

STD-AIDS-2014



2<sup>nd</sup> International Conference on

**HIV/AIDS, STDs, & STIS**

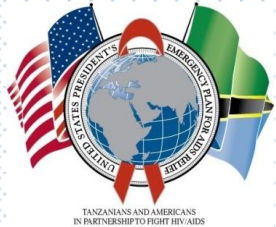
October 27-29, 2014 Las Vegas, USA

# **Clinical and immunologic pattern of PLHIV lost from HIV care before initiated Antiretroviral treatment within an HIV Program in Tanzania**

**Aisa N Muya, MD, MPH**

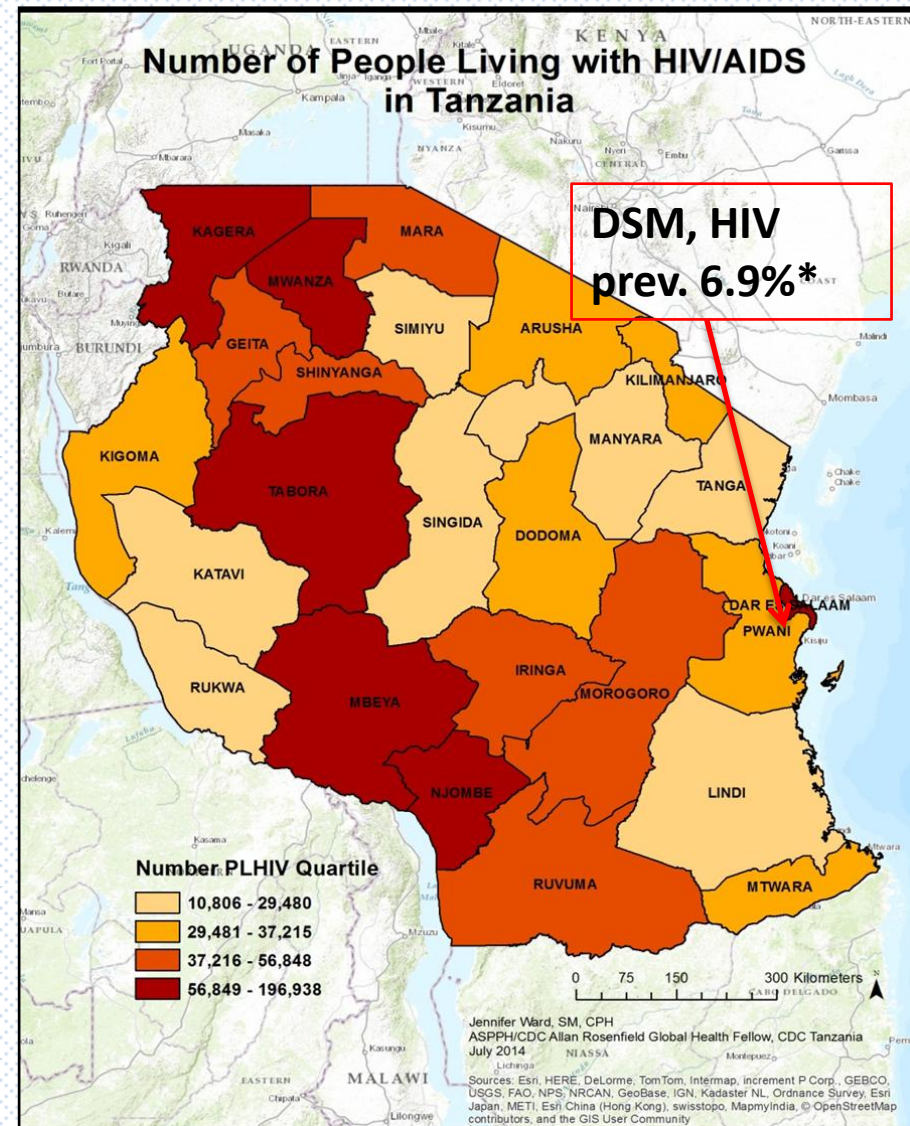
**Management and Development for Health (MDH)**

Co-authors: Expeditho Mtisi, Lameck Machumi, Guerino Chalamilla



# HIV/AIDS in Tanzania

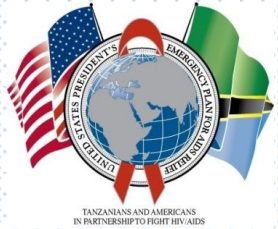
- HIV prevalence of 5.1%\*;
- Estimated number of PLHIV- 2.2 million\*
- Enrolled for HIV care: 1.4 million by 2014\*\*
- Initiated ART: 928,484\*\*
- Current on ART: 560,262\*\*
- MDH supported HIV care and treatment program:
  - Enrolled: 158,520 PLHIV\*\*\*
  - Initiated ART: 118,649\*\*\*
  - Current on ART: 72,977\*\*\*



