HIV NURSING MATTERS

A publication of the Southern African HIV Clinicians Society

Focus on Paediatrics and Young People

Simple, easy to use antiretroviral treatment for young children living with HIV

Cross-Sector Collaboration: The Impact of the Adolescent HIV Implementation Science Alliance - South Africa

Achieving Adherence in Adolescents with HIV

How to tell a child or teenager they have HIV

Cotrimoxazole prophylaxis guidelines for infants exposed to HIV: making sense of the discrepancies

Results for Action reports for tracing HIV PCR positive babies

We are the generation that will end HIV: Pre-exposure Prophylaxis in Adolescents and Young People

Rising teenage pregnancy during COVID-19 times: impact and experiences of adolescents and young people

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HIV Nursing Matters focuses on Paediatrics and Young People

HIV NURSING MATTERS

Summary of articles from our guest editor and board member

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SAHCS is excited to present this edition of *HIV Nursing Matters* with a focus on Paediatrics and Young People, which they are the group that is at increased risk of HIV infection compared to other age groups worldwide. Due to transition stage of their development and the need to adapt to the rapid biological, physical and structural changes in their lives furthers puts them at extremely vulnerable position of HIV infection than adults. Therefore, they require specific attention and different methodologies when managing their HIV infection. Globally, HIV prevalence of children under the age of 15 is sitting at 5% of all people living with HIV, while 10% accounts to new infections and 15% is counted toward HIV mortality rates. The number in sub-Saharan Africa is believed to be four times increased especially when it comes to new HIV infections mainly amongst girls. Contextually, south Africa has reported that approximately 12 000 children under 15 years of age become infected with HIV every year, now with just over 300 000 children living with HIV. Additionally, among the nearly 900,000 adolescents ages 15 to 24 years old living with HIV in South Africa, it is estimated that only 10% are virally suppressed due to low rates of diagnosis, linkage, and retention in care.

Against this backdrop, the focus of this edition of *HIV Nursing Matters* provides us with useful insights and effective day to day management approaches regarding our paediatric and adolescent HIV patients. An insightful article on the latest approaches regarding Paediatric ART formulations by Archary et al. is found on page 6. Antiretroviral treatment options for young children are becoming simpler and easier to provide now that dispersible tablets are becoming more readily available, including both the 5mg and 10mg dolutegravir dispersible tablets that have been recently approved by SAHPRA, which is great. Alongside successful treatment is the importance of effective surveillance and ensuring that babies who test HIV PCR positive are linked to care and not lost to follow up. Murray et al describe HIV PCR Results for Action

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(RfA) reports that were developed by the Paediatric HIV Surveillance Team at the National Institute for Communicable Diseases (NICD). These reports, based on collated NHLS testing data, can be accessed by healthcare workers, aiding them in tracing infants and linking them to care. See the article on page 24 which includes steps on how to receive these reports.

Critical examination of policies that drive practice is imperative in HIV care and management. Coutsoudis et al. on page 20 raises a very important issue on the provision of co-trimoxazole prophylaxis in HIV-exposed infants, whereby identified discrepancies within the various current national local guidelines are unpacked and the need for uniformity is highlighted to avoid confusion amongst healthcare workers expected to provide the prophylaxis.

Literature advocates that collaborative care models improve HIV outcomes and cross-sector collaboration in the context of successful uptake of adolescent HIV interventions through the *Adolescent HIV Implementation Science Alliance (AHISA),* an international research collaborative project is highlighted on page 10, by Bergam and Crowley together with its benefits. A reflective practice account by Dr Levin who has more than 25 years' experience working with children and adolescent HIV patients, gives us a look into some of his personal experiences regarding adolescent adherence and provides us with very practical approaches to achieving it. While Dr Turner describes a practical and structured approach to disclosure in children and teenagers, which is proved to be the most challenging aspects of HIV management for both providers and caregivers. Both Levin's and Turner's articles describe the importance of good mental health in successful management of our adolescent patients, the challenges of this alongside insights into how to provide good psychosocial support to youth living with HIV is described by Geyer and Mokoka on page 37. We are also provided with data and insights into the rising teenage pregnancy rates since the onset of COVID-19, and the importance of getting our adolescent patients back in to care in order to provide appropriate counselling and provision of contraception.

Lastly, the importance of Pre-exposure Prophylaxis (PrEP) in Adolescents and Young People is emphasized by Tait et al. on page 33, complementing this article is SAHCS' job aid on understanding oral PrEP, found on page 4. Let us remember that PrEP reduces the risk of getting HIV from sex by about 99% and each and every one of us can play our part towards HIV prevention, as prevention is now a fundamental principle of modern health care including HIV. Prevention is better than cure! and we should all be empowered to aid in providing it, as part of our fight to end HIV.

Go ahead and find the thrilling articles all contained in this astute edition and happy reading. No doubt that you will find it exciting and empowering as our youth and children are prioritised - enjoy!

UNDERSTANDING ORAL PrEP

- Both PrEP and PEP are HIV prophylaxis (prevention) medicines.
- **PrEP** = **Pr**e-**E**xposure **P**rophylaxis: this is medicine taken regularly by an HIV-uninfected client to help prevent them from getting HIV.
- **PEP** = **P**ost-**E**xposure **P**rophylaxis: this is medicine taken by an HIV-uninfected client following a high-risk HIV exposure to help prevent them from contracting HIV. It must be started within 72hrs and taken for 1 month following exposure to ensure full protection.

STOP and think PrEP when a client has had repeated PEP!

WHO IS PrEP FOR?

It is recommended that a client receive PrEP when:

1. **Repeated exposure to HIV is likely:**
   - Present for PEP repeatedly
   - Are HIV uninfected and have a sexual partner/s with HIV or whose HIV status is unknown (including those trying to conceive)
   - Have multiple sexual partners
   - Use condoms inconsistently or never at all
   - Have had a recent sexually transmitted infection (STI)
2. **They are at increased risk of acquiring HIV:**
   - Men who have sex with men (MSM)
   - People who use drugs (PWUD)
   - Sex-workers or partners of sex workers
   - Transgender clients
   - People in prisons or similar closed contexts.
   - Anyone who reports that they are at risk of HIV and may benefit from PrEP

HOW DO YOU PROVIDE PrEP?

1. **Ensure the client understands what oral PrEP is:**
   - Explain the difference between PrEP and PEP and counsel them on their risk of HIV exposure.
   - PrEP *is not* treatment for HIV. Before starting PrEP, the client should test for HIV and be HIV-uninfected.
   - When first starting PrEP, it needs to be taken consistently for 20 days before it provides its full protection.
   - It is safe, even in pregnancy and breastfeeding.
   - PrEP *does not* prevent other STIs or pregnancy. Condoms and condom-compatible lubricant, and reliable contraception must still be used.
   - They may experience mild side effects (such as nausea, headache, tiredness) when first starting PrEP but these are not likely to last long.
2. **Ensure the client knows how to take PrEP correctly and when to return:**
   - Take the medication daily. It is important that it is taken *consistently, every day* to provide full protection.
   - Initially, 1 month's supply of tablets will be provided. Thereafter, 3 month's supply will be provided.
   - For blood results that are not available on the same day, they will be contacted by phone or provided these at follow-up. If not, they can ask for them.
   - Regular HIV testing is recommended. If they become HIV-infected they will need to stop PrEP immediately and start HIV treatment instead.
   - They can return at any time if they feel unwell or need more information.
3. **Ensure the client is ready to take PrEP:**
   - They have received appropriate counselling and screening, want to start, and know when to return.
   - They have the appropriate prescription. Most commonly, this will be a fixed dose combination tablet of tenofovir and emtricitabine (TDF/FTC) 300mg/200mg to be taken orally once daily.

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Juliet Houghton appointed as new CEO of The Southern African HIV Clinicians Society

The Southern African HIV Clinicians Society (SAHCS) recently announced that Juliet Houghton has been appointed as the new CEO of the organisation. As an experienced leader, Juliet has succeeded Dr Lauren Jankelowitz as of the 13 June 2022 and the organisation is excited for this next chapter with Juliet!

Juliet, a HIV Nurse Specialist, (London School of Hygiene &Tropical Medicine) and Social Anthropologist (Brunel University, London) has vast organisational leadership and management experience having headed up the NGO, CHIVA South Africa, for many years. Juliet is passionate about adolescent health and actively works to engage, develop, implement, and advocate for new and innovative programmes to better treat and prevent HIV in this key population.

"Juliet is no stranger to SAHCS having been an active member since 2014. With over 25 years of clinical and non-profit work in the HIV, TB, and sexual-health space, as well as all her experience as a clinician, prescriber, and creative thinker, we are confident that Juliet is the right person to take over as CEO" says Prof Yunus Moosa, SAHCS' current President. The organisation believes that Juliet will continue to maintain SAHCS' vital role in providing best-practice clinical guidance and training, and the capacity building and support of healthcare workers within the HIV and related diseases space within Southern Africa.

"I'm honoured to take on the role of CEO and to get the opportunity to contribute with my experience to build on and strengthen SAHCS mission to promote the highest quality, evidence-based HIV healthcare. I have a good knowledge the organisation's programmes and activities, and have been actively involved in organisation, including contributing to SAHCS' Paediatric and Adolescent HIV management guidelines and toolkits." says Juliet Houghton.

The SAHCS board would like to thank Dr Lauren Jankelowitz for her sterling leadership as CEO of the organisation from 2012 to 2022. She was responsible for galvanizing the who's who of HIV academia in South Africa, while networking with research organisations, partnering with advocacy groups, and engaging international entities to improve the management and care of HIV/AIDS patients as well as the knowledge and skills of health care workers in the field. We wish Lauren all the very best with her future endeavours.

Simple, easy to use antiretroviral treatment for young children living with HIV

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In South Africa (SA), approximately 12 000 children under 15 years of age become infected with HIV every year, with just over 300 000 children living with HIV. Over 90 percent of these infections occur perinatally, requiring starting antiretroviral treatment (ART) in young children. Across the treatment cascade, the outcomes in children have failed to achieve the goal of 95:95:95. 75% of children living with HIV are diagnosed, with only 47% started on ART and 33% virologically suppressed. This is in stark contrast to 66% of adults living with HIV who are virologically suppressed.[1] The simplicity of adult treatment using well-tolerated, once-daily, fixed-dose combination therapy has played a large part in improving the treatment outcomes of adults living with HIV.

The treatment of young children living with HIV is complicated by the lack of child-friendly, fixed-dose combination (FDC) formulations that can be used once daily. For example, using the current SA treatment guidelines, a one-year-old child weighing 15 kg on first-line ART may be on 8 ml Abacavir (ABC), 8 ml Lamivudine (3TC) and 2 ml Lopinavir/ritonavir (LPV/r) twice daily (see Antiretroviral Drug Dosing Chart for Children, 2021).[2] This would equate to a total of 36 ml of liquid medication for a young child to tolerate in a day. The poor tolerability of LPV/r syrup is legendary, leaving a bitter taste that lasts for hours after administration, and some formulations require a cold chain for storage. Solid formulations of LPV/r are hard to swallow for young children and must be taken multiple times per day. These barriers have compromised treatment adherence, resulting in poor outcomes in children. Moving towards well-tolerated, child-friendly fixed-dose combinations (FDCs) has been a long-held dream of many healthcare workers treating children living with HIV. For children over four weeks and 3 kg, simplified treatment options are on the horizon. The development of dispersible tablet (DT) formulations has facilitated this transition.

Dispersible Tablets

Dispersible tablets are easy to administer, taste good, have less side effects, and can ultimately improve viral suppression rates for the youngest and most vulnerable children. Film-coated tablets must be swallowed whole and cannot be crushed or broken to prevent the active medication from being inactivated by the acidic environment and enzymes in the stomach. Dispersible tablets allow for flexibility of administration that follows the developmental path of a child's ability to swallow solid tablets.

This flexibility includes:

- Dispersing the tablet in liquid and administration as a flavoured liquid suspension
- Chewing the tablet in the mouth and swallowing the pieces
- Swallowing the tablet whole

For young infants who cannot swallow solids, DTs can be dispersed in liquid to form a suspension and administered as one would give a syrup formulation. These tablets disperse readily in liquids and require minimal mixing to create a liquid suspension. The manufacturer determines the volume of liquid to be adhered to and into which liquids the tablet/s can be dispersed. When using DTs, it is always good to ask caregivers to check if any residual medication remains once the child drinks the medicine. Then, they can add a bit of liquid to the tablet's container and administer this solution to ensure that the child ingests the whole dose. The suitable liquids to use with DTs include water and expressed breastmilk, which simplifies administration to exclusively breastfed infants.

Training children to swallow whole tablets is a natural evolution as children grow and wean from a liquid diet to solid food. Getting children to chew and swallow tablets is a useful intermediate step to limit the chance of a negative choking experience. Following chewing and swallowing a tablet, getting a child to swallow water or other liquid also helps to get children used to swallowing whole tablets. Several online resources can aid in teaching a child to swallow whole tablets.

Abacavir/Lamivudine Dispersible tablet

A dispersible, scored fixed-dose combination of Abacavir/Lamivudine (ABC/3TC) 120/60 mg was approved by the South African Health Products Regulatory Authority (SAHPRA) in South Africa in 2020. The following year, it was included in the National Department of Health formulary (Reference: 2021/05/07/CMU/01). The ABC/3TC DT was found to be cost-effective and reduced the cost of ART compared to treating children with syrup formulations. In addition, the formulation also made administering once daily ABC/3TC much easier, with the dose ranging from one tablet daily in a child between 3 – 5.9 kg to three tablets daily for children between 20 – 24.9 kg. The formulation has a pleasant strawberry flavour without an aftertaste. These DTs are optimal, decrease pill burden and significantly improve adherence. They can be split/crushed and mixed with a small amount of water for children who cannot swallow whole tablets. Children weighing 25 kg and over can then transition to the adult ABC/3TC formulation (600/300 mg) as a daily dose.

The steps for administering the ABC/3TC DT as a solution are shown in the figures below.[3]

Figure 1: How to administer ABC/3TC dispersible, scored tablets with water

- ABC/3TC dispersible, scored tablets can be dissolved and mixed in a small amount of water prior to administration.
- ABC/3TC dispersible, scored tablets can also be split.crusedh before mixing them with water.

STEP 1: DETERMINE THE DOSE

Add the correct number of ABC/3TC tablets to a clean, empty glass or cup based on the child's weight. (See Dosing Table)

Weight	No. of ABC/3TC (120/60 mg) Daily Tablets
3–5.9kg	1
6–9.9kg	1.5
10–13.9kg	2
14–19.9kg	2.5
20–24.9kg	3

TIP: If you are administering 1.5 or 2.5 tablets, you can easily split the ABC/3TC tablet down the middle on the solid line.

STEP 2: PREPARE THE ABC/3TC MIXTURE

Add 10mL (2 teaspoons) of clean water into the glass or cup and stir until the tablets dissolve.

TIP: If the tablets do not dissolve completely (i.e., they lump together), stir and slowly add another 10ml (2 teaspoons) of extra water until the tablets fully dissolve.

STEP 3: GIVE THE MIXTURE TO THE CHILD

Give the medicine to the child to drink. Make sure they drink all the medicine right away or within a maximum of 30 minutes.

TIP: If any medicine remains in the cup or glass, add a little more water to the glass and give it to the child. Repeat until no medicine remains in the glass. Discard any unused mixture after 30 minutes.

- ABC/3TC dispersible, scored tablets can be dissolved and mixed in a small amount of the mother's own breast milk prior to administration.
- ABC/3TC dispersible, scored tablets can also be split.crusedh before mixing them with the mother's own breast milk.

