Same-day ART in Thailand: The impact of ART initiation periods on treatment outcomes

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Background

- In 2017, WHO recommended ART initiation upon the day of HIV diagnosis among clients who are clinically and emotionally ready.
- Same-Day ART has been implemented in 10 healthcare facilities in 6 provinces in Thailand since 2017, aiming to improve ART uptake.
- Initial findings demonstrated an increase in ART uptake and viral load suppression among clients who received ART through Same-Day ART in a stand-alone, VCT clinic in Bangkok, Thailand.
- Despite promising results, there are concerns pertaining treatment outcomes among clients who received immediate treatment.

Study Objective

To evaluate the influence of different times to ART initiation on: 1) retention, 2) viral load suppression, 3) clinical adverse events, and 4) death among clinically-eligible clients, as determined by a physician, in Same-Day ART cohort in Thailand

Methods

- Data was obtained from HIV-positive clients from 10 facilities in 6 provinces (Chiang Rai, Chiang Mai, Chonburi, Ubonratchathani, Bangkok and Songkhla) between July 2017–July 2019.
- Baseline laboratory tests (creatinine, urinalysis, CD4 count, HBsAg, anti-HCV, syphilis serology, ALT, and cryptococcal Ag if CD4 <100 cells/mm^3) and chest X-rays were performed according to national guidelines.
- ART eligibility was determined by a physician, with FTC/TDF/EFV as first-line drug regimen.
- Clinically-eligible clients were included in the analysis, and categorized into the duration between care engagement and ART initiation: same-day, 2-7 days, 8-14 days, 15-21 days, and more than 21 days.
- Chi-Square/Fisher's Exact test and T-Test were performed to assess the difference among categorical and continuous variables, respectively. For continuous variables that did not follow the normal distribution, the Wilcoxon rank-sum test (Mann-Whitney U test) or K-sample test was conducted. Multivariable logistic regressions were performed to identify factors associated with: 1) loss to follow-up at months 3, 6, or 12 after ART initiation; 2) viral load suppression; 3) clinical adverse events; and 4) death.

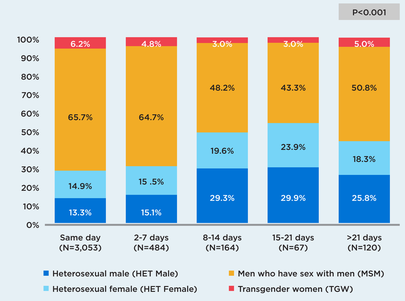
Results

Table 1 Demographic Characteristics

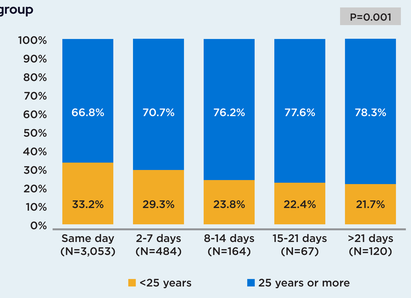
	ART Initiatiation Durations						
	Same day	**2-7 days**	**8-14 days**	**15-21 days**	**>21 days**	**Total**	**p-value**
Total N	**3,053**	**484**	**164**	**67**	**120**	**3,888**	
Gender	N=3,053	N=484	N=164	N=67	N=120	N=3,888	0.126
Female	14.9%	15.5%	19.5%	23.9%	18.3%	15.4%	
Male	85.1%	84.5%	80.5%	76.1%	81.7%	84.6%	
Age	N=3,053	N=484	N=164	N=67	N=120	N=3,888	=0.001
Mean (SD)	30 (9.01)	31 (9.19)	32 (9.78)	34 (11.36)	31 (9.52)	30 (9.16)	
Median (Q1,Q3)	28 (23, 34)	29 (24, 37)	30 (25, 39)	30 (25, 42)	29 (25, 36)	28 (23, 35)	
Education	N=1,772	N=304	N=132	N=56	N=96	N=2,360	<0.001
Less than secondary school	6.8%	5.3%	18.9%	17.9%	7.3%	7.6%	
Secondary school	31.9%	37.5%	40.9%	35.7%	56.3%	34.2%	
Higher than secondary school	61.3%	57.2%	40.2%	46.4%	36.5%	58.2%	

Same-Day ART did not lead to an increase in clinical adverse events or death among clinically eligible clients, and viral load suppression and loss to follow-up did not differ by timing of ART initiation.

