# Fidelity of universal HIV test and treatment (UTT) implementation in South Africa

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## BACKGROUND

- To improve HIV treatment outcomes and decrease on HIV-related morbidity and mortality, 2015 "Treat All" (UTT) guidelines must be implemented with high fidelity (as intended).
- UTT guidelines has become a focal point globally for implementation efforts to achieve UNAIDS 90-90-90 targets.
- This study characterized timing of antiretroviral therapy (ART) initiation and implementation fidelity in South African since adoption of UTT guidelines from 2016 through 2020.

## METHODS

- We conducted a cohort study among people living with HIV (PLHIV) aged ≥18 years from the International Epidemiology Studies to Evaluate AIDS (IeDEA) 6 sites in South Africa.
- **Timing of ART initiation;** defined as the number of days between HIV diagnosis or IeDEA enrolment and ART initiation if the patient was ART naive at enrolment.
- Timing of ART initiation were divided as: Same-day, 1-7 days, 8-21 days, ≥22 days. Proportions of each group were estimated.
- **Implementation fidelity;** defined as adherence to the content of elements contained in South African UTT guidelines (Table 1).

**Table 1: 2016 South African UTT guidelines**

| UTT policy element | Description |
|---|---|
| Eligibility criteria | All HIV-positive people, regardless of CD4 count, should be offered ART treatment, prioritising those with a CD4 count ≤ 350 cells/mm$^3$ |
| | Patients in the pre-ART and wellness programme should be considered for UTT |
| | Willingness and readiness assessment and keeping of patients who are not ready after assessment in the wellness programme, continuous counselling on the importance of early treatment and a scheduled CD4 count |
| | Baseline monitoring of the CD4 count as a key factor in determining whether to initiate opportunistic infection prophylaxis or not |
| Timing of ART initiation | Starting of patients on ART as soon as they are ready and within two weeks of a CD4 count being done |
| Immediate priority | All HIV-positive pregnant and breastfeeding women with no active TB or contraindications to FDC (TDF/FTC/EFV) |
| Fast track initiation | Patients with a CD4 count ≤ 200 cells/mm$^3$ (HIV stage 4) should be prioritized |
| ART initiation in case of TB | If a patient is diagnosed with TB, TB treatment should be started first followed by ART as soon as possible and within eight weeks |
| | If a patient has a CD4 count < 50 cells/mm$^3$ ART should be initiated within two weeks after starting TB treatment, when the patient's symptoms are improving and TB treatment is tolerated |
| | If a patient has a CD4 > 50 cells/mm$^3$ ART should be initiated within 2 – 8 weeks after starting TB treatment |
| | If a patient has cryptococcal or TB meningitis ART should be deferred for 4 – 6 weeks |
| | Source: 22 8 16 Circular UTT Decongestion CCMT Directorate |

- Proportions of each content were estimated.
- Overall fidelity was calculated as median proportion of all contents. Levels of fidelity were classified as high (80–100%), moderate (51–79%) and low (0–50%).

**a) Significant proportion of patients started ART same-day in South Africa in 2016–2020.**
**-considerably variation by site**
**b) Moderate fidelity of implementation of UTT guidelines in South Africa.**
**-considerably variation by content and site**