STEP 1: DETERMINE THE DOSE

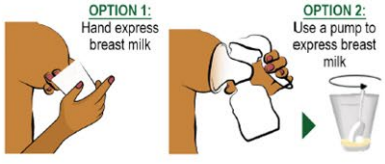
Add the correct number of ABC/3TC tablets to a clean, empty glass or cup based on the child's weight. (See Dosing Table)

Weight	No. of ABC/3TC (120/60 mg) Daily Tablets
3–5.9kg	1
6–9.9kg	1.5
10–13.9kg	2
14–19.9kg	2.5
20–24.9kg	3

TIP: If you are administering 1.5 or 2.5 tablets, you can easily split the ABC/3TC tablet down the middle on the solid line.

STEP 2: PREPARE THE ABC/3TC MIXTURE

Express breast milk into a separate clean glass or cup. Add around 10mL (2 teaspoons) of the expressed breast milk into the glass or cup with the tablets, and stir until the tablets dissolve.



TIP: If the tablets do not dissolve completely (i.e., they lump together), stir and slowly add about another 10ml (2 teaspoons) of extra expressed breast milk until the tablets fully dissolve.

STEP 3: GIVE THE MIXTURE TO THE CHILD

Give the mixture of breast milk and medicine to the child to drink. Make sure they drink all the medicine right away or within a maximum of 30 minutes.

TIP: If any medicine remains, add a little more expressed breast milk to the cup or glass and give it to the child. Repeat until no medicine remains in the cup or glass. Discard any unused mixture after 30 minutes.

NOTE:
Healthcare workers should discuss the benefits of exclusive breastfeeding for young HIV-positive infants with the caregiver as well as the importance of maintaining a suppressed maternal viral load when breastfeeding.

While reducing the burden of using multiple syrup formulations for the backbone ART regimen will simplify the treatment of young children, moving from a regimen with twice daily LPV/r syrup to the current World Health Organization (WHO) - recommended, DTG-based regimen will be game-changing.

Dolutegravir dispersible tablet

Following the WHO recommendation that Dolutegravir (DTG) should be the preferred third agent for children over four weeks of age and over 3 kg, several countries in Sub-Saharan Africa, including Botswana, Namibia and Zimbabwe, have implemented these recommendations. The dosing and efficacy recommendations for the DTG DT have been supported by the International Maternal Pediatric Adolescent AIDS Clinical Trials (IMPAACT) P1093 and Odyssey trials, with participants from SA.[4] In South Africa, DTG DT was approved at the end of June 2022 and will hopefully be adoption into the South African ART guidelines. DTG will be available as a scored 10 mg DT manufactured by generic manufacturers Macleods and

The move to simplified child-friendly formulations will go a long way toward closing the treatment gap between children and adults.

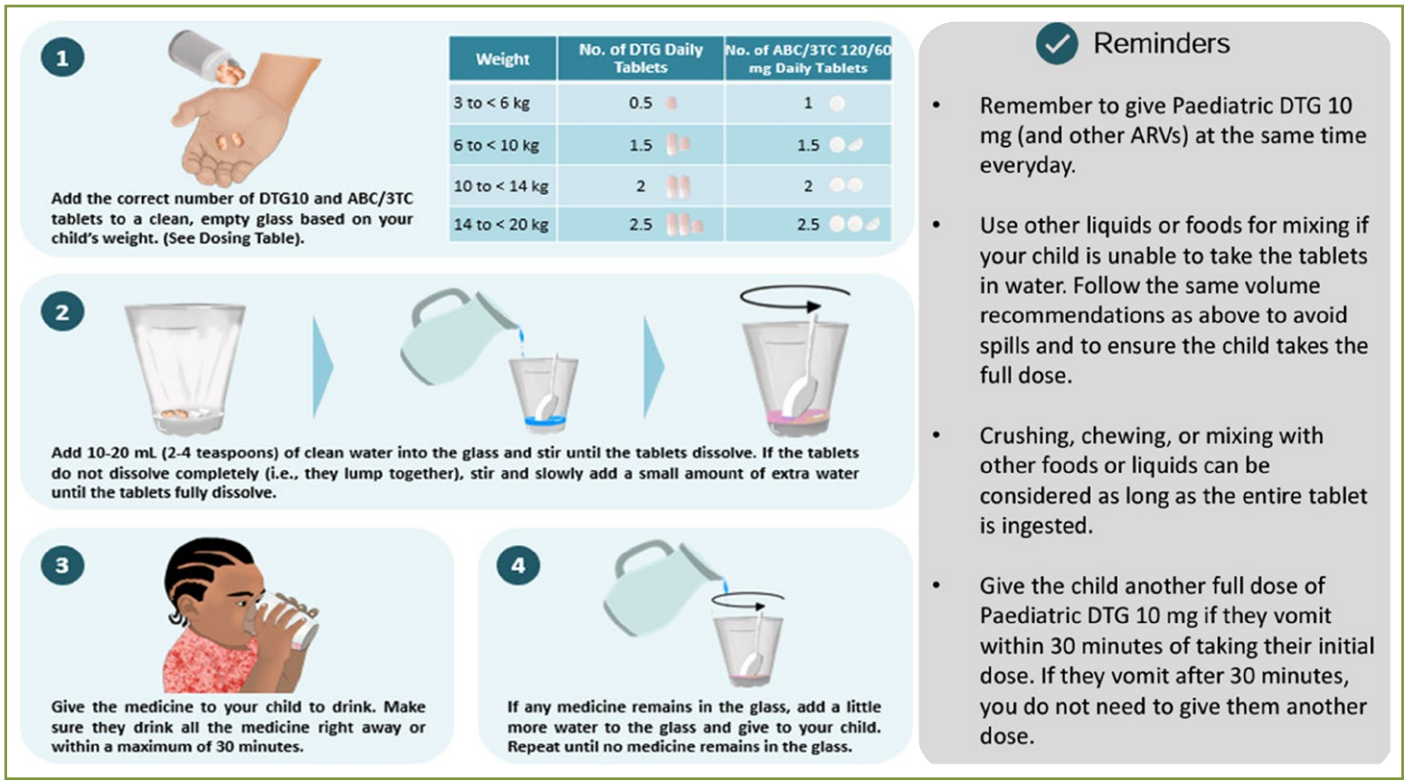
Viatris and a 5 mg DT manufactured by ViiV Healthcare. For patients accessing care through the Department of Health ART programme, the 10 mg DT is the most likely formulation that will be available.

As with the ABC/3TC DT, the administration of the DTG DT is relatively simple. The dose ranges from half a tablet daily in a child between 3 – 5.9 kg to two and a half tablets daily for children between 20 – 24.9 kg. The administration of the DTG DT is shown in the figure below.

Benefits of using the DTG dispersible tablet in children living with HIV[5]

- Superior efficacy
- Addresses pre-treatment drug resistance
- High genetic barrier (more difficult to develop resistance to DTG)
- Convenient once-daily dosing
- Limited caregiver training required
- Can be administered alongside dispersible ABC/3TC
- Better tasting
- Smaller packaging and easy storage
- Multi-month dispensing possible

Figure 2: The administration of the DTG DT



Conclusion

The move to simplified child-friendly formulations will go a long way toward closing the treatment gap between children and adults. While these formulations will not address all the adherence challenges facing children with HIV and their families, they will go a long way to lighten their burden. The dispersible tablet formulation is well tolerated and easily administered by patients and their caregivers. Dosing instructions for health workers are easily translated to a language that is understood by caregivers and patients, facilitating easy administration and good adherence.

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Cross-Sector Collaboration: The Impact of the Adolescent HIV Implementation Science Alliance - South Africa

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Among the nearly 900,000 adolescents ages 15 to 24 years old living with HIV in South Africa, it is estimated that only 10% are virally suppressed due to low rates of diagnosis, linkage, and retention in care[1]. There has also been a significant increase in HIV prevalence amongst adolescents aged 12 to 19 years in South Africa, from 3% in 2008 to 4.1% in 2017[2]. Countless interventions have been studied on small scales at each step of the HIV continuum of care across South Africa with the aim to lower the incidence of new HIV infections in adolescents and improve outcomes in adolescents living with HIV (ALHIV)[3]. These interventions have been varied in their location (taken place in schools and clinics), methodology (targeted education and improving decision-making), focus (testing and adherence), and methods of engaging adolescents (in-person and mHealth)[4,5]. However, most of these interventions have failed time and time again, repeating the same mistakes with little collaboration across sectors and institutions. There is a need to scale up effective interventions and services tailored to the needs of ALHIV, which may be possible through collaborative approaches.

What is the purpose of AHI(SA)²

The Adolescent HIV Implementation Science Alliance–AHISA–is an international research collaborative formed in 2017 funded by the United States National Institutes of Health's Fogarty International branch with the goal of exchanging ideas and identifying the most pressing challenges to implementing effective interventions for HIV prevention and treatment among adolescents[6]. The South African branch–AHI(SA)² (www.ahisa2.org)–began in 2020 to exchange ideas and information among researchers,

health officials, and clinicians involved with ALHIV in South Africa[7]. Through formal meetings and networking, the alliance has worked to identify significant challenges to implementing interventions for prevention and treatment of HIV among adolescents. By sharing approaches to implementation science, AHI(SA)^2 also provides seed funding to establish collaborations for implementation science research projects[8]. Year one focused on establishing the alliance, documenting existing adolescent-focused interventions in South Africa, improving knowledge of implementation science through meetings and granting seed funding to young investigators in the field of adolescent HIV. Year two has focused on organizing meetings across South Africa with the express desire to foster a collaborative research environment. AHI(SA)^2 is now entering its third year, with the goals of creating actionable cross-sector partnerships (including researchers, implementers and adolescents) to scale up effective interventions and create new interventions where needed while minimizing the duplication of ideas and resources.

AHI(SA)^2 Meeting in Cape Town

On 8 April 2022, 60 individuals representing the research, NGO, Department of Health, and medical sectors from various provinces attended the Cape Town regional meeting. After a networking lunch at the Radisson RED for the 35 in-person attendees, the meeting agenda began with a keynote

Figure 3: Mr. Emeka Okonji, a PhD candidate at the University of the Western Cape, discussing the development of a biopsychosocial model of adolescent ART adherence in Mpumalanga province.

speech by Dr. Graeme Hoddinott of the Desmond Tutu TB Centre. Dr. Hoddinott discussed his career using and forming theories of behavioral health to assess adolescent HIV prevention, particularly in the realm of sexual decision-making. He spoke about school-based interventions to promote healthy sexual-decision making, which have failed over and over again throughout the past two decades to reduce HIV risk in young South Africans. Dr. Hoddinott encouraged the group to be accepting of adolescent sexuality while including adolescents in the development of future interventions.

Next on the agenda was a panel led by Dr. Brian van Wyk of the University of the Western Cape that featured a HIV/TB/STI (HAST) programme medical officer from the Department of Health of the Western Cape, a medical doctor working for the non-profit Beautiful Gate, and a youth ambassador and technical advisor from ANOVA Health Institute. They discussed lessons learned from the ground of the adolescent HIV crisis, with hopeful messages about the resilience and empowerment of young people, an increasingly open-minded South Africa, and the potential for intergenerational communication to improve sexual decision making and ART adherence in ALHIV. They encouraged a life-course approach to sexual education, and recommended decentralized interventions in social and casual environments rather than clinics[9]. The panel was followed by a research presentation by PhD candidate Emeka Okonji, who has applied the biopsychosocial model to study adolescent HIV adherence in Ehlanzeni, Mpumalanga[10].

Finally, AHI(SA)^2 coordinator Dr. Brian Zanoni introduced six working group topics that arose from discussion during the previous meeting in Durban in December 2021: HIV prevention, HIV testing and linkage to care, retention in care, transition to adult care, mHealth interventions, and adolescent friendly services. Through informal networking and a large group discussion, ties began to form between attendees with different institutions, populations of interest, and career paths but who shared similar projects within the field of South African adolescent HIV.

Research Outputs from AHI(SA)2

Four collaborative studies addressing the adolescent HIV continuum of care led by junior investigators are underway with seed funding provided by AHI(SA)^2. These initiatives focus on mHealth for social support, telemedicine for adherence counseling, and other modern approaches to the adolescent HIV continuum of care in South Africa.

How to Join AHI(SA)2

The voices of HIV nurses are essential in adolescent HIV care, research, and programming. We would love your participation in our next hybrid meeting, taking place in July 2022, where we will continue to collaborate across sectors, seek out funding sources, and understand what interventions work for ALHIV. To join AHI(SA)^2, please fill out our membership form here: bit.ly/ahisamembership. Please visit the website www.ahisa2.org to find past plenary lectures, minutes of previous meetings, information on upcoming meetings, and to sign up for future working groups.

The Adolescent HIV Implementation Science Alliance–AHISA–is an international research collaborative formed in 2017 funded by the United States National Institutes of Health's Fogarty International branch with the goal of exchanging ideas and identifying the most pressing challenges to implementing effective interventions for HIV prevention and treatment among adolescents[6].

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Achieving Adherence in Adolescents with HIV

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I have been treating children and adolescents with HIV for over 25 years. When I started, we had no guidelines on adherence or disclosure. I really struggled and had to learn from my own mistakes. Now we have guidelines on adherence[1] but they're quite difficult reading. Adherence issues are invariably multifactorial.[2] Psychosocial factors are often key and need to be dealt with appropriately.[2] In this article, I will focus on a few practical aspects of adolescent adherence and hopefully give you some useful pointers that have I picked up over the years, and that you can use in your everyday practice.

Disclosure

It is unreasonable to expect an adolescent to take their prescribed treatment when they have no idea why they are taking it. So, proper disclosure is absolutely vital if we are to get our adolescents to take their treatment. Having said that, I do have one or two patients who know their diagnosis and are still not adherent. However, to sustainably take their treatment they need to be aware of why they are taking it. The problem is that, we as healthcare workers, are collectively petrified of disclosing to our adolescent patients as are the primary caregivers of our patients and as a result disclosure generally does not get done. See the article on page 16 by Dr Julia Turner on adolescent disclosure for tips on how to disclose to your adolescent patients.

Simplify

We all know that the best regimen for adult patients consists of one tablet once a day.[3] Yet how many of our adolescent patients are on twice daily regimens consisting of two, three, four or five tablets a day? We clearly need to do something about this if we're going to

One young woman in hospital placed her tablets under her legs and this was only discovered when the nurse came to help make her bed.

get them to take their treatment. There is a big move based on recent data to change our patients over 10 years old and over 35kg to a once daily regimen of tenofovir, lamivudine and dolutegravir (TLD)[4,5]. Please check the latest version of your guidelines or phone one of the helplines (see below) for guidance in changing your patients to a once daily regimen containing TLD. Even if it's not possible to put the patient on to TLD, it is often possible to change to another once daily regimen which is far preferable than a twice daily regimen. Zidovudine (AZT) always needs to be given twice daily so if the patient is on AZT as part of a second line with a protease inhibitor, they would need to change to another NRTI backbone which can be given once daily (e.g., Tenofovir disoproxil fumarate (TDF) / emtricitabine (FTC) I abacavir(ABC) / lamivudine(3TC).) Also, lopinavir/ritonavir (LPV/r) is generally given twice daily but in certain situations it can be given once daily. Alternatively, atazanavir/ritonavir (ATV/r) is a true once daily protease inhibitor which is really well tolerated and there is no problem to switch from LPV/r to ATV/r to aid adherence. In all of these cases, an expert at one of the helplines will be able to assist.

Simplification also applies to other drugs our patients are taking. For example, both cotrimoxazole and multivitamins add to our patients pill burdens. So, if they are not needed, then don't prescribe them.

Fitting the medication into the patient's lifestyle

Many years ago, it was taught that antiretrovirals had to be given at precisely the same time every day. There was perhaps some truth to it back then as the antiretrovirals (ARVs) didn't last long in the body. But over the years available ARVs have improved immensely and now last much longer in the body so there's no longer any need for them to be given exactly on time anymore[6]. We generally say you can give the medications up to 2 hours before or 2 hours after the time. However, if it is more than 2 hours after the time, they can still take the medication, even if it is the following morning (in the case of once daily medication) and then they will take the next dose that evening. However, patients are still being told to take their medication exactly on time even if that time may be very inconvenient for them. As a result, if they are late with a dose, they just miss taking it altogether. It is very important for us to fit the medication into our patient's lifestyle, but the only way we can do that is to find out what their lifestyle is. For once daily dosing, find out whether they would prefer to take ARVs in the morning or the evening. Most teenagers prefer the evening because the mornings are a rush to get ready for school, but if they prefer mornings, then go with that. It helps if there is something happening to remind them to take their medication (e.g., link medication taking to mealtimes). Alternatively, other patients prefer to set an alarm on their cell phone to remind them to take their medications. Discuss with the patient ways to remind themselves that suit their lifestyle.