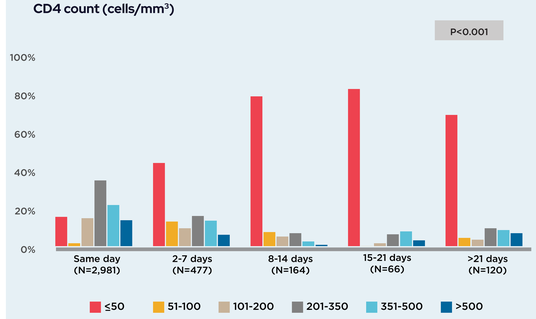
Population



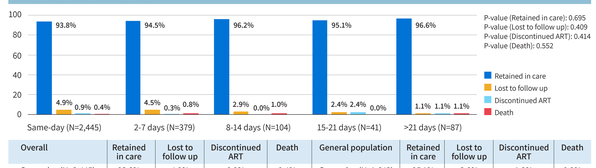
Age group



CD4 count (cells/mm^3)

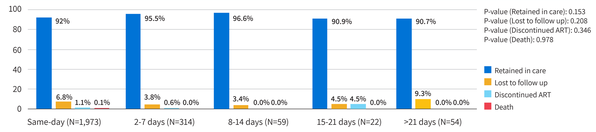


Retention at Month 3



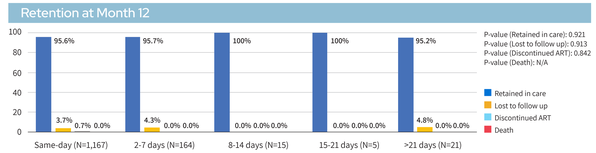
Overall	Retained in care	Lost to follow up	Discontinued ART	Death	General population	Retained in care	Lost to follow up	Discontinued ART	Death
Same-day (N=2,445)	93.8%	4.9%	0.9%	0.4%	Same-day (N=1,643)	95.1%	2.8%	1.2%	0.9%
2-7 days (N=379)	94.5%	4.5%	0.3%	0.8%	2-7 days (N=255)	97.2%	0.9%	0%	1.8%
8-14 days (N=104)	96.2%	2.9%	0%	1.0%	8-14 days (N=49)	96.0%	2.0%	0%	2.0%
15-21 days (N=41)	95.1%	2.4%	2.4%	0%	15-21 days (N=19)	90.5%	4.8%	4.8%	0%
>21 days (N=87)	96.6%	1.1%	1.1%	1.1%	>21 days (N=47)	97.1%	0%	0%	2.9%
MSM					TGW				
Same-day (N=1,643)	93.8%	5.3%	0.7%	0.2%	Same-day (N=151)	88.7%	9.9%	1.3%	0%
2-7 days (N=255)	93.3%	5.9%	0.4%	0.4%	2-7 days (N=15)	93.3%	6.7%	0%	0%
8-14 days (N=49)	95.9%	4.1%	0%	0%	8-14 days (N=5)	100.0%	0%	0%	0%
15-21 days (N=19)	100.0%	0%	0%	0%	15-21 days (N=1)	100.0%	0%	0%	0%
>21 days (N=47)	95.7%	2.1%	2.1%	0%	>21 days (N=6)	100.0%	0%	0%	0%

Retention at Month 6



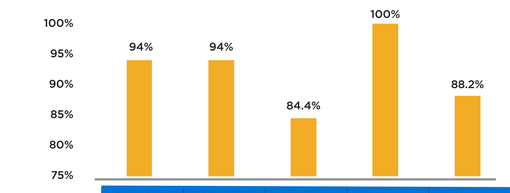
Overall	Retained in care	Lost to follow up	Discontinued ART	Death	General population	Retained in care	Lost to follow up	Discontinued ART	Death
Same-day (N=1,973)	92.0%	6.8%	1.1%	0.1%	Same-day (N=514)	92.0%	5.8%	1.9%	0.2%
2-7 days (N=314)	95.5%	3.8%	0.6%	0%	2-7 days (N=89)	95.5%	3.4%	1.1%	0%
8-14 days (N=59)	96.6%	3.4%	0%	0%	8-14 days (N=28)	96.4%	3.6%	0%	0%
15-21 days (N=22)	90.9%	4.5%	4.5%	0%	15-21 days (N=8)	100.0%	0%	0%	0%
>21 days (N=54)	90.7%	9.3%	0%	0%	>21 days (N=16)	87.5%	12.5%	0%	0%
MSM					TGW				
Same-day (N=1,341)	91.9%	7.2%	0.7%	0.1%	Same-day (N=118)	92.4%	6.8%	0.8%	0%
2-7 days (N=212)	95.3%	4.2%	0.5%	0%	2-7 days (N=13)	100.0%	0%	0%	0%
8-14 days (N=30)	96.7%	3.3%	0%	0%	8-14 days (N=1)	100.0%	0%	0%	0%
15-21 days (N=12)	83.3%	8.3%	8.3%	0%	15-21 days (N=2)	100.0%	0%	0%	0%
>21 days (N=34)	91.2%	8.8%	0%	0%	>21 days (N=4)	100.0%	0%	0%	0%

