https://www.coursera.org

Future Learn https://futurelearn.com

Overviews of possible uses of ict in health in countries with limited resources

Stakeholders or level of use	Uses
Individual / patient / client	**Developing knowledge, the power to act and patient autonomy** Communication and support for behavioural changes, both in prevention and care: counselling, therapeutic education, support to observance Quick access to information (all-night pharmacy, first aid…) Analysis and decision-making in complex situations Warning and sharing of information about a situation or emergency (Observatory or telemonitoring) Exchanges between patients: exchanges of opinions, support groups
Between patient and caregiver	**Developing the relationship of care** Personalised monitoring and advice to the patient / client – "Hotline" Remote direct consultation with a specialist (telemedicine)
Caregiver / health professional	**Developing and improving the offering of health services** Quick access to reference information: therapeutic recommendations and electronic guide for treatments Help with decision-making: digital checklists, electronic clinical algorithms. Artificial intelligence tools Simplified diagnosis – Point of Care (POC) technologies: imaging, screening Access to the opinions of specialists about a clinical case or examination (telemedicine) Between caregivers: transfer of patient files (shared medical files), reference / counter reference, discussion forums **Developing and strengthening the skills and practices of human resources** Training, remote tutoring: e-learning, m-learning, MOOC Interactive, mixed and fun teaching approaches: virtual simulation tools, "serious games"; methods, discussion forums Supervision and evaluation of remote professional practices: quiz
Health information system (HIS)	**Optimising the monitoring of quality, the effectiveness and efficiency of health services by having and using health data more easily and quickly** Both for routine information and for specific surveys or polls: electronic medical files, databases Analysis of mobile data and "Big Data": "Data mining", use of data for epidemiological analyses, search for victims (for example, earthquakes)
Procurement and inventory management system	**Having and using logistical management data more easily and quickly to enable the better monitoring of stock and to avoid stock-outs (supply shortages)** Inventory and order management Warnings about counterfeit goods or products
Health financing	**Simplifying financial transactions in the health system** Payment of consultations or treatments by patients Remuneration of caregivers following the consultation or treatment, incentives, performance-based payment

The Ebola crisis: the work by Solthis in Guinea and Sierra Leone

Having fought Ebola for two years, Guinea, Sierra Leone and Liberia are now looking towards the post-Ebola period

Bertrand Vagnon
Programs Coordinator

The governments of these three countries, the healthcare personnel, the communities, and the national and international actors in the response continue to be mobilised in this decisive period.

Since December 2014, more than 28,600 people have been infected and 11,301 people have died. From the beginning of the epidemic, healthcare personnel in Guinea and Sierra Leone have been in the front line in caring for sufferers, showing great courage and a tremendous sense of public service. They have also been the main victims of the virus (more than 881 healthcare workers have been infected, and 513 have died, a case fatality rate that is well above average).

Solthis has been present in Guinea since 2008 and in Sierra Leone since 2011. We supported our long-standing national partners (governmental inter-sectoral coordination bodies, national HIV programmes, ministries of health, organisations of PLHIV) via our exemplary teams in the field. These teams assessed the threat posed by the virus to the people directly affected, their families, the healthcare systems as a whole, and the economic and social situation of the Mano River countries.

From the summer of 2014, when the epidemic was rapidly becoming widespread, Solthis, like many other actors, had to adapt. First of all, we had to understand the threat to our teams and reduce it by adopting new security measures at our intervention sites. Pre-departure training for our staff was increased and the partnerships developed with other NGOs enabled our teams to benefit from training courses provided by Médecins Sans Frontières Belgium, and by the Médecins du Monde/Action Against Hunger consortium and Première Urgence Internationale.

The solidarity between different NGOs, particularly French NGOs, has been a major factor in this crisis and has led to the creation of some valuable discussion forums. We regularly exchange opinions during meetings of the Ebola Task Force, which are organised by the French authorities.

Solthis very quickly voiced the view that the Ebola virus was not only a terrible deadly disease, but also a systemic threat. Access to healthcare and the continuity of treatment of other conditions were also seriously threatened because the crisis disrupted health care services and had a serious impact on the conditions of access to treatment for the people concerned. Our teams in the field witnessed first-hand the catastrophic situation in some hospitals: PLHIV were afraid to go to health centres to see a doctor or to take their medication, courses of treatment were interrupted, and there was an increase in the number of people who left the treatment circuit and were lost to follow-up.