Supervision

It has become apparent to me over the years that adolescents are masters at hiding their medication. They will put the medication into their mouths and as soon as their caregiver turns away, they will take it out their mouth and find some place to hide it. Examples I've come across include cracks in the wall, the toilet and under their bed. One young woman in hospital placed her tablets under her legs and this was only discovered when the nurse came to help make her bed. My best is an adolescent who came to the clinic with his younger brother and his brother admitted that the patient pretended to swallow his medications but then put his hand with his tablets in it behind his back and his brother took them out of his hand and threw them away. From these observations I have learnt that the only way to ensure that adolescents swallow their medication is for someone to actually watch them swallow it (and possibly even check their mouth afterwards). It's not good enough to remind the teenager to take their medicine because they'll say they've taken them, when they haven't. The responsible adults need to actually watch them swallow their meds. When should they start doing this? Around the age of 9 or 10 years when the youngsters are still pretty cooperative. They shouldn't wait until the non-adherence starts before starting to supervise them because it's often too late by then and they could resist this supervision.

In terms of getting buy-in from the teenager, I have a system that works pretty well. I ask the patient what sport they follow. I then ask them what would happen if their favourite team ran onto the field and their coach told them that he was going to a pub for a drink. Usually this horrifies the teenager who claims that there's no way he can go for a drink because the team won't play as well if he is not there. Then I ask, "Are you telling me that even though the coach is not playing the match, the team will not play as well if he is not there?" Of course, the teenager confirms this. I then explain that the teenager is playing the match of his life when he takes his medication and that his parent or treatment buddy is his coach. The role of his coach is to make sure that the teenager scores a goal for the right side. If he swallows his medications it's a goal for him. If

he throws the medication away it's a goal for the virus. I explain that we treat HIV as a team. The patient is the player, the parent or treatment buddy is the coach and I am the manager and it is all of our roles to make sure that the patient scores a goal for their side. Mostly the adolescents buy into this and it makes it relatively easy for their caregivers or treatment buddies to watch them swallow their tablets. Having said that, there will always be exceptions to every rule and there are some teenagers who refuse to be watched, are very rebellious and won't take their medications. Contact one of the helplines in this regard. Usually, at some stage we get to a point where the teenager suddenly clicks and starts taking responsibility for their own health and takes their medication on their own. In my experience, this usually happens between 17 to 25 years of age, but it can vary from patient to patient. Our goal is just to make sure that we keep the patient taking their treatment and remaining virally suppressed until such time as they are able to manage it by themselves.

Choose your regimen wisely

Some regimens (e.g., efavirenz-based regimens) develop resistance very quickly, even within a few weeks of non-adherence. We call this having a low genetic barrier to resistance[7]. Others (e.g., dolutegravir- or PI-based regimens) have a high genetic barrier to resistance and take a long time to develop resistance[7]. That is why it is better to have a patient on a TLD regimen than a TEE regimen because the TLD regimen is more forgiving of poor adherence than the TEE regimen. So where possible, switch your patients to TLD as per the latest guidelines.[3]

Depression and ADHD

Both depression and attention deficit syndrome with or without hyperactivity (ADHD) are very common in children and adolescents with HIV[8,9]. Can you imagine what sort of impact these diagnoses will have on adherence - if a adolescent doesn't want to live, why would they take their medication? If a adolescent can't keep still for one second and their attention is jumping all over the show, how are they going to remember to take their medication? Teenagers and their parents will usually not tell us that they are feeling depressed or that they are having problems at school. For this reason, one should always ask if the patient is feeling down or if they've struggled at all at school. Both depression and ADHD can be managed, and this can make the difference between an adherent patient and one with treatment failure, and drastically improve their quality of life.

Summary

This is not a comprehensive discussion about adherence in adolescence. By all means please do refer the patient for adherence counselling and therapy if needed. Rather this article contains some practical tips which I have found to be useful over the years. I hope you find this article to be useful as well and please feel free to contact one of the hotlines for any assistance:

- **Right to Care Adult, Paediatric and Adolescent HIV Helpline:** 082 352 6642
- **National HIV & TB Health Care Worker Hotline:** 0800 212 506, SMS/Please Call Me/WhatsApp to 0718401572 or download the app here: http://onelink.to/hotline-app

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How to tell a child or teenager they have HIV

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Possibly the hardest part of managing a child or adolescent perinatally infected with HIV, is telling them that they have HIV. Parents and caregivers (PCG) are often terrified of telling their child and will put it off for as long as possible, sometimes up to 18 years or older. This can lead to major problems:

The adolescent may:

1. become sexually active and might risk transmitting HIV unknowingly;
2. stop taking their treatment because they don't know why they should; and
3. find out that they have HIV through other means such as by googling their medicine, reading the notes in their clinic file, testing for HIV, or clinic staff discussing HIV in front of the adolescent, thinking that they already know. This can lead the adolescent to feel shocked frightened, depressed and alone; angry with their PCG for lying to them and feeling like they cannot talk to anyone about it because no one spoke to them about it.

It is therefore vital for clinicians to make sure that children and adolescents are disclosed to at the right time and in an age-appropriate and supportive way.

Benefits of disclosure

The benefits of disclosure usually far outweigh any potential risks as long as the adolescent has normal cognitive function, maturity and mental health[1-8]. Benefits of disclosure for adolescents include:

1. Improved adherence to medication, and general healthcare, being able to take part in medical decisions, take control of, and responsibility for, their own health;
2. Knowledge of the 'truth', acceptance of their diagnosis, improved psychosocial wellbeing and mental health;
3. Being able to discuss and set life and treatment goals;
4. Allowing for access to health education, sexual and reproductive health (SRH) education, social support, and participation in adolescent peer support groups;
5. The prevention of unknowing transmission of HIV to partners, babies and siblings;
6. Prevention of the adolescent finding out their HIV-positive status themselves and not having the benefit of proper support; and
7. Improved focus and performance at school[1-8].

The benefits of disclosure for PCGs include relief, acceptance from and reconciliation with their C/ALHIV, cessation of secrecy, reduced depression and improved mental health, and better communication with the adolescents in their care[2].

At what age should you tell a child/adolescent they have HIV?

The South African National Department of Health (SANDoH) recommends partial disclosure from 3 years old and full disclosure from 10 years onwards[7]. Ideally full disclosure should take place between 10 and 13 years old if the child is of normal cognition and maturity, making sure that it is done before sexual debut.

Who should tell the child/ adolescent they have HIV?

PCG fear that their child will become depressed, suicidal, blame them, become angry with them or hate them, and they are scared of not being able to answer their questions. Furthermore, some adolescents have reported poor experiences of disclosures by PCGs who

had no support and limited knowledge of HIV[4,9,10]. The SANDoH disclosure guidelines therefore recommend that healthcare workers (HCW) should prepare and support the PCG to disclose to the C/ALHIV[7].

How should you tell a child/ adolescent that they have HIV?

Disclosure should be a gradual process over many years, advancing from planning, to partial disclosure, assessment for full disclosure-readiness, full disclosure, post-disclosure, and ongoing support[2,7-9,11-16]. PCG should be prepared for and supported through each step. HCW should make sure to use age-appropriate language, pictures where possible, excellent counselling skills, be aware of emotions, use an appropriate private space, and refer to psychologists and social workers when necessary[2,7-9,11-16]. The PCG can play whatever role they are comfortable with; you can teach them what to say and they can do it in their own time, or with you, or you can do the talking while the PCG is present.

Partial disclosure:

It is important to tell children under 10 years why they need to take medication every day, otherwise parents are inclined to make up reasons when their children ask them, such as "you have TB", or "asthma", or "if you don't take your treatment you will die". These reasons may distress the children and they tend to become angry when they find out that they were lied to. It is therefore better to "partially disclose", i.e. to tell the truth about their illness without mentioning the name "HIV", until they are old enough to be told that they have HIV and are able to understand the implications of the diagnosis.

An example of partial disclosure is as follows:

Parents and caregivers (PCG) are often terrified of telling their child and will put it off for as long as possible, sometimes up to 18 years or older.

Figure 4: Partial disclosure

This story can be added to as the child grows older saying *"the reason you were born with not enough soldiers, is because you were born with a virus which kills your soldiers (white blood cells). The medicine we give you makes that virus sleep so that it can't kill your soldiers".*

Full disclosure:

Once CLWH are over 10 years old and are ready to be told they have HIV, and the PCG is in agreement, they can be asked if they would like to know the name of the virus that they were born with. Always remember to ask the PCG if they are willing to disclose their own status to their child, as this will make it easier for the child to know that they are not alone.

> **Important Tip:**
> Try to dispel the horrible myths and stigma around HIV before you tell the C/ALWH that they have HIV

C/ALWH often learn negative myths about HIV from their community, friends and school, such as "HIV kills", "people with HIV are promiscuous or bad" and "people with HIV can't live a normal life". It is therefore extremely important to educate C/ALWH and dispel all of these myths, before you tell them they have HIV. You can find ways to educate them e.g. holding education sessions in the clinic or telling their parents to teach them about HIV from a young age. The important things to tell them include:

1. These days we have very good treatment for HIV, so people living with HIV (PLWH) can remain perfectly healthy and never get AIDS.
2. PLWH can live as long as people without HIV if they take their treatment every day.
3. Anyone can have HIV and it does not make them different/bad. Many people around you have HIV and you do not know because they are just as healthy as those without HIV.
4. PLWH can have relationships and have children, and if they are taking their treatment and have a suppressed viral load, they will not transmit HIV to their sexual partner or children.
5. Living with HIV does not prevent people from living a completely normal life and following any career they want.

If the adolescent has not yet been educated on these above 5 points and you would like to do full disclosure immediately, you can use a method developed by specialist HIV paediatrician Dr Leon Levin, in which you play a game with the adolescent called "Guess the infection". The adolescent is asked to name any illnesses or infections they know e.g. TB, flu, measles etc. They are then asked what they know about these illnesses, and then whether they think they could have that infection. After discussing a few others, ask if they know HIV and ask what they know about HIV. Use this opportunity to fully explore myths and stigma around HIV and to correct them, ensuring they understand the above 5 points.

What I personally do next, is to ask the adolescent if they think I could have HIV? They usually answer "no", to which I explain that I definitely could have HIV and I could still be a HCW and live a long healthy, completely normal life. I ask them if they would think I am different or bad or if they would still be my friend if I had HIV. Only once the adolescent has accepted that I could have HIV and not judge me negatively, do I move on to ask if they think their parent could have HIV, and go through the same process of asking if it would change how long the parent would live, or whether it would make them different or make them love them less. Only once the adolescent has agreed that it would not change anything if their parent had HIV, do I ask them to ask their parent if they have HIV. Once the parent has disclosed that they have HIV, I encourage them to give their parent a hug to show that they still love them. Once the adolescent has accepted that their parent is living with HIV, I ask them if they think they could have HIV and whether that would change their life or self-image. Only once they have agreed that it would not change their life if they have HIV, do I ask them to ask their PCG if they have HIV. At this point the PCG can disclose the adolescents' HIV status. I then allow for more hugs, reassurance, and any questions the adolescent might have.

Each child and situation is slightly different so it's important to be flexible and involve the parents/caregivers as much as possible.

It is important to tell children under 10 years why they need to take medication every day, otherwise parents are inclined to make up reasons when their children ask them, such as "you have TB", or "asthma", or "if you don't take your treatment you will die". These reasons may distress the children and they tend to become angry when they find out that they were lied to.

Post disclosure:

Once the adolescent has been disclosed to it is very important to make sure they know the following things:

1. Repeat the 5 points mentioned above, now relating to the adolescent themselves.
2. It is not their mother's fault that the adolescent got HIV. When their mother was pregnant we did not have such good medicine, so many babies got HIV from their mothers, but nowadays we have very good medicine so if an adolescent wants to have a baby one day the medicine will be able to prevent their baby from getting HIV.
3. It is not their parents' fault they have HIV: millions and millions of people in the world have HIV and they did nothing wrong and they are no different to anyone else. You can't tell who has HIV by looking at them because they will be healthy when they are taking their medication.
4. They are allowed to keep their HIV status a secret, and are allowed to lie about it if their friends or strangers ask, because some people don't know enough about HIV and might think that it means they are going to be very sick or treat them differently. It is up to them and their PCG to decide who they think deserves to know.
5. When they are ready to have a boyfriend/girlfriend or become sexually active they can come to the clinic to discuss how or when they would like to tell their sexual partner about their HIV status.
6. They should know how much their PCG loves them and be grateful for all the effort they put in over the years to make sure that they took their treatment every day to keep them healthy.
7. They must feel free to come into the clinic any time to ask any questions they have or discuss anything they are struggling with.

Conclusion

Supporting PCG to disclose to tell their child or adolescent that they have HIV can be scary, but is very rewarding when done well, and can make a huge difference to the child and PCGs life. I encourage you to ensure that every C/ALWH you see receives the disclosure support they need.

Links for more information:

1. SANDoH Disclosure guidelines for children and adolescents in the context of HIV, TB and non-communicable diseases Available from: https://chivasouthafrica.org/wp-content/uploads/2020/01/1.-HIV-disclosure-guideline-for-children-and-adolescent-2016_1-1.pdf
2. Mini flipster disclosure tool: https://drive.google.com/file/d/1pZQ44ext2INK_1BI7AXIZ0T70TMmRxB7/view?usp=sharing
3. Recording of disclosure training: https://drive.google.com/file/d/1H3dB6HbGVx-tmYeIdz9vpC8OFNcMv6HT/view?usp=sharing
4. Right to Care HIV Helpline on: 0823526642

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Cotrimoxazole prophylaxis guidelines for infants exposed to HIV: making sense of the discrepancies

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Cotrimoxazole (a fixed-dose combination of trimethoprim-sulfamethoxazole) (CTX) is a broad-spectrum antibiotic which is used to prevent (as prophylaxis) *Pneumocystis carinii* (now *jirovecii*) pneumonia (PCP) in immunosuppressed adults and children who are infected with HIV[1-3].

The World Health Organization (WHO) first formulated guidelines in 2000 recommending that all infants born to women living with HIV (WLHIV) should receive daily CTX prophylaxis until they are tested negative at least 6 weeks following last HIV exposure[4]. These guidelines were reasonable at the time but are now out of date and need to be revised. At the time the original WHO guidelines were drafted there were no randomized controlled trials (RCTs) testing whether CTX prophylaxis would be effective for all children born to WLWH, the vast majority of whom are HIV-exposed but uninfected (HEU). The 2013 WHO guideline group meeting made a call for RCTs to evaluate the clinical impact of CTX prophylaxis on children who are HEU[5]. In response to the call, two RCTs were set up in Southern African countries – Botswana[6] and South Africa[7]. These two countries were chosen as they have a high HIV burden amongst women and relatively good prevention of mother-to-child transmission (PMTCT) programmes, making them 2 of 5 countries with the highest percentage of infants who are HEU. Both RCTs showed conclusively that CTX prophylaxis to children who are HEU does not reduce mortality or morbidity[6, 7].

