

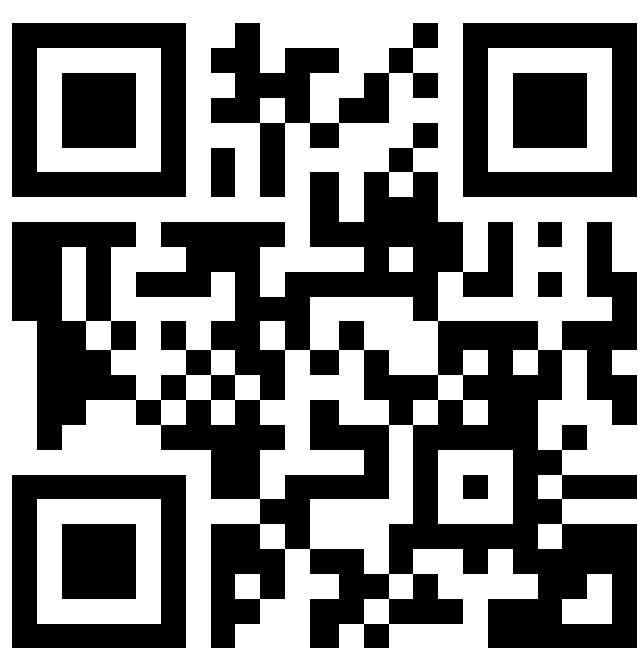
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TDF-based Regimens: Are They Suitable for Same-Day Antiretroviral Treatment Initiation without Baseline Laboratory Test Results in Thailand?

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Given the low proportions of creatinine abnormalities among HIV-positive clients in SDART cohort in Thailand. TDF-based regimens are still applicable for Thailand’s rapid roll out for SDART initiation.



Background

Same-day antiretroviral treatment (SDART) initiation is vital for accomplishing the second 90 of the UNAIDS 90-90-90 targets—that 90 percent of all people diagnosed HIV positive are on antiretroviral therapy (ART)—and the use of treatment as prevention. The recommended first-line ART regimen in Thailand is tenofovir disoproxil fumarate (TDF)/emtricitabine or lamivudine/efavirenz. Renal function is a major concern when using TDF-based regimens. The Linkages across the Continuum of HIV Services for Key Populations Affected by HIV (LINKAGES) Thailand project funded by USAID and PEPFAR and led by FHI 360, along with local government and community-based organization partners explored the prevalence of abnormal renal function and associated risk factors among HIV-positive clients accessing SDART services in Thailand.

Methods

SDART has been implemented in eight hospitals throughout Thailand: Bangkok and Chonburi (Central), Chiang Mai and Chiang Rai (Northern), and Songkhla (Southern). Data from the SDART cohort were collected from July 2017 through April 2019. HIV-positive clients who accepted SDART underwent laboratory investigations according to national guidelines. Physicians determined SDART eligibility based on medical history, physical examination, and chest x-ray to exclude serious opportunistic infections, particularly tuberculosis and cryptococcal meningitis, without waiting for all laboratory test results. Creatinine clearance (CrCl) was calculated using the Cockcroft-Gault equation. Logistic regression was used to explore factors associated with low CrCl (<60 ml/min).

Results

Among 3,812 HIV-positive clients who accepted SDART, 88.8% were eligible for initiation. Sixty-three percent were men who have sex with men, and 5.9% were transgender women. Median age was 28 years old (IQR 24-36) (Table 1). Low CrCl was found in 0.89%. ART was initiated on the first day of HIV diagnosis or care engagement in 72.7%, another 15.5% started within the next seven days. TDF-based regimens were prescribed for 99% at initiation, and only 0.07% of these clients had to subsequently switch to non-TDF-based regimens due to low CrCl (Table 1). In multivariable analysis, age 36-45 years (odds ratio [OR] 3.93; 95% CI] 1.3-11.89; p=0.015), aged 46-55 (OR 9.15; 95% CI 2.86-29.28; p<0.001), aged > 55 years (OR 8.8; 95% CI 1.82-42.52; p=0.007), clients in Northern Thailand (OR 5.04; 95% CI 1.81-14.06; p=0.002), Southern Thailand (OR 6.67; 95% CI 2.31-19.29; p<0.001), Northeastern Thailand (OR 5.68; 95% CI 1.07-30.25; p=0.042) and clients with CD4 ≤ 50 cells/mm3 (OR 4.34; 95% CI 1.33-14.21; p=0.015) were associated with low CrCl (Table 2).