\*The Tanzania HIV/AIDS and Malaria Indicator Survey (THMIS) 2012

\*\* NACP report June 2014

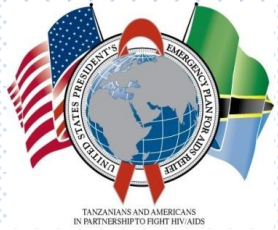
\*\*\* MDH report June 2014



# Retention on HIV care



- Early ART initiation improves survival and quality of life of PLHIV (Cohen, N Eng Med 2011)
- Retention of patients on care before ART initiation is still a major challenge in SSA, including Tanzania (Fox MP, Trop Med Int Health 2010)
- In MDH supported program in Tanzania, **52.7% of enrolled patients were lost to follow up before initiated ART** (Sept 2012)



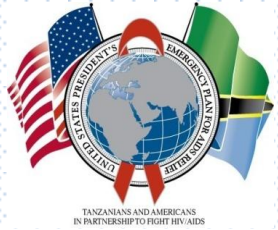
# Rationale



- Advanced clinical and immunological HIV disease is associated with early mortality (Chalamilla et al, J Int Assoc Physicians AIDS Care (Chic). 2012)
- Understanding clinical and immunological patterns associated with patients' LTFU before ART initiation is critical

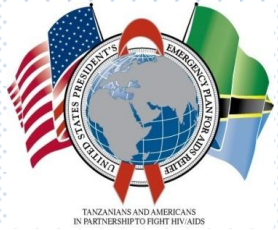
## **Study Objective:**

- To study the clinical and immunological patterns among patients who have defaulted from HIV care before initiated ART



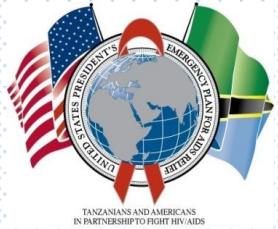
# Methods

- Survival analysis of HIV-infected patients enrolled between Oct 2004 – Sept 2012 from the 80 facilities in DSM,
- **Analysis cohort:** The 25,433 PLHIV who were not initiated ART
- Event outcome was lost to follow up (LTFU)
- LTFU was defined as:
  - missing clinic visit for more than 180 consecutive days after the last scheduled appointment date among patients on HIV care and monitoring