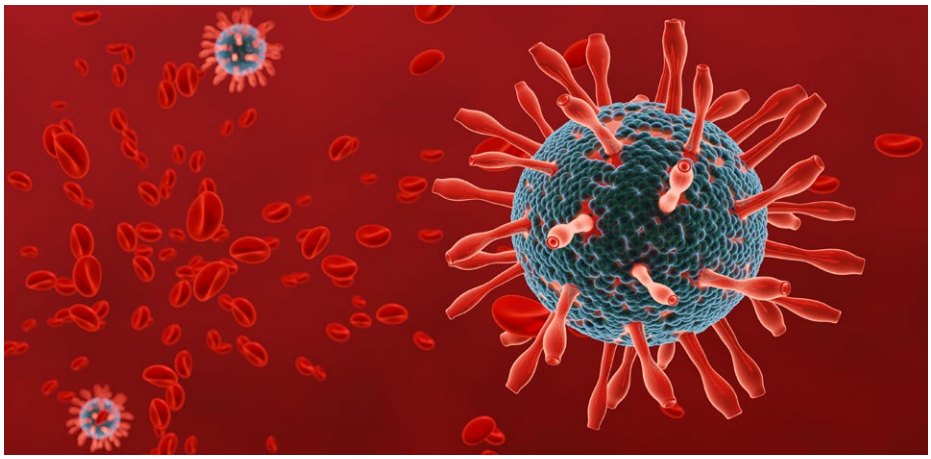
In addition to ignoring these two RCTs, the current WHO guidelines (2021) are out of date because they ignore major improvements in PMTCT and HIV care and treatment programmes that have occurred over time and which have substantially reduced the numbers of infants who will acquire HIV. Thus, theoretical benefits of CTX for a small minority of infants who are infected do not outweigh the risks for the majority. Unfortunately, although acknowledging these changed circumstances, WHO did not make clear changes to their guidelines in 2021.

Here we offer advice to health care workers in this circumstance of different recommendations from different sources.

Over time there has also been growing awareness of the importance of careful antibiotic stewardship to reduce the dangers of widespread antibiotic resistance. Both the RCT in Botswana and in South Africa showed the development of increased resistance with routine CTX prophylaxis[8,9]. Additionally, CTX prophylaxis not only increased resistance to CTX but to other antibiotics, notably amoxicillin[8]. This is a concerning finding since this is first line treatment for infant pneumonia in many primary healthcare guidelines. *In fact, in the WHO AWaRE antibiotic recommendations, amoxicillin has been assigned an "access" category, requiring countries to ensure its availability and to maintain uninterrupted supply chains because of its safety, efficacy and "lower potential for resistance"*[10].

In addition, other risks associated with CTX prophylaxis were detected. A sub-study in the South African study[9] showed an increase in gut microbiome dysbiosis at 4 and 6 months of age in the infants who received CTX (gut microbiome dysbosis is any change the gut microbiome composition that is different from a similar healthy population, and could result in an unhealthy outcome). What is the danger of disturbing the microbiome of infants? Exclusively breastfed infants have a "gold standard" microbiome – predominantly colonized by *Bifidobacteria*, and breastmilk, with its high concentration of oligosaccharides, provides a perfect substrate for *Bifidobacteria*. Evidence shows that when this microbiome is perturbed, especially in the first few months of life, there are negative health implications (such as asthma, allergies, diabetes, inflammatory bowel diseas, metabolic disease and neurobehavioural disorders)[11,12].

In the light of the evidence from these two RCTs showing no benefit for mortality and morbidity of CTX prophylaxis and some potential harms, several scientists and paediatricians, both in South Africa[13] and internationally, have argued that CTX should no longer be used routinely for prophylaxis among children born to WLWH. The South African Thoracic Society agreed with this position and issued an updated guideline in 2020[14] recommending discontinuation of routine CTX prophylaxis for infants who are not HIV infected.



Over time there has also been growing awareness of the importance of careful antibiotic stewardship to reduce the dangers of widespread antibiotic resistance.

How did WHO respond to this information of no clinical benefit of CTX prophylaxis for infants HEU and yet harms of microbiome dysbiosis and development of resistance of bacteria to CTX and amoxicillin? Unfortunately, a choice was made by the team to place emphasis on a modelling exercise commissioned by the WHO which favoured retaining CTX prophylaxis. Unfortunately, this modelling exercise had not been peer reviewed at the time it was used to influence the decision. It has since been presented at a conference[15] but is still not peer reviewed and has serious flaws. Had it been peer reviewed prior to the WHO meeting it is unlikely that it would have influenced the guidelines in the way that it did.

The lack of change in the WHO guidelines is concerning because in addition to discounting the results of two large RCTs, the WHO guidelines have also not taken into account the changing context in healthcare over the last two decades:

1. **Significant improvements in PMTCT and infant HIV diagnosis**

   The last two decades have seen significant reductions in mother to child transmission (MTCT) of HIV from approximately 30% to below 10% globally and as low as 3.9% at the end of 12 months breastfeeding in South Africa[16]. Infant diagnosis has improved dramatically from HIV antibody testing at 18 months

of age to virological testing at birth. This means that far fewer infants are born infected, they are likely to be diagnosed early, and far fewer infants will be infected during breastfeeding. This translates to millions of infants who are HIV exposed but uninfected (HEU), with South Africa having the highest numbers – estimated to be about 3.5 million[17].

2. Significant improvement in health of HEU infants over the last 21 years

New vaccines (Hep B, Hib, pneumococcus and rotavirus) have resulted in significant reductions especially in pneumonia in both HIV infected and uninfected infants[14, 18, 19]. Finally, research has led to a re-affirmation of the importance of exclusive breastfeeding for improving health and development of children[20] with valuable strides being taken by governments to improve breastfeeding practices. South Africa especially has seen dramatic improvements in rates of exclusive brestfeeding (EBF)[21].

In 2020, the National Essential Medicines List CTX prophylaxis guidelines were amended as follows: *'All HIV-exposed or infected infants, to be initiated on CTX prophylaxis starting from 6 weeks of age. If birth and 10 weeks PCR are both negative then CTX prophylaxis should be discontinued'*.[22] While 8 weeks of CTX is certainly better than a longer course of approximately 12 months of antibiotics, it is still problematic because of the very large number of infants in South Africa who are affected (approximately 310 000 [190 000 – 400 000] infants annually in South Africa)[16] and would receive a drug with no benefit and several potential harms and carrying obvious costs to the health service.

In contrast, the 2017 Department of Health Hospital Level (Paediatrics) Standard Treatment Guidelines and Essential Medicines List for South Africa 4th Edition, published an updated chapter for Paediatric HIV in 2021. This guideline proposes: "Babies born to mothers that are not virally suppressed (high-risk exposures) should

Table 1: Summary of healthcare context improvements and disadvantages of cotrimoxazole prophylaxis.

Improvements in Healthcare Context	Disadvantages of Cotrimoxazole prophylaxis
Improved vertical transmission rate: from ±30% to <5%	No effect on mortality outcomes in HEU infants
Improved PMTCT: peri-partum ARV prophylaxis for infant and mother vs maternal ART during pregnancy and breastfeeding with infant ARV prophylaxis	No effect on morbidity outcomes in HEU infants
Improved infant vaccinations: Hepatitis B, pneumococcus, Rotavirus and *Haemophilus influenzae* type B	Increased microbiome dysbiosis, which likely results in long-term adverse health outcomes
Increased support for breastfeeding	Increased resistance to several antibiotics
Improved infant HIV diagnosis: ELISA at 18 months to birth PCR testing	Confusion for mothers that CTX may act as prophylaxis against HIV

ELISA, enzyme-linked immunosorbent assay; PCR, polymerase chain reaction; HEU, HIV exposed uninfected; CTX, cotrimoxazole

be given cotrimoxazole from 6 weeks of age until the result of their 10-week PCR test is available. If 10-week PCR is negative and the mother remains not virally suppressed or engaging in mixed feeding, continue cotrimoxazole prophylaxis until HIV status confirmed; however if mother is virally suppressed discontinue use of cotrimoxazole prophylaxis. Babies born to mothers who are adherent with their ART regimen and are virally suppressed (low risk setting) should not be given cotrimoxazole if Birth PCR is negative. Cotrimoxazole should only be initiated in the unlikely situation that such babies are subsequently confirmed to be HIV infected. Babies with a positive HIV PCR should be started or continued on cotrimoxazole prophylaxis as per current guideline."[23]

Clearly, South Africa must take into account harms associated with routine CTX prophylaxis (antibiotic resistance, gut dysbiosis) among the majority of infants who are HEU who do not benefit from being given CTX. Furthermore, the perception that routine CTX prophylaxis cover is needed in the event that there may be undiagnosed infants is problematic, since in South Africa with our fairly robust PMTCT programme the likelihood of missing an infant who is undiagnosed and HIV infected is extremely unlikely. Further, these same infants are unlikely to be accessing HIV testing services and therefore equally unlikely to be accessing CTX prophylaxis or HIV treatment.

What then would be the most logical CTX prophylaxis guidelines taking into account ethical and public health issues:

1. CTX prophylaxis for infants who are HIV infected commencing at 6 weeks of age.
2. NO CTX prophylaxis for infants who are HIV exposed, uninfected or undiagnosed.
3. Infants without a diagnosis are to be considered uninfected until proven to be infected or clinically-suspected.

Finally, complete discontinuation of the CTX prophylaxis programme for all those who are not HIV infected will free up resources spent on procuring, transporting, storing, and administering CTX which could rather be channelled towards other strategies with proven reduced risk of infectious disease morbidity in HEUs viz: access to early HIV diagnosis of infants, linkage to care for infants and children living with HIV, improved maternal health, and continued support for child health services that are of benefit regardless of HIV status – e.g. immunizations and breastfeeding support.

It is crucial that the CTX guideline changes are uniform throughout Department of Health documents, and that these changes are included into the hospital and primary health care essential medicines lists, as the primary health care versions are most likely to be used in PMTCT settings where the majority of initiating vs discontinuing CTX prophylaxis decisions will be made.

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Results for Action reports for tracing HIV PCR positive babies

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Background

Every year in South Africa around 300 000 infants are born to HIV-infected women of whom an estimated 10 000 will become HIV-positive[1]. Without early infant diagnosis (EID) and prompt access to antiretroviral therapy (ART), infants and young children develop rapid disease progression with as many as half expected to die by two years of age[2,3].

Because HIV can be transmitted from mother-to-child during pregnancy (*in utero*), as well as during delivery (*intrapartum*), and via breastmilk (*postnatally*), it is important to test infants at multiple time points. South Africa's EID guidelines recommend all HIV-exposed infants to have HIV PCR testing at birth, and if they test negative, to have repeat testing at 10 weeks and 6 months of age; as well as at the end of breastfeeding. Additionally, all children should have a rapid HIV test at 18 months of age and if they test positive should have a confirmatory HIV PCR test[4]. Hence, mother-infant pairs frequently follow-up at multiple facilities during the postnatal period, creating challenges with ensuring results are returned timeously, acted upon appropriately and that no newly diagnosed HIV-infected infants are lost to follow up. In particular, the return of birth HIV PCR tests to patients is a challenge because specimen collection and result return generally occur at different facilities.

Results for Action reports

HIV PCR Results for Action (RfA) reports were developed by the Paediatric HIV Surveillance Team at the National Institute for Communicable Diseases (NICD) to support improved linkage to care and reduced loss to follow up

Without early infant diagnosis (EID) and prompt access to antiretroviral therapy (ART), infants and young children develop rapid disease progression with as many as half expected to die by two years of age[2,3].

within the EID programme. The RfA reports are Excel spreadsheets that comprise patient-level consolidated National Health Laboratory Service (NHLS) results, along with associated patient demographic (e.g. name, age and sex) and contact details (where provided on the NHLS request forms). They also contain a 'previous history' sheet which provides prior test results for patients in the current RfA report.

The HIV PCR RfAs assist healthcare workers with identifying patients in urgent need of care, specifically with tracing infants with HIV PCR positive results who require linkage to care for confirmatory HIV testing and initiation of ART – both of which should ideally be performed at the same visit within one week of an infant testing HIV PCR positive. The reports also contain other non-negative results (i.e. indeterminate and rejected specimens) as these patients also require repeat HIV testing as a matter of urgency. The RfAs are available at district level, which can assist with identifying repeat testing of a single baby at more than one facility. The prior testing sheet of the report also assists with clarifying whether confirmatory testing has already been done elsewhere.

The RfAs form part of the National Consolidated HIV Guidelines, 2019, as well as the National Department of Health's Paediatric and Adolescent HIV Matrix of interventions. In addition to the HIV PCR RfA reports, there are HIV ELISA RfA reports for diagnosis of children, adolescents and adults. There are also HIV VL RfAs for identifying patients on ART who are not virally suppressed and therefore require urgent follow up. The HIV VL RfA also includes the maternal VL electronic gatekeeping (eGK) codes which enable monitoring of VLs during antenatal care, delivery and postnatally for mothers living with HIV. Improved usage of the eGK codes would assist PMTCT programme staff with identifying high risk mothers for urgent management. This would in turn reduce the number of babies who test PCR positive. Table 2 summarises all the RfA reports currently available through the NICD Self-Service Portal.

Table 2: Currently available RfA reports

Report Name	Description
HIV PCR RfA Report	HIV PCR results authorised by NHLS laboratories since the previous report, and any prior HIV PCR results for these patients.
HIV VL & CD4 RfA Report (<19 yrs)	All quantifiable HIV VL results authorised by laboratories since the previous report, including prior consecutive VL >1 000 copies/ml for these patients; CD4 results reported for 0 to < 5 year olds: % CD4 <15% and for 5 to < 19 year olds: CD4 <500 cells/mm^3.
HIV ELISA RfA Report (< 19 yrs)	All HIV ELISA results, including all prior HIV results (ELISA, PCR, VL) for these patients.
HIV VL RfA Report (all ages)	All HIV VL results >50 copies/ml authorised by NHLS laboratories since the previous report, including prior consecutive VL >1 000 copies/ml for these patients. Maternal Electronic Gate Keeping Groups (i.e. antenatal, delivery, postnatal, or other) are represented in the additional column "Maternal eGK Group', and all HIV VL rejections are reported.
TLD Transition HIV VL RfA Report (≥10 yrs)	All HIV VL results <1 000 copies/ml authorised by NHLS laboratories since the previous report, including any prior VL results between 50–1 000 copies/ml.
HIV ELISA RfA Report (all ages)	All HIV ELISA results, listed alphabetically by patient surname.
CrAg* RfA Report	All results for patients with CD4 <100 and a positive CrAg result, and CD4 <100 cells/mm^3 with no CrAg test performed that were authorised by laboratories in the past 7 days.

* *Cryptococcal Antigen Test*

Current RfA report usage

There are currently 782 users registered to access one or more HIV RfA reports nationwide, with 267 users registered to access HIV PCR RfAs. Of those registered for the PCR RfAs, the majority (40%; 106/267) are nurses, followed by facility managers (15%; 40/267). The PCR RfAs are downloaded regularly, with 458 downloads reported for March 2022.

Responses from an online survey of healthcare workers registered to use the RfAs described the reports as beneficial because "clients' results are identified and actioned faster", the reports enable "prompt tracking and linkage to care" and "it helps to have a list of patients that need attention in one glance". For those who are managing several facilities or a whole district, advantages of the RfAs include identifying "which facilities need more support" and that it is "easier to work from one list".