Retention at Month 12



Overall	Retained in care	Lost to follow up	Discontinued ART	Death	General population	Retained in care	Lost to follow up	Discontinued ART	Death
Same-day (N=1,167)	95.6%	3.7%	0.7%	0%	Same-day (N=277)	94.6%	4.0%	1.4%	0%
2-7 days (N=164)	95.7%	4.3%	0%	0%	2-7 days (N=42)	92.9%	7.1%	0%	0%
8-14 days (N=15)	100.0%	0%	0%	0%	8-14 days (N=6)	100.0%	0%	0%	0%
15-21 days (N=5)	100.0%	0%	0%	0%	15-21 days (N=1)	100.0%	0%	0%	0%
>21 days (N=21)	95.2%	4.8%	0%	0%	>21 days (N=3)	100.0%	0%	0%	0%
MSM					TGW				
Same-day (N=836)	96.1%	3.5%	0.5%	0%	Same-day (N=137)	37.2%	2.2%	60.6%	0%
2-7 days (N=113)	96.5%	3.5%	0%	0%	2-7 days (N=19)	47.4%	0%	52.6%	0%
8-14 days (N=9)	100.0%	0%	0%	0%	8-14 days (N=0)	0%	0%	0%	0%
15-21 days (N=4)	100.0%	0%	0%	0%	15-21 days (N=1)	0%	0%	100.0%	0%
>21 days (N=16)	93.8%	6.3%	0%	0%	>21 days (N=5)	40.0%	0%	60.0%	0%

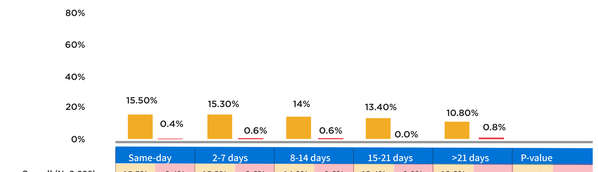
Viral Load Suppression



	Same-day	2-7 days	8-14 days	15-21 days	>21 days	P-value
Overall (N=1,151)	94.0%	94.0%	84.4%	100.0%	88.2%	0.054
MSM (N=740)	93.3%	97.0%	77.8%	100.0%	100.0%	0.022
TGW (N=70)	98.4%	100.0%	100.0%	100.0%	100.0%	0.997
General population (N=341)	94.7%	83.3%	88.5%	100.0%	73.3%	0.007

(Viral load suppression: <50 copies/mL after taking ART for at least 6 months)

Any Clinical Adverse Events & Death



	Same-day		2-7 days		8-14 days		15-21 days		>21 days		P-value	
Overall (N=3,888)	15.5%	0.4%	15.3%	0.6%	14.0%	0.6%	13.4%	0.0%	10.8%	0.8%	0.685	0.895
MSM (N=2,487)	14.5%	0.2%	14.4%	0.3%	11.4%	0.0%	20.7%	0.0%	4.9%	0.0%	0.203	0.967
TGW (N=224)	22.3%	0.0%	4.3%	0.0%	0%	0.0%	50.0%	0.0%	0%	0.0%	0.087	N/A
General population (N=1,177)	16.3%	1.0%	18.9%	1.4%	17.5%	1.3%	5.6%	0.0%	18.9%	1.9%	0.397	0.935

Any clinical adverse events Death

Multivariable Logistic Regressions

Factor associated with loss to follow-up
Transgender women (aOR: 1.70; 95%CI: 1.03-2.80; p<0.05)

Factor associated with clinical adverse events
Transgender women (aOR: 1.52; 95%CI: 1.07-2.17; p<0.05)

No factor was found to be associated with viral load suppression and death

Conclusion

- Same-day ART did not lead to an increase in clinical adverse events or death among clinically eligible clients.
- Viral load suppression and loss to follow-up did not differ by timing of ART initiation.
- Intensive short-term and long-term supporting effort will need to be planned and provided for transgender women.

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