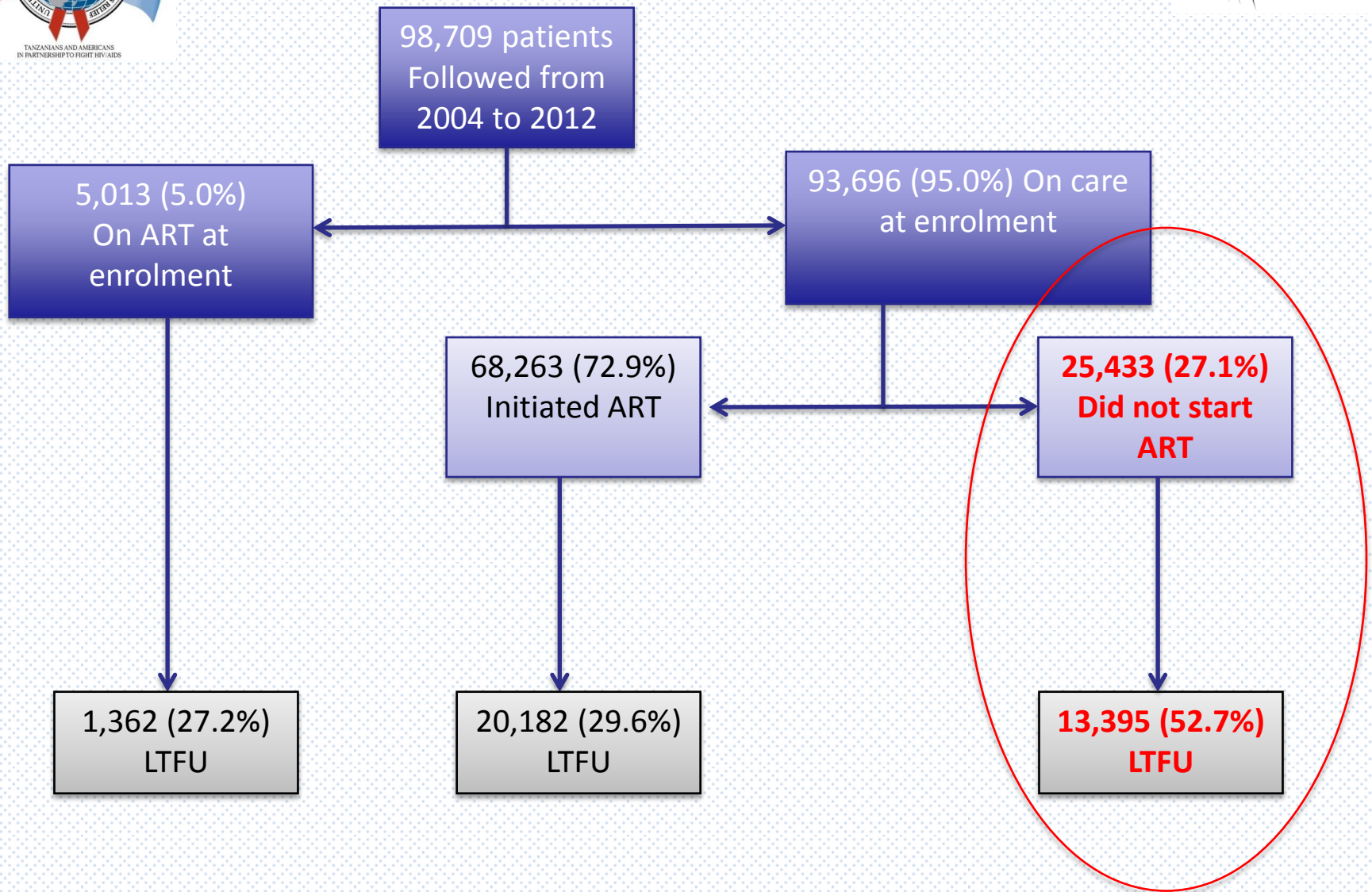


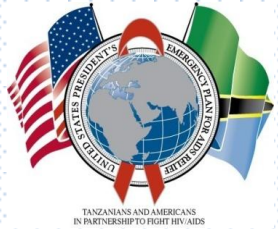
# Methods - Analysis

- Data were analyzed using SAS version 9.3
- In Univariate and multivariate analysis, Cox proportional hazard regression model was employed to identify clinical and immunological risk factors.
- Variables with p value  $<0.2$  in univariate analysis were included in the multivariate model
- Kaplan Meier plots were used to determine the probability of loss to follow up



# Flow chart





# Results-1

- Among 25,433 patients enrolled to HIV care:
  - 13,395 (52.7%) were lost before ART initiation
  - Females were 77%
  - Median age: 35 years (IQR: 29- 42 years)
  - Median CD4+ cell count: 218 cells/mm<sup>3</sup> (IQR: 89 -390 cells/mm<sup>3</sup>)

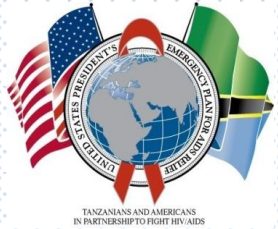




# Table 1: Basic Characteristics at Enrollment of patients not initiated ART between Oct 2004 – Sep 2012 (N= 25,433)

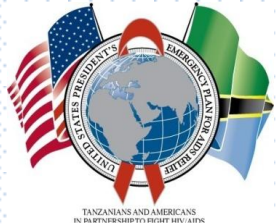


Variable	N	Percentage (%)	Variable	N	Percentage (%)
<b>Sex</b>			<b>Married</b>		
Male	6,104	34.0	No	14,573	57.3
Female	19,329	76.0	Yes	10,860	42.7
<b>Age groups, years</b>			<b>WHO stage:</b>		
<30	10,046	39.5	I	10,529	41.4
30 - <40	9,894	38.9	II	5,926	23.3
40 - <50	3,840	15.1	III	6,511	25.6
50+	1,653	6.5	IV	2,467	9.7
<b>BMI , kg/m<sup>2</sup></b>			<b>CD4 count, cells/mm<sup>3</sup></b>		
<18.5	7,579	29.8	<200	12,183	47.9
18.5 - <25	11,343	44.6	200 - <350	3,535	13.9
25 - <30	4,400	17.3	350+	9,715	38.2
30 +	2,111	8.3			



## Results-2

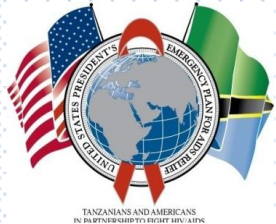
- Significant increased risk for LTFU was found among patients with:
  - **CD4 <200 cells/mm<sup>3</sup>** (HR: 2.10, 95% CI 2.07 – 2.22, p<0.0001);
  - **WHO clinical stage IV** (HR: 1.26, 95%CI 1.14 – 1.39, p<0.0001)
  - **BMI ratio <18.5 kg/ m<sup>2</sup>** (HR: 1.16, 95% CI 1.07-1.25, p=0.03)