How to access RfA Reports

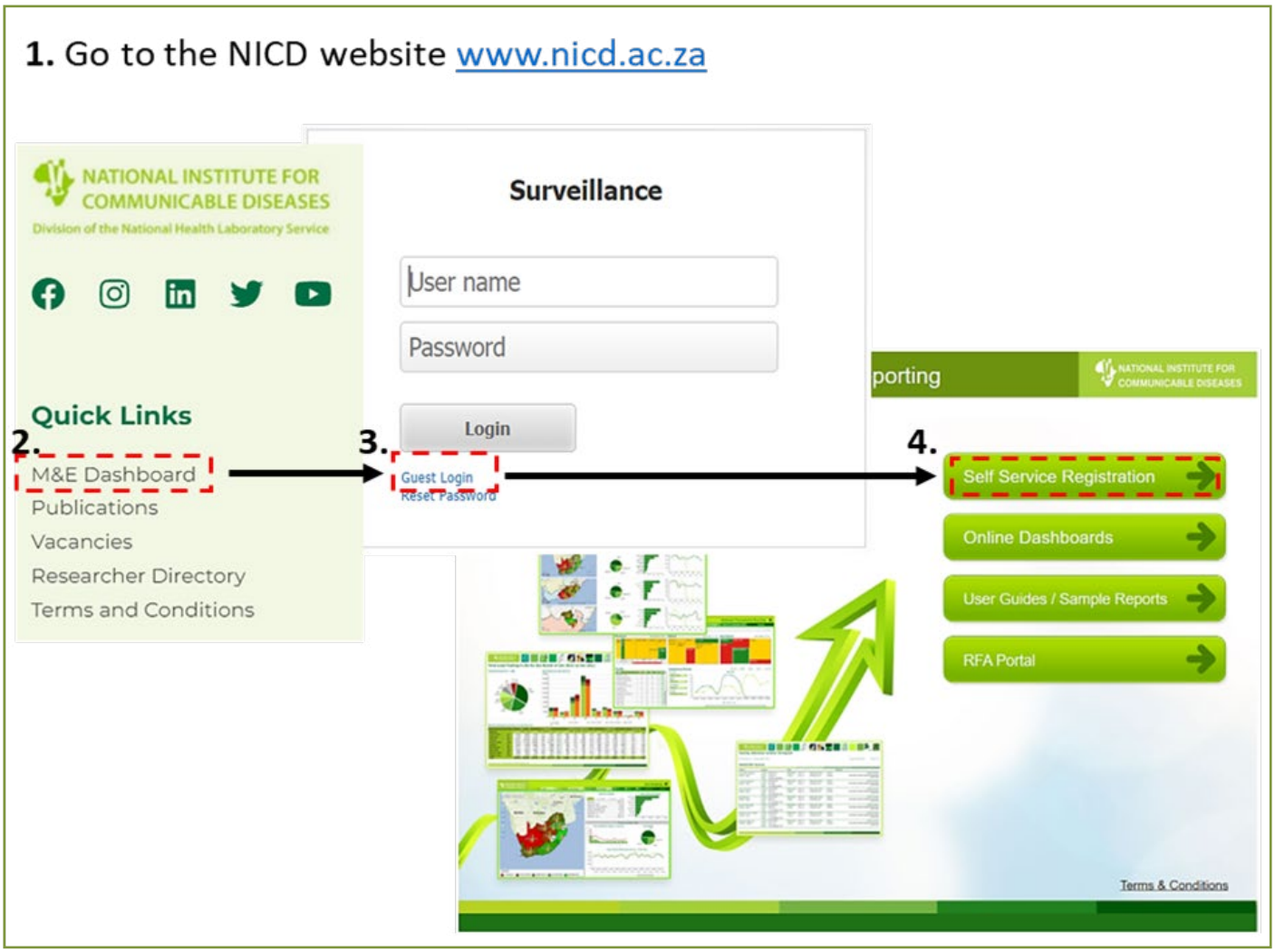
Healthcare workers can register for the RfA Reports through the NICD self-service portal (Fig. 5). During the registration process it's important to select the specific RfA reports which you require. RfAs can be generated on a daily and/or weekly basis, and are available at facility and/or district level. Once registered the reports are accessed via the RfA portal on the NICD website - a link is also emailed to users on a weekly basis as a reminder. It's important to remember that as the RfAs contain sensitive personal identifying information, they must be managed in a responsible manner to ensure patient confidentiality. To assist users with maintaining compliance with the Protection of Personal Information Act, Act 4 of 2013, all RfA recipients must watch the training videos and agree to the terms and conditions at time of registration.

Why use the HIV PCR RfAs?

- Consolidated results report for infants who have tested PCR positive at facility or district level
- All results from the week available in one report
- Includes previous tests per infant even if performed at a different facility
- Allows tracing of birth PCR positives where follow up is generally at a different facility

All healthcare workers who are involved in the management of individuals living with HIV and are not yet registered to receive RfA reports are encouraged to do so.

Figure 5. Instructions for registering on HIV self-service portal to access RfA reports



Improving RfA reports

As the RfA reports rely on routine laboratory data, it is important to ensure that NHLS request forms are completed as accurately and comprehensively as possible. This includes ensuring the correct and consistent capturing of patient demographic details (i.e. name, surname, and date of birth) as well as up to date contact details such as patient telephone number and address. The use of maternal instead of infant demographics on birth HIV PCR specimens should be avoided. This information can be invaluable in tracing patients and bringing them into care. Furthermore, when available providing the patient's National ID number (or a passport number for foreign nationals) can greatly assist in linking multiple test results to a given patient and providing a longitudinal testing history of patients requiring urgent care. Maternal VL eGK codes should also be captured for all mothers' HIV VLs done during pregnancy and breastfeeding. The eGK codes are a) C#PMTCT for pregnancy and breastfeeding and b) C#DELIVERY for day of delivery (and up to 6 weeks post-partum if the mother's delivery VL was missed).

Conclusion

The HIV PCR RfAs, and the other RfA Reports, were developed in response to the need to urgently identify patients who require immediate follow up. This includes infants who test HIV PCR positive at birth for linkage to care and early initiation of treatment. The RfA reports are regularly and widely used by healthcare workers in South Africa to improve patient outcomes. All healthcare workers who are involved in the management of individuals living with HIV and are not yet registered to receive RfA reports are encouraged to do so. This article is intended to increase awareness of the RfA reports and provide information on how to access them with the aim of achieving increased use of the RfA reports for improving patient outcomes.

For further assistance, please access the RfA user guide (https://mstrweb.nicd.ac.za/MicroStrategy/documents/SSP/SSP%20Training%20Card.pdf) or contact the Paediatric HIV Surveillance Team on HIV@nicd.ac.za | 011 555 0484.

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We are the generation that will end HIV: Pre-exposure Prophylaxis in Adolescents and Young People

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The importance of PrEP for adolescents and young people

HIV remains a serious public health concern among young people. Worldwide, adolescents and young people (AYP) aged 15 – 24 years accounted for nearly 30% of new infections in 20191. HIV also has a disproportionate impact by gender. In sub-Saharan Africa, 8% of new infections were among young males compared to 25% among young females in 20202. There are many reasons why AYP are vulnerable to HIV. Social, developmental and psychological changes occurring in adolescence and early adulthood influence risk behaviors[3,4]. AYP are also vulnerable to age-disparate relationships and socio-economic factors that can limit their ability to be protected from HIV infection. Girls and young women are more vulnerable because of societal and economic gender inequalities. Lastly, AYP may also belong to key populations – sex workers, men who have sex with men (MSM), people who inject drugs (PWID), transgender people and prisoners who endure discrimination, marginalization and increased risk. Globally, in 2020, the HIV prevalence was 4% in young sex workers, 6% in young MSM, 5% in young PWID, 11% in young transgender people and 1% in young prisoners[1]. Therefore, young key populations should not be forgotten when focusing on improving programming for AYP.

To reduce HIV infections among AYP, comprehensive HIV prevention measures that are tailored to young people's needs are critical. Biomedical approaches such as voluntary medical male circumcisions and pre-exposure prophylaxis (PrEP) are essential components of comprehensive HIV prevention. PrEP is highly effective in preventing HIV[5-7] with efficacy of

up to 96%[8]. Global uptake of PrEP is increasing, and in 2020 South Africa was among the two countries in eastern and southern Africa that accounted for 19% of people who received PrEP in the region[2]. Currently, in South Africa around 415 500 people are estimated to have initiated PrEP, surpassing the PEPFAR PrEP target for the country of 224 9059. Among 15 – 24 year-olds, 161 597 initiated PrEP between April 2020 – December 2021 in South Africa[10]. Although these figures are promising, an estimated 79 000 new HIV infections occurred in this age group in 2021 in South Africa[2]. Considerable efforts are thus still needed to improve PrEP uptake and persistence.

PrEP efficacy depends on PrEP adherence and persistence (continuing to take PrEP); you need to take PrEP daily for it to be effective. Several studies have shown that people do not tend to remain on PrEP for extended periods of time[6,11-16]. For instance, a cohort study among sex workers in South Africa had 98% PrEP uptake at enrolment but only 22% persistence at 12-month follow-up[11]. To improve PrEP persistence, there is a need to understand why people stop taking PrEP. Barriers to PrEP persistence can be grouped into intrapersonal, interpersonal, facility, and knowledge related barriers. Intrapersonal barriers consist of low risk perception[12-14], fear of side-effects and PrEP pill burden[14]. Due to low-risk perception, individuals stop taking PrEP because they believe that they are no longer at risk[12-14]. With regards to interpersonal barriers, stigma is a major concern[13-15] and because PrEP is associated with HIV treatment, people may fear others will assume they are HIV positive[14]. In addition, some young people fear that by taking PrEP, others (parents and health workers) will know they are sexually active and judge them[13-15]. Health facility-related barriers include PrEP stock-outs, long waiting time at health facilities and negative attitude and behaviours of health workers[14]. Lastly, knowledge-related barriers include doubts about PrEP effectiveness, lack of knowledge of and ability to manage PrEP side effects, and PrEP myths and misconceptions[14]. The possible availability of other formulations of PrEP in the future, such as long acting injectables or combination pills that include oral contraception and PrEP, may help to improve uptake and persistence[9].

To reduce the impact of HIV in AYP, tackling the high HIV-incidence in this group should be a key priority. For frontline health care workers to expand PrEP uptake and improve persistence in AYP, they need to be knowledgeable on current PrEP guidance and be equipped with strategies to make this vital service more accessible to AYP. We thus provide an update on PrEP guidelines, present best practice resources for implementation and suggest key recommendations for programme improvement in this age-group.

PrEP initiation and follow-up guidelines

Based on WHO recommendations and other implementation and research evidence, the South African National Department of Health (DoH) published updated PrEP guidelines in 2021, as part of a comprehensive approach to HIV prevention[16]. Key updates include changes in eligibility criteria and creatinine monitoring, all of which will help to expand access to more clients. *A summary of these guidelines is provided here, however the full guideline should be accessed by health care workers before initiating or managing clients on PrEP.*

The current preferred regimen continues to be oral tenofovir/emtricitabine (TDF/FTC) as fixed dose combination (e.g., Truvada or one of the generic equivalents), which should be taken once daily while the client wishes to remain on PrEP. Nurse Initiated Management of Anti-Retroviral Therapy (NIMART) authorized nurses can initiate and issue PrEP, including in pregnant and breastfeeding women. In the current DoH guidelines, seven consecutive days of PrEP are recommended before PrEP is deemed fully effective, similarly it should be continued for seven days after the last potential exposure in clients who wish to cycle off PrEP. Shorter courses of PrEP are sometimes used in the private sector in certain situations.

In general, PrEP prescription intervals are recommended as follows:

- At initiation: provide one- month PrEP drug supply *(an HIV test should be done on the day of initiation)*
- At one month visit: repeat HIV test and provide three-month prescription and three-month PrEP drug supply
- Every three months: repeat HIV test and if the client remains HIV negative, provide three-month prescription and three-month PrEP drug supply

PrEP should be given as part of a comprehensive sexual and reproductive health service which includes:

- HIV Testing Services
- Risk reduction counselling
- Voluntary male medical circumcision
- ART initiation for those diagnosed with HIV
- Syndromic STI diagnosis and treatment
- Condoms and lubricants
- Pregnancy screening
- Contraception
- Counselling for Mental Health
- TB Screening
- Voluntary partner HIV testing and treatment

Pregnant and breastfeeding women experience high HIV incidence, and if they become HIV positive during pregnancy or breastfeeding, they are more likely to transmit HIV to their infants. The DoH PrEP guidelines now allow a NIMART trained nurse to prescribe and dispense PrEP to pregnant and breastfeeding women.

Education and counselling are a vital part of an individual's HIV prevention package. Risk reduction counselling, information on PrEP risks and benefits, how to start, continue and stop PrEP, and potential side effects should be given to all clients.

1. How to identify potential candidates for PrEP:

Any person requesting PrEP should be considered eligible, however health care workers should try and identify those at greater risk, to support them if they do not take the initiative to request it. This includes those who are at greatest risk of HIV-infection. Clients who are HIV-negative and request PrEP and/or report characteristics or behaviours that increase their risk should be offered counselling on PrEP.

Populations at greater risk of HIV-infection

- Adolescent girls, boys, young women and men
- Men who have sex with men
- Individuals with more than one sexual partner
- People who inject drugs
- People with a recent history of sexually transmitted infection/s
- Individuals who recognize their own risk and request PrEP
- Serodiscordant couples if the HIV positive partner is not virally suppressed
- Sex workers
- Migrant workers
- Pregnant and breastfeeding women

Characteristics linked to increased risk of HIV infection

- An individual who confirms having sex
  - Without a condom
  - With more than one partner
  - With an HIV-positive partner in certain situations; or whose partner's HIV status is not known
  - While under the influence of alcohol and drugs
- Recent/frequent STI diagnosis
- Young people in age-disparate relationships
- Recently confirmed pregnant

2. Key eligibility criteria for PrEP initiation include:

- HIV-negative by routine rapid HIV antibody test on the day of PrEP initiation
- Absence of symptoms of acute HIV infection
- Willingness and ability to take PrEP as prescribed
- No contra-indications to TDF or FTC
- Adolescents >35kg in weight; if <15 years in age, adolescents should be Tanner stage 3 (sexual maturity rating) or greater.

3. Key contra-indications for PrEP include:

- HIV infection *(Assess the client for symptoms or signs of acute HIV infection)*
- Creatinine clearance (eGFR) of:
  - less than 50 mL/min/1.73m^2 for adults and Adolescents ≥16 years
  - less than 80 mL/min/1.73m^2 for children and adolescents ≥10 and < 16 years
- For pregnant women: serum creatinine (sCr) greater than 85 µmol/L

(Creatinine monitoring intervals per PrEP guidelines)

Detailed baseline investigations and ongoing monitoring are covered in more detail in the updated guidelines, including HIV testing, creatinine monitoring and Hepatitis B investigation and management. Of note, clients younger than 30 years of age who are not pregnant and with no co-morbidity do not generally need to have a creatinine test at baseline or follow-up.