## RESULTS

**Table 2. Timing of ART initiation in South African IeDEA sites**

| Characteristic | Same-day | | 1-7 days | | 8-21 days | | ≥22 days | |
|---|---|---|---|---|---|---|---|---|
| | N | % | N | % | N | % | N | % |
| **Overall** | 46442 | 53.2 | 15818 | 18.7 | 6552 | 7.5 | 18060 | 20.8 |
| **Sex** | | | | | | | | |
| **Female** | 31258 | 55.7 | 9810 | 17.0 | 4080 | 7.1 | 11353 | 11.1 |
| **Male** | 15184 | 50.0 | 6007 | 19.8 | 2471 | 8.1 | 6706 | 22.1 |
| **Age** | | | | | | | | |
| **18-24** | 5569 | 57.0 | 1207 | 11.9 | 687 | 7.0 | 2350 | 24.0 |
| **25-34** | 17388 | 54.5 | 5577 | 16.8 | 2457 | 7.5 | 6739 | 21.1 |
| **35-44** | 13914 | 52.0 | 5458 | 20.3 | 1996 | 7.4 | 5422 | 20.3 |
| **45+** | 9571 | 52.9 | 3576 | 19.7 | 1412 | 7.8 | 3549 | 19.6 |
| **Site** | | | | | | | | |
| **AfA** | 20164 | 52.0 | 11435 | 28.9 | 1340 | 3.2 | 6192 | 15.9 |
| **Gugulethu** | 317 | 21.5 | 389 | 26.9 | 238 | 16.4 | 511 | 35.2 |
| **Khayelitsha** | 2302 | 24.4 | 483 | 5.1 | 1248 | 13.2 | 5409 | 57.3 |
| **Khethimpilo** | 23053 | 68.2 | 2839 | 8.4 | 3175 | 9.4 | 4732 | 14.0 |
| **Thembalethu** | 594 | 21.0 | 645 | 23.0 | 527 | 18.7 | 1055 | 37.3 |
| **Tygerberg** | 12 | 5.4 | 27 | 12.0 | 24 | 10.7 | 161 | 71.9 |
| **WHO stage** | | | | | | | | |
| **WHO stage 1/2** | 115 | 43.1 | 120 | 44.9 | 12 | 5.5 | 21 | 7.5 |
| **WHO stage 3/4** | 5077 | 41.7 | 2323 | 18.9 | 1287 | 10.5 | 3494 | 28.8 |
| **TB** | | | | | | | | |
| **No** | 44799 | 54.2 | 14526 | 17.6 | 6163 | 7.5 | 17140 | 20.7 |
| **Yes** | 1400 | 41.1 | 928 | 27.2 | 284 | 8.3 | 798 | 23.4 |
| **Year of ART initiation** | | | | | | | | |
| **2016** | 5555 | 54.1 | 1318 | 12.8 | 726 | 7.1 | 2669 | 26.0 |
| **2017** | 15965 | 53.1 | 4409 | 14.6 | 2532 | 8.4 | 7180 | 23.9 |
| **2018** | 12973 | 53.5 | 4787 | 19.7 | 2123 | 8.8 | 4365 | 18.0 |
| **2019** | 9429 | 59.4 | 3740 | 23.6 | 928 | 5.8 | 1779 | 11.2 |
| **2020** | 2277 | 58.6 | 1200 | 30.9 | 138 | 3.5 | 268 | 6.9 |

- Timing of ART initiation was predominantly same-day initiation (53%) and 1in5 was ≥22 days initiation (Table 2).
- The proportion of same-day initiation varied considerably by site, ranging from 5 % to 68%.
- The proportion of same-day initiation increased slightly over time.

**Table 3. Fidelity of UTT guidelines in South African IeDEA sites**

| UTT policy element | Site / Content | AfA | Gugulethu | Khayelitsha | Khethimpilo | Thembelethu | Tygerberg | Content Adherence (%) | Level of Fidelity* |
|---|---|---|---|---|---|---|---|---|---|
| **Immediate priority** | Those with a CD4 count ≤ 350 cells/mm3 | 86.4 | 54.7 | 31.9 | 78.8 | 53.7 | 22.5 | 78.8 | Moderate |
| **Fast track initiation** | Those with a CD4 count ≤ 200 cells/mm$^3$ | 84.1 | 39.5 | 20.7 | 68.5 | 37.1 | 15.9 | 68.8 | Moderate |
| | Those at HIV stage 4 | 84.6 | 35.6 | 14.0 | 57.6 | 32.7 | 9.4 | 63.8 | Moderate |
| **ART initiation in case of TB** | Patient with TB, TB treatment should be started first followed by ART as soon as possible and within eight weeks | 9.5 | - | 57.4 | - | 20.0 | 50.0 | 19.0 | Low |
| | If a patient has a CD4 > 50 cells/mm$^3$ ART should be initiated within 2 – 8 weeks after starting TB treatment | 13.4 | - | 92.7 | - | 51.7 | 96.4 | 30.2 | Low |
| | Site adherence (%) | 86.1 | 53.3 | 30.4 | 77.3 | 53.6 | 20.6 | 77.3 | Moderate |
| | Level of Fidelity* | High | Low | Low | Moderate | Moderate | Low | Moderate | |

- Three of five contents were implemented with moderate fidelity (Table 3).
- Fidelity varied considerably by content, ranging from 19% to 79%.
- Fidelity varied considerably by site, ranging from 21% to 86%.

## CONCLUSIONS

- Our study suggests moderate fidelity of implementation of UTT guidelines in South Africa.
- Further research needed to understand barriers to optimal implementation of UTT in different settings.

## ADDITIONAL KEY INFORMATION

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