Table 2
Factors associated with abnormal eGFR^[1] among HIV-positive clients

Factors	Univariate model			Multivariable model		
	OR	95% CI	P-value	Adj. OR	95% CI	P-value
Region						
Central	Ref.			Ref.		
Eastern	(empty)			(empty)		
Northern	12.96	5.34-31.49	<0.001	5.04	1.81-14.06	0.002
Southern	17.7	6.91-45.34	<0.001	6.67	2.31-19.29	<0.001
Northeastern	10.73	2.23-51.49	0.003	5.68	1.07-30.25	0.042
Gender						
MSM	0.19	0.09-0.42	<0.001	0.92	0.34-2.5	0.87
TGW	(empty)			(empty)		
General population	Ref.			Ref.		
Age groups						
≤35 years old	Ref.			Ref.		
36-45 years old	7.77	2.86-21.1	<0.001	3.93	1.3-11.89	0.015
46-55 years old	25.87	9.74-68.7	<0.001	9.15	2.86-29.28	<0.001
>55 years old	25.2	6.14-103.42	<0.001	8.8	1.82-42.52	0.007
CD4 groups						
≤50 cells/mm ³	12.66	4.1-39.1	<0.001	4.34	1.33-14.21	0.015
51-100 cells/mm ³	4.44	0.99-19.98	0.05	1.78	0.38-8.32	0.47
101-200 cells/mm ³	3.32	0.93-11.82	0.06	2.32	0.63-8.5	0.21
201-350 cells/mm ³	1.32	0.35-4.91	0.68	1.26	0.33-4.8	0.73
>350 cells/mm ³	Ref.			Ref.		

[1] eGFR normal range: ≥60 mL/min/1.73 m²

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Table 1
Baseline characteristics of sample

Characteristics	Clients who accepted Same-Day ART service (N=3812)	Clients who have started ART (N=3385)
Region		
Central	3,054 (80.1)	2,684 (79.3)
Eastern	136 (3.6)	128 (3.8)
Northern	348 (9.1)	317 (9.4)
Southern	213 (5.6)	200 (5.9)
Northeastern	61 (1.6)	56 (1.7)
Newly / Re-engage		
Newly	2,153 (56.5)	1,918 (56.7)
Re-engage	1,659 (43.5)	1,467 (43.3)
Gender		
MSM	2,394 (62.8)	2,143 (63.3)
Transgender women	212 (5.6)	200 (5.9)
General population	1,206 (31.6)	1,042 (30.8)
Age (years)		
Number of responses	3,812	3,385
Minimum, Maximum	1,484	1,484
Median (IQR)	28 (24-36)	28 (23-35)
Age group		
<25 years old	1,133 (29.7)	1,069 (31.6)
25-35 years old	1,681 (44.1)	1,498 (44.3)
>35 years old	998 (26.2)	818 (24.2)
Education		
Number of responses	2,352	2,159
Less than bachelor's degree	1,343 (57.1)	1,243 (57.6)
Bachelor's degree or higher	1,009 (42.9)	916 (42.4)
Monthly income		
Number of responses	2,332	2,111
≤10,000 THB	735 (31.5)	683 (32.4)
>10,000 THB	1,597 (68.5)	1,428 (67.6)
CD4 group		
≤50 cells/mm ³	371 (10.2)	264 (7.9)
51-100 cells/mm ³	237 (6.5)	168 (5)
101-200 cells/mm ³	577 (15.8)	532 (15.9)
201-350 cells/mm ³	1,201 (32.9)	1,156 (34.5)
>350 cells/mm ³	1,268 (34.7)	1,229 (36.7)
eGFR		
Number tested	3451	3,320
Normal ^[1]	3,423 (99.2)	3,299 (99.4)
Abnormal	28 (0.8)	21 (0.6)
Creatinine		
Number tested	3448	3,317
Normal ^[2]	3,347 (97.1)	3,226 (97.3)
Abnormal	101 (2.9)	91 (2.7)
ALT		
Number tested	3,438	3,311
Normal ^[3]	2930 (85.2)	2,829 (85.4)
Abnormal	508 (14.8)	482 (14.6)
Duration from HIV diagnosis to care engagement		
Number of responses	3740	3,374
Same day	1,079 (28.9)	969 (28.7)
Day 2-3	866 (23.2)	782 (23.2)
Day 4-7	599 (16)	546 (16.2)
>Day 7	1,196 (32)	1,077 (31.9)
Duration from care engagement to ART initiation		
Same day		2,461 (72.7)
Day 2-3		239 (7.1)
Day 4-7		285 (8.4)
>Day 7		400 (11.8)
Regimens		
TDF-based regimens		3,350 (99)
Other		35 (1)

Conclusions

Given the low proportions of creatinine abnormalities among HIV-positive clients in Thailand, TDF-based regimens are still applicable as the country's first-line regimens to safely and rapidly roll out SDART initiation. SDART services were proved to be feasible and very effective in key strategic provinces in Thailand. Affordable abacavir and/or tenofovir alafenamide-based regimens could be safer alternatives for older clients and clients in certain geographical areas.