Faced with the crisis, we were first of all involved in the emergency phase. In Sierra Leone, from September 2014, we therefore made our vehicles available to NETHIPS, a network of organisations of people living with HIV, which was involved in initiatives to look for and contact HIV-positive patients who had interrupted their follow-up care at HIV centres because of the prevalence of Ebola in the summer. During this initial phase, also in Sierra Leone, we worked with UNICEF and some support groups to look for HIV-positive children who had been lost to follow-up, the number of which had increased substantially.

The closure of national borders made transport logistics very complicated, but we were able to transport protective equipment to health centres that we had been supporting before the crisis in Guinea and Sierra Leone. We also provided initial training courses in hospital hygiene and the ways in which the Ebola virus is transmitted for these healthcare workers in Sierra Leone.

Lastly, Solthis joined with other organisations in supporting the move by the French authorities to set up a European medical evacuation system for all foreign nationals taking part in the response to Ebola in the three countries. At the same time, we also played an active role in making the case for high-quality Ebola treatment centres to be established in the countries in which we operate, for healthcare workers from those countries (including our colleagues from Guinea and Sierra Leone who were involved in the response as members of our teams).

> Ebola had a great impact on access to health for populations

Solthis subsequently led two projects concerned with continuity of HIV care in the context of Ebola, which included elements to reinforce infection prevention and control, and to adapt the HIV care offer (people lost to follow-up, management of interruptions in treatment, intervals between appointments, etc.). These projects operated in 2015, with support from the Ministry of Foreign Affairs and International Development and from the 5% Initiative led by Expertise France. They covered all healthcare facilities, not just HIV units, and involved 23 sites across Guinea's 8 prefectures, and 9 sites in Sierra Leone, in Freetown.

These two projects were developed and implemented with our partners in Guinea (PNPCSP /CNLS/UNAIDS/the REGAP+ and REFIG organisations for PLHIV) and in Sierra Leone (NACP/NAS/NETHIPS). In both countries, our teams also worked in coordination with the WHO and with the frameworks for action defined by the national Ebola response coordination bodies for all the national and international actors.

Solthis has therefore supported its partners in Guinea and Sierra Leone during this global health crisis, in which community mobilisation and the empowerment of healthcare service users were vital factors. From 2016 onwards, in parallel with its continued support for the healthcare offer at every level of the health pyramid, Solthis will launch several projects concerned with the demand for healthcare, and communities and their visions of healthcare.

Hospital hygiene and protection of healthcare workers

In Guinea, for the IPC (infection prevention and control) component of its programme, Solthis developed a partnership with the GERES, which possesses recognised expertise in hospital hygiene.

From the beginning of the Ebola crisis, our teams were made aware of its impact on the work of healthcare staff when some doctors halted their HIV consultations because they did not have adequate supplies of basic protective equipment. Other doctors continued with their activities despite the absence or incompleteness of protective equipment. Effective prevention of the transmission of the virus in a healthcare setting, and support for healthcare staff in continuing their routine activities, including activities outside the special Ebola treatment centres, were clearly essential in helping to contain the epidemic and to continue providing high-quality treatment for patients receiving regular follow-up for HIV and tuberculosis.

In Guinea, a total of 170 healthcare staff were trained in infection prevention and control measures in a healthcare setting. Monitoring operations have been carried out in each prefecture, with the national and regional authorities. In the long term, the tools and protocols developed with healthcare staff during this project, conducted in a time of crisis, will play a part in increasing the resilience of the healthcare system as a whole.

Solthis and its partners' scientific publications

Analysis of the impact of the Ebola outbreak on the continuity of care in Guinea and Sierra Leone

When Solthis' projects in Guinea and Sierra Leone were launched, there was no numerical assessment of the impact of the Ebola outbreak on the continuity of care of people living with HIV.

In the framework of these projects and alongside with its partners in Guinea and Sierra Leone, Solthis realized a study on retention of people living with HIV Taking Antiretroviral Treatment during the 2014-15 Ebola outbreak in the Conakry region of Guinea, and a study on the evaluation of access to care for PLHIV in the health districts affected by the 2014 epidemic in Sierra Leone.