Implementation models and best practices for PrEP uptake in AYP

Although PrEP has the potential to be a game-changer in reducing HIV infections, there are individual, health system and community factors that shape the success of PrEP implementation programmes for AYP. Various implementation frameworks, resources and 'lessons from the field' can help to guide health care workers to implement or improve PrEP rollout in their districts or health facilities. PrEPWatch[9], an initiative from AVAC , consolidates and makes accessible global and local data, research and implementation guidance. It describes key areas that need to be considered including policies, plans and budgets, supply chain management, delivery issues, demand promotion and uptake (as illustrated by Figure 6 and Figure 7) and monitoring and evaluation. Under delivery issues, it provides resources on how policy makers and frontline workers can create or adapt

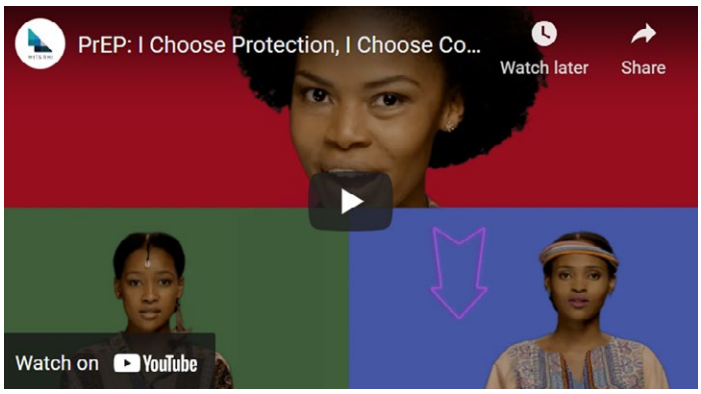
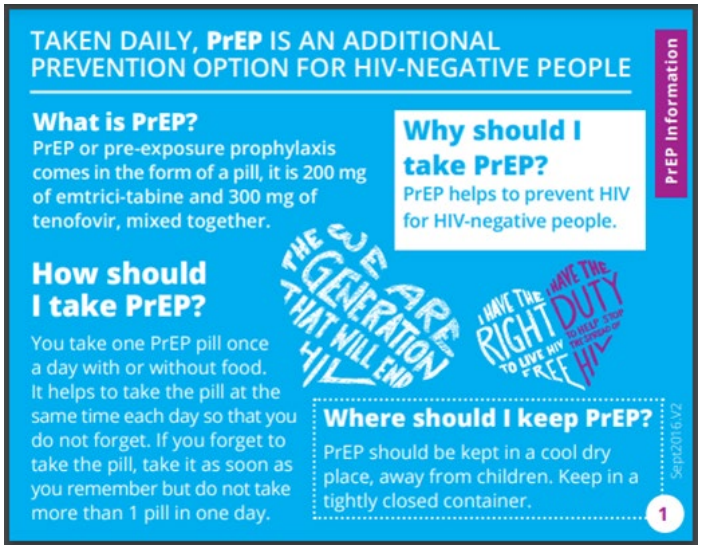
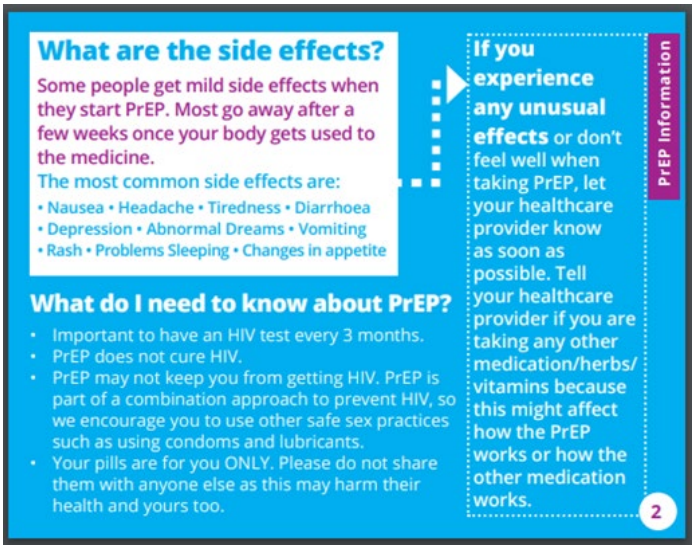


Figure. 6. PrEP demand creation video (https://youtu.be/hYJhMm57oHk). Figure from The OPTIONS Consortium, in collaboration with the South African National Department of Health. PrEP4Youth Public service announcements. Available at https://www.prepwatch.org/prep4youth/ (Accessed 25 May 2022)

Figure 7. Demand creation Palm Card. Figure from Department of Health. Sample information, education and communication materials from South Africa PrEP launch. PrEP Planning A-Z: Demand Creation Materials. Available at https://www.prepwatch.org/wp-content/uploads/2018/01/PrEP_PalmCard.pdf.. (Accessed 25 May 2022)





training approaches for different cadres of health care workers, assess readiness of facilities, assess clients for risk, link prevention and testing, and explore provider knowledge, attitudes, behaviours and practices. Demand creation materials and job aids are also available within the updated DoH guidelines[16]. We will now share several examples of relevant lessons from the field.

In Kenya, an integrated PrEP and Family Planning model was implemented, known as the 'supermarket' approach (wherein services were offered in the same building but from different providers), with bi-directional linkages to referral facilities and home/community. Key lessons included training different staff cadres together to foster cooperation, ensuring more than one provider was equipped to monitor continuity of services, and establishing procedures and tools for monitoring and providing services in an adolescent and youth friendly manner[17].

A community-based mobile clinic model was used in Cape Town, and adolescent girls and young women using the service found it acceptable and accessible. The integration of PrEP and sexual and reproductive health services was described as 'highly valued' by the clients. Challenges included disruption of the service due to general community unrest and poor weather conditions[18].

O'Malley et al examined the perspectives of health care workers on PrEP in young people, a key factor for successful implementation. They found that health care workers believed the biggest challenge to integration and scale-up would be the lack of motivation to provide PrEP. This was linked to values and concerns that they would be seen as promoting unprotected sex in young women. They conclude that strategies to align personal values and professional goals are needed to strengthen implementation[19].

Implementation experiences

Anova Health Institute's Adolescent and Youth Programme provides technical assistance and direct support to strengthen DoH PrEP implementation in Johannesburg, Sedibeng and Cape Town Districts. In collaboration with DoH, we aim to increase access to comprehensive adolescent and youth friendly prevention services, of which PrEP is a key component. Best practices from our PrEP support experience include strengthening facility and community approaches. In facilities, the addition of peer supporters called 'foot navigators', who lead AYP to youth friendly service points and provide sexual and reproductive health and rights (SRHR) education, have increased uptake of services. Within communities, mobile outreaches that provide services with community-based

organisations (CBOs) or in other community settings have increased accessibility. "Layering of services" or ensuring that young people have access to the range of different services they need through different service providers, has also been key to increase demand and linkage. Lastly, targeted PrEP activations in facilities and communities, which include games and entertainment (Figure 8), have created interest, driven demand and increased uptake. These have also helped to change perceptions of health facilities for AYP.

Figure 8. Community-based PrEP activation, Anova Health Institute

Key recommendations: implementing PrEP programmes for AYP

Minimising access barriers is critical for AYP, as they need enabling environments to encourage health service utilisation. We also need to ensure efficiency and alignment with existing services, to reduce implementation of interventions in parallel and support health care workers to cope with multiple priorities. To improve access to PrEP for AYP, the following activities are recommended:

- Integrate PrEP delivery into existing programmes in health facilities such as sexual and reproductive health services7,12
- Improve service delivery in facilities14 by making PrEP as convenient as possible (e.g. PrEP available at all facilities to reduce travel distance)
- Ensure availability of PrEP by monitoring and acting on stock-outs
- Provide youth-friendly services15
- Utilise peer support models to generate demand and improve health facility navigation for AYP. Create interest through activities for AYP such as games.
- Strengthen facility and community linkages by developing relationships between health services, CBOs and other departments, to increase demand within communities. Mobile SRHR services linked to community-based organisation/schools/tertiary institutions help make PrEP more accessible to AYP
- Increase access to training or sensitisation for health care workers to better work with AYP
- Ensure health facility staff are updated on current PrEP guidelines

Conclusion

In South Africa, PrEP uptake is slowly increasing. As programs improve implementation of PrEP, they will need additional strategies to improve persistence. We pointed to guidelines on PrEP initiation and follow-up for AYP, discussing tips for identifying potential candidates and eligibility criteria. We presented best implementation practices, expanding on lessons learned from other PrEP programs. Lastly, we shared recommendations to help minimize barriers to PrEP services for AYP. We hope this summary of guidelines, best practices, and recommendations will help create a more enabling environment for AYP, promoting PrEP uptake and persistence to empower young people to be the generation that will end HIV.

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Rising teenage pregnancy during COVID-19 times: impact and experiences of adolescents and young people

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Introduction

Teenage pregnancies remain a crisis, especially in developing regions where the estimates are that over 12 million girls younger than 19 years give birth every year[1]. There are indications that the number increased with the COVID-19 pandemic, a consequence of lockdowns and school closures. In South Africa, the public health data are alarming, with a reported 48.7% increase in deliveries in girls aged 10-14 years between the periods 2017/2018 and 2020/2021[2]. In the older age group, 15-19 years, while the percentage increase was lower at 17.4%, the absolute increase was high with 114 329 deliveries in 2017/2018, and 134 267 in 2020/2021- an increase of close to 20 000. The authors attribute this increase to challenges in health education and access to healthcare, and societal factors such as gender inequality and poverty[2].

Consequences of teenage pregnancies

The majority of teenage pregnancies are unintended, and often occur at sexual debut, which is also likely to be non-consensual[3]. Adolescent girls and young women (AGYW) are also at risk of sexually transmitted infections, including HIV, and this risk is much higher than their male counterparts: according to the 2021 UNAIDS report, six out of seven new HIV infections in sub-Saharan Africa among adolescents aged 15-19 years, are among females[4]. The risk of obstetric complications, and resultant morbidity and mortality is higher with teenage pregnancies, and further exacerbated by the likelihood of delayed or no access to antenatal care[5].

Pregnant teenagers are also likely to experience social consequences of stigmatisation and violence that may be experienced both at home

and in the community and are likely to drop out of school and not return[6]. This potentially has long-term consequences of unemployment and further social deprivation, risk of repeat pregnancies, exploitation and gender-based violence.

Factors associated with teenage pregnancies

In a systematic review and meta-analysis of data from South Africa, several sociodemographic factors were identified as being associated with teenage pregnancies. These include residing in a rural area, not attending school, lack of maternal and paternal education, and lack of parental communication on sexual and reproductive health[7]. Staying in school and increased education have clearly been shown to have a protective effect against teenage pregnancies[8]. School closures in times of crises, which the COVID-19 pandemic has been, can lead to increases in teenage pregnancies by as much as 65%[9]. Being out of school predisposes girls to spending time with boys and men, and more likely to engage in risky sexual behaviour, as well as being exposed to sexual violence and exploitation. Even when schools reopened, girls may not have returned because of pregnancy, or increased responsibilities in households due to ill health or death of caregivers from COVID-19[10].

Experiences of adolescents and young people (AYP) through COVID-19 and teenage pregnancy

General experiences of AYP during COVID-19

COVID-19 has impacted all our lives, with specific experiences shaped by multiple factors including underlying vulnerability, poverty, mental health and parenthood[11]. This is also true for adolescents, who have had heterogenous experiences, but who are expected to endure more of the indirect effects of the pandemic[11]. Several themes emerge from studies reviewing the lived experiences of AYP during COVID-19.

- *Food insecurity:* A predominant experience was that of hunger and lack of food, with young people describing empty cupboards and fridges, and stress around not being able to provide these for their families, in the case of working adolescents or when parents had died. Many reported going a day and a night without food sometimes or often during the pandemic[11, 12].
- *Mental health:* Apart from the difficulties of meeting basic needs, significant psychosocial and mental health disruptions and changes were experienced. Young people expressed feelings of stress, anxiety, sadness and hopelessness, expressing being 'stuck' and having a 'lack of purpose'[11]. Duby et al reported over two thirds of the adolescents surveyed in their study had become more distressed and anxious sometimes or often during the lockdown, and many also experienced grief related to loss of loved ones[12]. They also described the prominent theme around fear and worry about the future, and that adolescents shared how 'dreams and aspirations had been shattered'. For example, a young women shared: 'If Corona was not here, I can imagine how far I would have been now. I would not be in the place I am now, because of COVID, and that makes my heart sore'[12].
- *Schooling:* School closures and online learning created significant turmoil for young people, who experienced many challenges relating to accessing lessons, coping and worrying about their future prospects[13]. Duby and Jonas et al describe the experiences of adolescents:
  - *'COVID-19 affected me bad... bad...bad... Firstly, when COVID-19 arrived... we all had to go home... So fine, we go home, but home is not like here in (in the city)... where I live... network is a problem... so online learning is kind of hard... and on top of that the data was a problem, up until the university decided to supply us with data. But even if you had data the whole network thing is a problem'*[13]
- AYP also describe feelings of falling behind, difficulties coming back to school due to financial constraints and challenges in applying for tertiary studies, for example:
  - *'Post Offices were closed... I was in the process of applying to the universities, and I was unable to send them... All these things mess up your plans and your life'*[13].
- *Relationships and Violence:* Strained family relationships and increased violence were also experienced. Some AGYW surveyed reported more violence in their home, and worry around being physically, emotionally or sexually abused. In addition, those already in abusive situations no longer had the 'respite' of being at school[12].
- Access to health care services: Apart from the lack of access to sexual and reproductive health care services due to health system and health facility related factors, AYP also voiced fears over contracting COVID-19 in health facilities[11] which likely affected their attendance. The public health messaging encouraging limited movement to prevent COVID-19 contributed to these fears[14].

> Pregnant teenagers are also likely to experience social consequences of stigmatisation and violence that may be experienced both at home and in the community...[6]

Experiences of adolescents and youth who become pregnant

Experiences exasperated by COVID-19: Compounding the experiences of AGYW already described, those who became pregnant experienced additional challenges. For example, difficulty purchasing items such as formula or nappies, as well as limited income[11,12]. One AYP described the desperation experienced:

'We are dying... We are dying of HIV, poverty, depression and some young people are taking their lives... you can't sleep on an empty stomach... girl gets unplanned pregnancy by mistake... then she is expected to maintain the child with the R400'[12].

Balancing home schooling and caring for one's child was also described:

'There are difficulties at home because at times my baby doesn't want them (other family members) and wants only me... she disturbs me when studying... she disturbs me a lot'[13].

General experiences of pregnancy in AGYW: Stigma, shame, poor mental health, isolation, feelings of loss and lack of support can be experienced by AYGW who become pregnant[15,16,17]. One adolescent describes her difficulties:

'When I found out I was pregnant... that was very difficult, I even thought about suicide... it was tough'[15].

Another shares that

'Motherhood is hard. Motherhood is very hard and if you are still young, it's like maybe five times like the work... So basically being a mom while you are still young is very hard, you need all the help you can get' [17].

Financial and material challenges are often experienced, including for those who receive a Child Support Grant. Loss of support can be due to no longer being able to access school, or being rejected by family, as described by one young mother:

'I was confused and didn't know what to do... (I told my boyfriend) my dad is strict... I will be chased away from home' [15].

Unfortunately, the difficulties experienced can sometimes translate into difficulties bonding with one's child, as described by one adolescent:

'It was very difficult. I couldn't bond with my child, like I felt like the child resented me or something I didn't know what was happening. But I always struggled like with him, I don't wanna lie. Whenever he cries, I also just cry...'[17].

Despite the challenges AYP have experienced during COVID-19 or because of falling pregnant, they also find ways to cope through relying on support systems and their own resilience. Family members, faith groups and community members can be a source of support[12, 17, 18]. Mothers are often described as being of particular support, 'my mum, she's such a wonderful soul, she is a caring person. . .she would die for that child ...so they are like best friends.'[17]. Apart from support systems, adolescents ultimately accept their responsibilities which can help them to face their challenges as well as commit to completing school. [17, 18].

What can we do: interventions to decrease teenage pregnancies and support AYP

- There is a need for targeted sexual and reproductive health education for adolescents of all genders.
- Increased general education and economic opportunities for AGYW.
- A real commitment to addressing gender inequalities and gender-based violence, including working with boys and men, is needed. AGYW should not be expected to prevent pregnancies due to rape or sexual exploitation.
- Schools, communities and health services, need to work to create an enabling environment for adolescents to make better choices, and protect them from exploitation.
- Health services should be easily accessible for AYP to access sexual and reproductive health and rights (SRHR) services, particularly contraception and HIV-prevention, in a non-judgemental way. This can be done through implementing an adolescent and youth friendly service approach.
- Mental health services need to be made more accessible, ideally coupling them with adolescent and youth SHRH services[12, 15].
- Interventions to encourage young girls to return to school are needed. In February 2022, the South African Department of Basic Education launched the National Policy on the Prevention and Management of learner pregnancy in schools19. The policy aims to reduce the number of learner pregnancies

Figure 9. Psychosocial support Resource list

Psychosocial support Resource list

1. Lifeline South Africa National Counselling line: 0861 322 322
2. Life link Pregnancy Crisis Centre: (011) 394-8560
3. Amandla development: 62 Lilian Ngoyi Drive, Samora Machel, 7785: Tel: (061) 5471704
4. Choices Crisis Pregnancy Counselling Centre: 1 Schapenberg Road, Somerset West: info@choices.org.za
5. Save the Children: (012) 430 7775, supporters@savethechildren.org.za
6. The Parent Centre: 22 Wetton Road, Wynberg: (021) 7620116
7. Mamkhulu Litsemba Centre, Daantjie Pienaar, Mpumalanga
8. Teens Moms Youth Development run by Options Care Centre (George) www.optionsgeorge.com
9. Lifeline Pregnancy support, Pietermaritzburg: 03333424447
10. Keep the Dream 196: 2B King Edward Street, Tzaneen- Limpopo
11. Rays of Hope: Sandton - Cnr William Nicole Drive and St Andrews Road, Hurlingham. Alex: 2 Lupin Ave, Marlboro Gardens (info@raysofhope.co.za)
12. Complete Health Services (Health coach): 011 436 1854

through comprehensive sexuality education, and for those learners who become pregnant, for schools to be supportive environments facilitating retention and return to school after childbirth. Also importantly, schools are required to report to the police pregnancies in learners younger than 16 years, as this constitutes statutory rape.