- The correspondence "Prevention of HIV spread during the Ebola outbreak in Guinea" has been published on The Lancet, issue of April 11th 2015[1],
- A poster on the results of the study done in Guinea has been presented at the CROI 2015[2], and a poster on the results in Sierra Leone has been presented at the CROI 2016[3].

An administrative and logistic contribution to the Jiki trial from Solthis' team in Conakry has facilitated its implementation on the ground. Solthis is pleased that the results of this trial have been published in "PLOS medicine" in March and congratulates all the project's partners, in particular INSERM.

Notes

1 **JDA Ndawinz, M Cissé, MSK Diallo, CT Sidibé, E D'Ortenzio,** "Prevention of HIV spread during the Ebola outbreak in Guinea", The Lancet, Volume 385, Issue 9976, 1393

2 **M Cissé (Donka National Hospital, Guinée), MSK Diallo, C Kpamou, J Dimitri, (Solthis, Guinée) CT Sidibé, (Programme National de Prise en Charge Sanitaire et de Prévention des IST/VIH/SIDA, Guinée), E D'Ortenzio, JDA Ndawinz (Solthis France),** "Impact of the Ebola outbreak on the Quality of Care of People Living with HIV Taking Antiretroviral Treatment at Donka National Hospital in Conakry, Guinea", Poster CROI 2015

3 **J Ndawinz, E Guillard (Solthis France), KR Katumba (Solthis Sierra Leone), Victor Kamara, Wogba Kamara (National AIDS Secretary Sierra Leone), Lamine Bangura, Victoria Kamara, Umu N Nabieu (National AIDS/HIV Control Programme Sierra Leone),** "Access to HIV Care in Health Districts Affected by Ebola Epidemic in Sierra Leone", Poster CROI 2016

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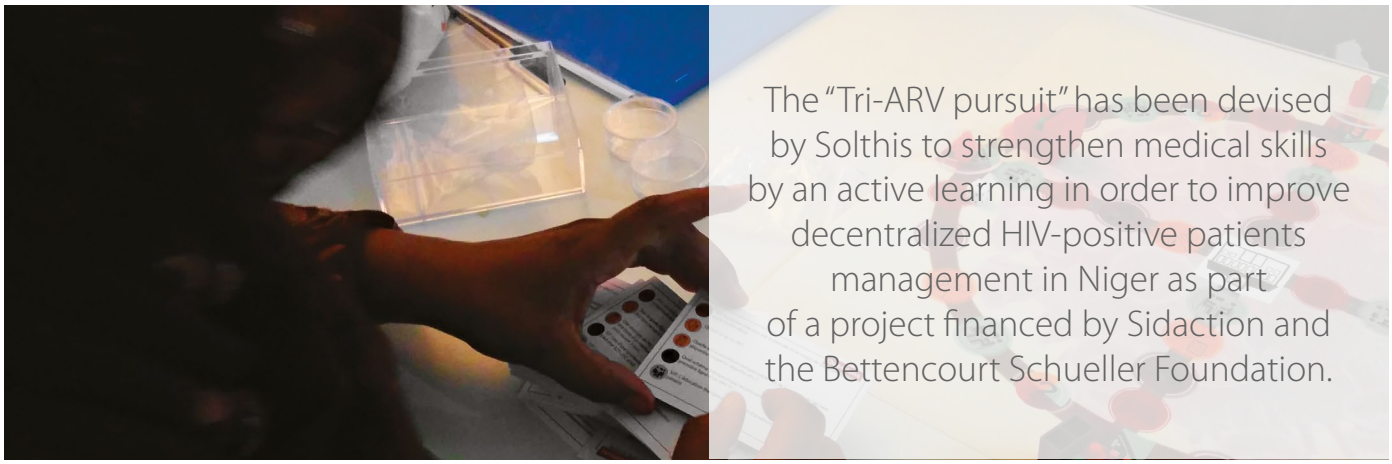
CHECK OUT THE TRI-ARV PURSUIT

The board game to test and consolidate the knowledge of health professionals



The "Tri-ARV pursuit" has been devised by Solthis to strengthen medical skills by an active learning in order to improve decentralized HIV-positive patients management in Niger as part of a project financed by Sidaction and the Bettencourt Schueller Foundation.

Let's act together
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