- A multisectoral and coordinated approach is important to increase the support given at schools and other educational institutions and making referrals to health facilities, community structures or Department of Social Development[12].
- Increasing accessibility to SRHR education and services through schools is also needed
- Mapping of available community-based organisations, that offer counselling services and specific programmes for AYP, should be done by schools, clinics and community organisations, and referral pathways be established to make these more accessible. Creating resource lists and making these visible at health facilities and schools can help to increase awareness and encourage direct access for AYP. Some available resources across South Africa are shared in Figure 9.

Conclusion

Teenage pregnancy continues to have a significant short- and long-term impact on society, made worse by the COVID-19 pandemic and lockdown measures. AYP have experienced considerable social, mental and emotional upheaval during COVID-19, and young mothers have experienced these in addition to the many difficulties pregnant AGYW usually face. Health care workers can support AYP through non-judgemental, comprehensive SRHR and mental health services to prevent and respond to teenage pregnancy, however a multi-sectoral approach is needed to bring meaningful change. Government, society, schools, educational institutions and social development need to act to address the underlying economic and gender related factors that drive pregnancies in AGYW.

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Mental health among Youth Living with HIV/AIDS (YLWHA): Challenges and Psychosocial support

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"It takes courage to grow up and become who you really are"

CC Cummings, an American poet.

Introduction

Transition from childhood to adulthood takes one through adolescence – a period characterised by turmoil for the individuals undergoing the physical, intellectual, emotional, and social changes accompanied with growing up. This is also the development phase with most challenges for the youth living with HIV. These challenges are aggravated for youth living with HIV as they live with a chronic disease requiring lifelong treatment with antiretrovirals (ARVs), often exposed to stigma, and discrimination at school or the communities where they live. Among the youth living with HIV (YLWHA)there are two groups – those who acquired HIV perinatally and survive into adolescence and those who behaviourally acquired infection. It is reported that prevalence of psychological symptoms is the highest among the latter group[1]. Depression, anxiety, childhood trauma, substance and alcohol abuse have been identified

in youth living with HIV, similar to other adolescents, and have the additional challenge of neurocognitive disorders associated with HIV[2-4]. While HIV plays a role in the development of mental health problems among the youth, these problems can both be a cause and a result of hardships and challenges[5].

Disengagement from treatment is a concern as it puts persons living with HIV at risk for poor health outcomes. Young persons (10 – 19 years) is the age group that experience the highest rates of disengagement from treatment. There are many reasons for this, ranging from trauma due to a range of experiences, family-factors and domestic violence, social aspects such as poverty and lack of housing to stigma and psychological challenges. Adolescents have also described learning their diagnosis through testing and disclosure as traumatic[2]. Adolescents indicated a preference for disclosure taking place with healthcare workers at the clinic as the environment makes the test seem more credible and accurate information is available. They also believe that they learned more about living with the status from peers at the clinic[6].

Prevalence of mental health disorders among the youth

UNAIDS (2021) reports that there has been a 46% decline in new HIV infections among young people (15–24 years), but the world is still behind on achieving the targets set for young people. Two out of every seven new HIV infections globally in 2019 were among young people aged 15–24 years[7]. In 2021 Statistics South Africa estimated that 13,7% (about 8,2 million) of the total population (estimated at 60,15 million) is HIV positive, with one fourth of women 15-49 years HIV positive, and the prevalence among those 15 – 24-year-old remaining stable at 5.53% over time[7]. No statistics are provided for those children under 15 years of age living with HIV. The prevalence of mental health disorders (mood, anxiety, post traumatic stress) among South African youth ranges from 15 – 41% with more than 39% in the Western Cape. Males are less affected than adolescent girls and young women and COVID lockdown restriction led to increased stress and anxiety for them [9-10].

> Peer pressure to engage in sexual activity and the need to avoid stigma by conforming also has its risks as the youth might like to experiment, at times having unprotected sex as a way of avoiding being suspected as being infected.

The challenging overlap of the COVID-19 pandemic and the resultant lockdown measures have had an impact on service delivery in many aspects. It

has been reported that while clinic visits for adults in KZN did not drop during level 5 lockdown, there was a 60% stepwise drop in child healthcare visits during this time that only recovered to pre-lockdown levels three months later[11]. Furthermore, the lockdown may have influenced the ARV medication supply chain during this time[12]. The impact of this would only be seen in years to come.

Common mental health conditions affecting the YLWHA

The prevalence violence, poverty, and the high numbers of youth unemployment in South Africa in general result in mental health conditions among the youth. Increased stress tends to increase risky behaviour. Learning to live with HIV is a complex process and the prevalence of clinical mental health symptoms are reported to be significantly higher in youth with behaviourally acquired HIV compared with perinatally acquired infection. Significantly greater prevalence of mental health symptoms was also seen in youth not taking prescribed ART[1].

In a study reported in 2020 screening for depression, suicide, anxiety, post-traumatic stress disorder (PTSD), and substance abuse, 8.9% of young people with HIV screened positive for mental health problems. This included 4.4% for depression, 3.3% for PTSD, 2.7% suicidal concerns, 2.2% for anxiety, and 1.7% for alcohol or substance abuse. Of this group, 32% screened positive for two conditions and 18.7% for two or more conditions. Co-occurrence was most often for depression and suicide, and also depression and anxiety or PTSD. Older age, exposure to physical violence and household conflicts were associated with positive screening for mental health problems. One-third of adolescents who screened positive for a mental health or substance use problem had an unsuppressed viral load. Those aged 10 – 12 years were much less likely to develop any psychological symptoms than those 16-19 years of age. There were no gender differences except that girls and young women were much less likely to screen positive for substance abuse[13].

Challenges facing the YLWHA

While mental health disorders have been found to be common among the youth as they transition from childhood to adulthood, YLWHA face additional innumerable challenges which stem from the infection as well as other socioeconomic factors, which put them at risk for developing mental health conditions. Key to these challenges are stigma and discrimination by peers, family and society, where being infected with HIV is negatively stereotyped, with infected youth being socially isolated. This often cause emotional distress, depression and anxiety and a lacking sense of belonging, which can lead to high – risk social behaviours that interfere with the ability to cope with the disease, low self – esteem and suicidal ideation[1,3]. In trying to belong, YLWHA might find themselves failing to attend their scheduled clinic visits for fear of being seen and subsequently being stigmatised, resulting in poor medication adherence and retention in care.

YLHWA are also faced with cognitive challenges due to neuropsychiatric effects of the HIV/AIDS infection on brain functioning and stress factors that affect concentration and learning. Studies have found that schools or learning institutions are highly stressful environments for YLWHA, given their HIV status and the medication they have to take recurrently to maintain good health. School was reported to be a highly stigmatising environment due to the insensitivity and bullying attitude of some students. Additionally, it was noted that some teachers and caregivers have beliefs, and express opinions and views that evoke stigma and affect social integration of YLWHA[2]. Furthermore, taking time off from school leads to YLWHA lagging in education, as they often have to miss a day of school every month in order to attend the clinic. This may lead to non- adherence as they try to cope with school life and minimise stigma related to absenteeism.

Research studies have also highlighted financial challenges and poverty as some of the causes affecting mental health in YLWHA. This could be due to lack of support amongst perinatally infected youth who could be orphans after having lost one or both parents, have sickly parents who are unable to protect them, or being rejected by parents or other relatives who could provide financial support.

Peer pressure to engage in sexual activity and the need to avoid stigma by conforming also has its risks as the youth might like to experiment, at times having unprotected sex as a way of avoiding being suspected as being infected. This challenge is often accompanied by non – disclosure as young people crave acceptance. For YLWHA, reconciling their HIV status with maintaining confidentiality and having an intimate relationship is a challenge due to fear of stigma and rejection.

Psychosocial support in YLWHA

Globally, mental health if often not a priority on the health agenda of numerous countries, although there seems to be some improvement in countries where there is some activism in creating awareness around mental health. Studies found that too little has been done to measure the impact of mental health challenges for youth and adolescents living with HIV, with a general lack of dedicated services and support for YLWHA facing challenges related to mental health, despite being the most vulnerable group across all ages. Additional efforts need to be made to address factors that increase the vulnerability among the youth, especially adolescent girls, young women and young key populations and

their risk of acquiring HIV, including gender-based violence, poverty, stigma and discrimination. Implementation of comprehensive sexuality education programmes for YLWHA should be supported and the youth empowered to develop social and emotional skills so they can support one another. It is also crucial that this vulnerable group access mental health care and psychosocial support in a safe environment[6,7,9].

Support efforts should include increasing linkage to care and sustaining adherence to therapy, heightening health literacy and educational attainment.

Evidence from studies conducted in South Africa and other countries across the globe have shown that family – based interventions within the country's context have a positive effect on the mental health of adolescents and youth living with HIV[9,10]. Setting up youth – friendly services and dedicated call centers manned by people with a friendly ear and skills to deal with the youth, should be at the forefront of efforts to alleviate mental health challenges among the youth.

Conclusion

It is crucial to develop support programmes and interventions to best sustain or improve the mental health of the youth. This will require commitment and political will to create healthcare systems with adequately trained personnel and the resources to promote good mental health. Barriers to the participation of young people need to be addressed and support provided to scale up meaningful engagement and leadership in all HIV-related processes and decision-making spaces to ensure the sustainability of responses led by young people.

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ANTIRETROVIRAL DRUG DOSING CHART FOR CHILDREN 2021

Compiled by Child and Adolescent Committee of SA HIV Clinicians Society in collaboration with the Department of Health

	Abacavir (ABC)		Lamivudine (3TC)		Abacavir + Lamivudine (ABC + 3TC)	Zidovudine (AZT)	Lopinavir/ritonavir (LPV/r)	Lopinavir/ritonavir when on rifampicin (and for 2 weeks after stopping rifampicin)		#Atazanavir (ATV) + Ritonavir (RTV)	Dolute-gravir (DTG)	Dolutegravir when on Rifampicin	Efavirenz (EFV)	
Target dose	8 mg/kg/dose **TWICE daily** **OR** **If ≥10kg**: 16 mg/kg/dose **ONCE daily**		4 mg/kg/dose **TWICE daily** **OR If ≥10kg:** 8 mg/kg/dose **ONCE daily**		As for individual medicines **ONCE** daily	180-240 mg/m^2/dose **TWICE daily**	300/75 mg/m^2/dose LPV/r **TWICE daily**	**LPV/r std dose + super-boosting with ritonavir (RTV)** powder **TWICE daily** (≥0.75xLPV dose bd)	**OR** **Double-dose LPV/r tabs ONLY if able to swallow whole LPV/r tabs TWICE daily**	By weight band **ONCE daily**	By weight band **ONCE daily**	By weight band **TWICE DAILY**	By weight band **ONCE daily**	**Target dose**
Available formula-tions	Sol. 20 mg/ml Tabs 60 mg (scored, dispersible), 300 mg (not scored), FDC: see column on Abacavir + Lamivudine		Sol. 10 mg/ml Tabs 150 mg (scored), FDC: see column on Abacavir + Lamivu-dine		Dispersible tablet FDC: ABC/3TC 120/60 mg Tablets FDC: ABC/3TC 600/300 mg	Sol. 10 mg/ml, Tabs 100, 300 mg (not scored), FDC: AZT/3TC 300/150 mg	Sol. 80/20 mg/ml Adult tabs 200/50 mg, Paed tabs 100/25 mg **TABLETS MUST BE SWALLOWED WHOLE** Pellets 40/10 mg per capsule **ONLY FOR USE IF NOT TOLERATING LPV/r SOLUTION CAPSULES ARE NOT RECOMMENDED < 6 MONTHS OF AGE CAPSULES MUST NOT BE SWALLOWED WHOLE**	Oral powder 100 mg/packet	Adult tabs 200/50 mg, Paed tabs 100/25 mg	ATV caps 150, 200 mg; RTV tabs 100 mg; FDC: ATV/RTV 300/100 mg **ATV CAPSULES, RTV TABLETS AND FDC TABLETS MUST BE SWALLOWED WHOLE**	Tabs 50mg, FDC: TLD 300/300/50 mg	Tabs 50 mg	Caps/tabs 50, 200, 600 mg; FDC: TEE 300/200/600 mg **TABLETS MUST BE SWALLOWED WHOLE**	**Available formula-tions**
Wt. (kg)	**Consult with a clinician experienced in paediatric ARV prescribing for neonates (<28 days of age) and infants weighing <3kg**													**Wt. (kg)**
3-3.9	2 ml bd		2 ml bd		1 x 120/60 mg tab od	6 ml bd	**CHOOSE ONLY ONE OPTION:**	LPV/r std dose (see purple column) + oral ritonavir powder 100 mg (1 packet) bd	Do not use double-dose LPV/r tabs	Avoid ATV capsules when <15 kg or <6 years	Not currently recommend-ed: dosing & formulations not available	Not currently recommend-ed: dosing & formulations not available	Avoid using when <10 kg or <3 years	**3-3.9**
4-4.9							*1 ml bd **OR** 2 capsules bd							**4-4.9**
5-5.9	3 ml bd		3 ml bd				*1.5 ml bd **OR** 2 capsules bd							**5-5.9**
6-6.9					1.5 x 120/60 mg tabs od	9 ml bd								**6-6.9**
7-7.9	4 ml bd		4 ml bd				*1.5 ml bd **OR** 3 capsules bd							**7-7.9**
8-8.9						12 ml bd **OR** 1x100 mg tab bd								**8-8.9**
9-9.9														**9-9.9**
10-10.9	**Choose only one option**		**Choose only one**		2 x 120/60mg tabs od		2 ml bd **OR** 4 capsules bd **OR** 2 x 100/25 mg **paed tabs** am + 1 x 100/25 mg **paed tab** pm		3x100/25 mg **paed tabs** bd				1x200 mg cap/tab nocte	**10-10.9**
11-13.9	6 ml bd **OR** 2x60 mg tabs bd	12 ml od **OR** 4x60 mg tabs od	6 ml bd	12 ml od										**11-13.9**
14-14.9	8 ml bd **OR** 2.5x60 mg tabs bd	5x60 mg tabs od **OR** 1x300 mg tab od **OR** 15 ml od	½x150 mg tab bd **OR** 8 ml bd	1x150 mg tab od **OR** 15 ml od	2.5 x 120/60 mg tabs od	2x100 mg tabs am + 1x100 mg tab pm **OR** 15 ml bd	2.5 ml bd **OR** 5 capsules bd **OR** 2 x 100/25 mg **paed tabs** bd **OR** 1 x 200/50 mg **adult tab** bd	LPV/r std dose (see purple column) + oral ritonavir powder 200 mg (2 packets) bd	4x100/25 mg **paed tabs** bd **OR** 2x200/50 mg **adult tabs** bd				1x200 mg cap/tab + 2 x 50 mg caps/tabs nocte	**14-14.9**
15-16.9										ATV 1x200 mg cap od + RTV 1x100 mg tab od	1x50 mg tab od	1x50 mg tab bd		**15-16.9**
17-19.9														**17-19.9**
20-22.9	10 ml bd **OR** 3x60 mg tabs bd	1x300 mg tab + 1x60 mg tab	1x150 mg tab bd **OR** 15 ml bd	2x150 mg tab od **OR** 30 ml od	3 x 120/60 mg tabs od	2x100 mg tabs bd **OR** 20 ml bd	3 ml bd **OR** 6 capsules bd **OR** 2x100/25 mg **paed tabs** bd **OR** 1x200/50 mg **adult tab** bd							**20-22.9**
23-24.9		1x300 mg tab + 2x60 mg tabs od												**23-24.9**
25-29.9	1x300 mg tab bd	2x300 mg tabs od	1x150 mg tab bd	2x150 mg tabs od	1x600/300 mg tab od	1x300 mg tab bd **OR** 1xAZT/3TC 300/150 mg tab bd	3.5 ml bd **OR** 7 capsules bd **OR** 3x100/25 mg **paed tabs** bd **OR** δ1x200/50 mg **adult tab** bd + 1x100/25 mg **paed tab** bd	LPV/r std dose (see purple column) + oral ritonavir powder 300 mg (3 packets) bd	6x100/25 mg **paed tabs** bd **OR** 3x200/50 mg **adult tabs** bd				2 x 200 mg caps/tabs nocte	**25-29.9**
30-34.9							5 ml bd **OR** 10 capsules bd **OR** 4x100/25 mg **paed tabs** bd **OR** 2x200/50 mg **adult tabs** bd		8x100/25 mg **paed tabs** bd **OR** 4x200/50 mg **adult tabs** bd	1xATV/RTV 300/100mg FDC od **OR** ATV 2x150 mg caps od + RTV 1x100 mg tab od	1x50 mg tab od **OR** FDC: TLD if eligible od	1x50 mg tab bd **OR** FDC: TLD if eligible od + 50 mg 12 hours after TLD dose		**30-34.9**
35-39.9														**35-39.9**
≥40													1x600 mg tab nocte **OR** FDC: TEE if eligible od	**≥40**

* Avoid LPV/r solution in any full-term infant <14 days of age and any premature infant <42 weeks post conceptual age (corrected gestational age) or obtain expert advice.
δ Children weighing 25-29.9 kg may also be dosed with LPV/r 200/50 mg adult tabs: 2 tabs am + 1 tab pm.
Atazanavir + ritonavir should not be used in children/adolescents on treatment with Rifampicin, obtain expert advice. No dosage adjustments are required for children receiving treatment with Efavirenz and Rifampicin.

od = once a day; nocte = at night; bd = twice a day; am = in the morning; pm = in the evening; std = standard; FDC = fixed dose combination; TLD = tenofovir/lamivudine/ dolutegravir; TEE = tenofovir/emtricitabine/efavirenz

Weight (kg)	3-5.9	6-13.9	14-24.9	≥25
Cotrimoxazole Dose	2.5 ml od	5 ml or ½ tab	10 ml or 1 tab	2 tabs od
Multivitamin Dose	2.5 ml od	2.5 ml od	5 ml od	10 ml od

Clinical tips

1. Starting DTG in pregnant women is safe and has now been shown to carry no additional risk of neural tube defect. Initiating TLD or DTG can be done at any gestation, including the first trimester and in those wanting to conceive.
2. Initiating TLD or DTG in pregnant women carries no risk of neural tube defect. Counsel the patient about this safety information and allow her to make an informed choice.
3. HIV positive women who are not currently on ART but are ART exposed should initiate a DTG-containing regimen.
4. Initiate all newly diagnosed HIV positive patients on TLD and switch those already on TEE on to TLD (if virally suppressed).
5. Prioritize a switch from TEE to TLD; prescribe multi-month ART and decant eligible patients to external pick-up sites to limit facility visits during COVID-19.
6. Inform patients of potential drug interactions and new side effects when switching to DTG.
7. DTG causes a mild rise in serum creatinine, but this is of no consequence and does not represent a decline in renal function.
8. Family Planning and HIV services should always be provided together. Therefore, at every Family Planning visit offer HIV testing services.
9. The benefits of cotrimoxazole outweigh the risks in pregnancy in patients with CD4 counts of less than 200, or with WHO clinical stage II, III or IV disease. Ensure these patients are started on cotrimoxazole prophylaxis.
10. Preventing, diagnosing and treating women for TB must receive greater emphasis if maternal and child outcomes are to be improved. TB symptom screening should be done at every visit in HIV-infected patients.
11. Any infant with a positive birth HIV PCR should be referred urgently/discussed telephonically for immediate ART initiation.
12. Do an age-appropriate HIV test at six weeks post cessation of breastfeeding, even if breastfeeding continues for longer than 18 months.
13. Universal HIV testing is recommended at 18 months of age for all HIV-exposed infants, except those who are already on ART.
14. HIV exposed but uninfected (HEU) infants may experience poorer outcomes despite being uninfected and should be monitored regularly.
15. Adolescents are at a higher risk for poor adherence and poor viral suppression and require more intensive support, especially if pregnant.
16. Because the sensitivity of the TB symptom screen is reduced in pregnancy, all HIV positive pregnant women should be referred for a sputum TB GeneXpert regardless of symptoms.
17. Ensure that any woman diagnosed with TB is adherent to TB treatment and aware that their newborn is likely to require TB prophylaxis.
18. Pregnancy does not preclude screening for cervical cancer, and can be performed up to 20 weeks.
19. Link women back to care post-delivery to ensure treatment adherence. Additional support includes referral to community health workers/support groups such as a postnatal club, or MomConnect MomConnect – National Department of Health
20. After delivery, provide women with 2 months of ART at discharge.
21. An HIV PCR test should be performed at 6 months for all HIV exposed infants
22. A tuberculin skin test (TST) is not required prior to starting TPT.
23. 23. DTG increases metformin levels therefore the maximum metformin dose should be 500mg 12-hourly.
24. If the patient is on rifampicin, DTG needs to be given 12-hourly rather than daily. If on fixed-dose combination TLD tablet, add an additional DTG 50mg 12 hourly.

Abbreviations: ART – antiretroviral therapy; ARV – antiretroviral; CD4 – cluster of differentiation 4; IPT – isoniazid preventive therapy; PrEP – pre-exposure prophylaxis; TB – tuberculosis; U=U – undetectable = untransmissible; UTT – universal test and treat; VL – viral load.

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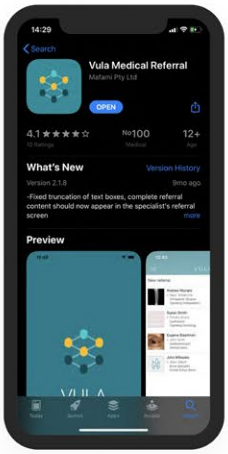

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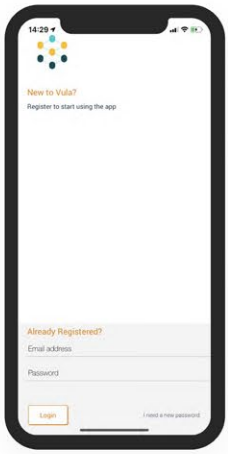

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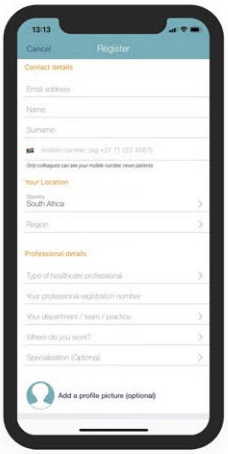

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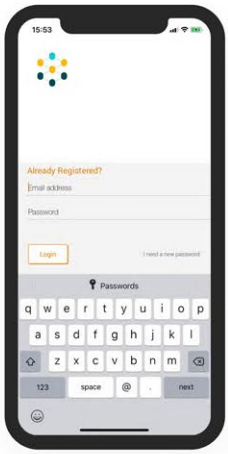

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NATIONAL HIV & TB HEALTH CARE WORKER HOTLINE

	0800 212 506 **021 406 6782**		E-MAIL **pha-mic@uct.ac.za**
	SMS/PLEASE CALL ME/WHATSAPP **071 840 1572**		WEBSITE **www.mic.uct.ac.za**
	FACEBOOK **HIV & TB Health Care Worker Hotline, South Africa**		FREE APP ON GOOGLE PLAY **SA HIV/TB Hotline**

Contact us - we will gladly assist you! This service is free

What questions can you ask?

The National HIV & TB Health Care Worker Hotline provides information on queries relating to:

- Pre-exposure prophylaxis (PrEP)
- Post exposure prophylaxis (PEP)
- HIV testing
- Management of HIV in pregnancy & PMTCT
- Drug interactions
- Treatment/prophylaxis of opportunistic infections
- Drug availability
- Adherence support
- Management of tuberculosis
- Antiretroviral Therapy (ART)
  - ~ When to initiate
  - ~ Treatment selection
  - ~ Recommendations for laboratory and clinical monitoring
  - ~ How to interpret and respond to laboratory results
  - ~ Management of adverse events

Who answers the questions?

The centre is staffed by specially-trained pharmacists. They have direct access to the latest information databases, reference sources and a team of clinical consultants.

When is this service available?

The hotline operates from Mondays to Fridays 8:30am - 4:30pm.

UNIVERSITY OF CAPE TOWN MIC CLINICAL PHARMACOLOGY

MEDICINES INFORMATION CENTRE

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UNITING HEALTHCARE WORKERS IN **HIV CLINICAL EXCELLENCE**

The Southern African HIV Clinicians Society (SAHCS) is a member-based society that promotes quality, comprehensive, evidence-based HIV and related diseases healthcare, by:

1 LEADING • PIONEERING

We are a powerful, independent voice within Southern Africa with over 20 years experience and key representation from the most experienced and respected professionals working in the field of HIV and related diseases.

2 CONNECTING • CONVENING • ENGAGING

Through our network of HIV practitioners, we provide a platform that facilitates engagement, camaraderie and clinical consensus.

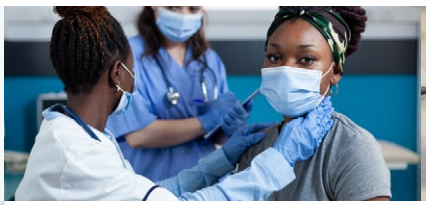
3 ADVOCATING • INFLUENCING • SHAPING

With our vast clinical expertise, we can support healthcare workers in taking their practice to a new level. We are constantly improving and expanding our knowledge, and advocating for clinical and scientific best practice.

4 EDUCATING • CAPACITY BUILDING

We provide learning opportunities for healthcare workers of any cadre through a wide variety of online courses, webinars and conferences that are developed, presented and hosted by experts.






MEMBERSHIP BENEFITS

As a member of SAHCS you can:

- access the membership portal on the SAHCS website, view your SAHCS CPD certificates, update your profile information and so much more;
- receive free online subscription to the PubMed Central® accredited Southern African Journal of HIV Medicine;
- receive electronic HIV/TB-related updates, guidelines and articles;
- access the SAHCS developed clinical guidelines;
- access CPD-accredited continuing medical education meetings / webinars (a fee applies to non-members);
- opt to receive quarterly printed issues of HIV Nursing Matters;
- create a listing on the SAHCS online provider directory, which provides healthcare users with referrals for doctors and other providers who see HIV patients in the private sector;
- 10% discount on the registration fee for the SAHCS biennial conference;
- 10% discount on applicable registration fees for SAHCS online training courses.

MEMBERSHIP FEES (per annum)

- **Doctors: R1,000 per annum**
- **Nurses and allied health professionals: R500 per annum**
- Discounted packages are available for organisations (NGO) that wish to arrange group membership. This amounts to R7,500/annum for 10 members or R14,000/annum for 20 members.

To join as a member go to **www.sahivsoc.org** or contact **mirriam@sahivcs.org**

CONTACT US

Tel: +27 (0) 11 728 7365
Email: sahivcs@sahivcs.org
Web: www.sahivsoc.org

2022 MEMBERSHIP APPLICATION FORM

PROFESSIONAL INFORMATION

Title: ☐ Prof ☐ Dr ☐ Mr ☐ Mrs ☐ Ms **Initials:** _____ **First Name(s):** _____

Surname: _____ **Institution/Organisation:** _____

Profession (check one):

☐ Doctor Generalist ☐ Doctor Specialist ☐ Pharmacist ☐ Professional Nurse ☐ Other: _____

If Doctor Specialist, select speciality:

☐ Cardiology ☐ Clinical Pharmacology ☐ Dermatology ☐ Family Physician ☐ Infectious Diseases ☐ OB GYN ☐ Paediatrics

☐ Physician / Internal Medicine ☐ Psychiatry ☐ Other: _____

Council number (e.g. HPCSA, SANC): _____ **Practice number** (if applicable): _____

Primary Employment affiliation (please chose one):

☐ Clinic ☐ Government (non-clinical) ☐ Hospital ☐ Industry ☐ Non-governmental Organisation (NGO) ☐ Private Practice

☐ Student ☐ University ☐ Other

Professional Activities (write '1' for primary and '2' for secondary):

☐ Administration ☐ Advocacy ☐ Patient care ☐ Programme Management ☐ Research ☐ Sales/Marketing

☐ Teaching/Education ☐ Other

Please enter the year you began treating HIV patients: _____

Please indicate if you have passed a postgraduate diploma on the clinical management of HIV from one of the following institutions:

☐ Colleges of Medicine of South Africa ☐ University of KwaZulu Natal ☐ Other: _____

Year completed: _____ Year completed: _____ Year completed: _____

Professional Associations: ☐ SAMA ☐ IAS ☐ FIDSSA ☐ Other: _____

CONTACT INFORMATION

Postal Address: _____

_____ **Suburb/Town:** _____ **Postal Code:** _____

Province: _____ **Country:** _____

Telephone: _____ **Mobile:** _____

Fax: _____ **Email:** _____

DEMOGRAPHIC INFORMATION

Race/ethnicity: ☐ Black ☐ Coloured ☐ Indian ☐ White ☐ Other: _____

Gender: ☐ Female ☐ Male ☐ Intersex/Transgender **Date of Birth:** ☐☐/☐☐/☐☐☐☐

MEMBERSHIP PREFERENCES

Would you like to receive a posted copy of the Society's magazine for nurses, *HIV Nursing Matters?* (Copies are available free on the Society's website: www.sahivsoc.org) ☐ Yes ☐ No

Would you like to participate in the Society's online membership directory? (Your contact information will be available only to other Society members through the members portal on the Society's website) ☐ Yes ☐ No

How would you like to receive communications from the Society (check all that apply): ☐ SMS ☐ Email

- **Doctors** **R1,000 per annum**
- **Nurses & Allied Health Professionals** **R500 per annum**
- **Pharma Package** **R20,000 per annum**
  includes 10 pharma rep memberships, 2 mailers and 1 social media event / article
- **Organisation (NGO) Package** **R7,500 per annum**
  for 10 staff memberships or R14,000 per annum for 20 staff memberships

Signed: _____

Date: _____

☐ I hereby agree to support the values and mission of the Society; and agree to the membership code of conduct

Method of payment: ☐ Electronic Transfer ☐ Direct Deposit ☐ Post/Cheque ☐ Cash Payment Date: ☐☐/ ☐☐/ ☐☐☐☐

Fees are now charged for a calendar year or pro rata according to the date of application. Payments may be made by cheque or electronic transfer payable to: Southern African HIV Clinicians Society, Nedbank Campus Square, Branch Code 158-105, Account No: 1581 048 033. For alternative online payment please go to **http://sahivsoc.org/about/membership-application** and click the "**Pay Now**" button. Please reference your surname and/or membership number on the payment. Please fax or email form and proof of payment to 011 728 1251 or sahivcs@sahivcs.org or post to: Suite 233, Post Net Killarney, Private Bag x2600, Houghton 2041.

HAVE QUESTIONS? Please contact us: 011 728 7365 / sahivcs@sahivcs.org / www.sahivsoc.org