**Table 2: Univariate and Multivariate for LTFU for Patients enrolled in care and not initiated ART (N = 25,433 patients with 13,395 events)**



Variable	Univariate HR (95% CI)	P for Trend	Multivariate HR (95% CI)	P for Trend
Sex				
Male	1.26 (1.20 – 1.33)	<0.0001	1.06 (1.01 – 1.14)	0.04
Female	Reference		Reference	
Age		<0.0001		0.1
<30	0.35 (0.33 – 0.36)		0.42 (0.40 – 0.45)	
30 - <40	Reference		Reference	
40 - <50	1.04 (0.97 – 1.12)		1.04 (0.97 – 1.12)	
50+	1.09 (0.99 – 1.20)		1.09 (0.99 – 1.20)	
BMI group: kg/m <sup>2</sup>		<0.0001		0.03
<18.5	1.86 (1.76-1.93)		1.16 (1.07 -1.25)	
18.5 - <25	Reference		Reference	
25 - <30	0.84 (0.80-0.88)		0.92 (0.86-0.97)	
30 +	0.72 (0.67- 0.76)		0.78 (0.71-0.84)	



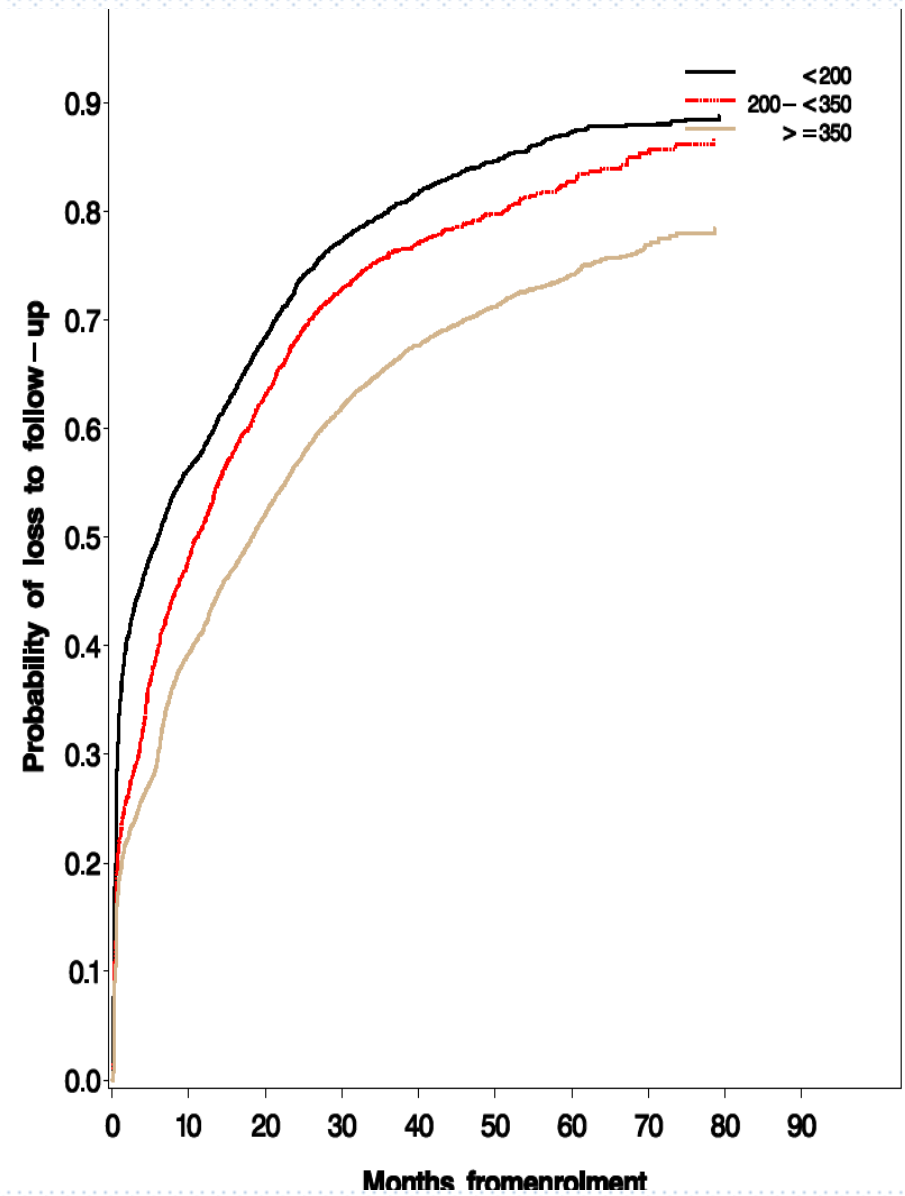
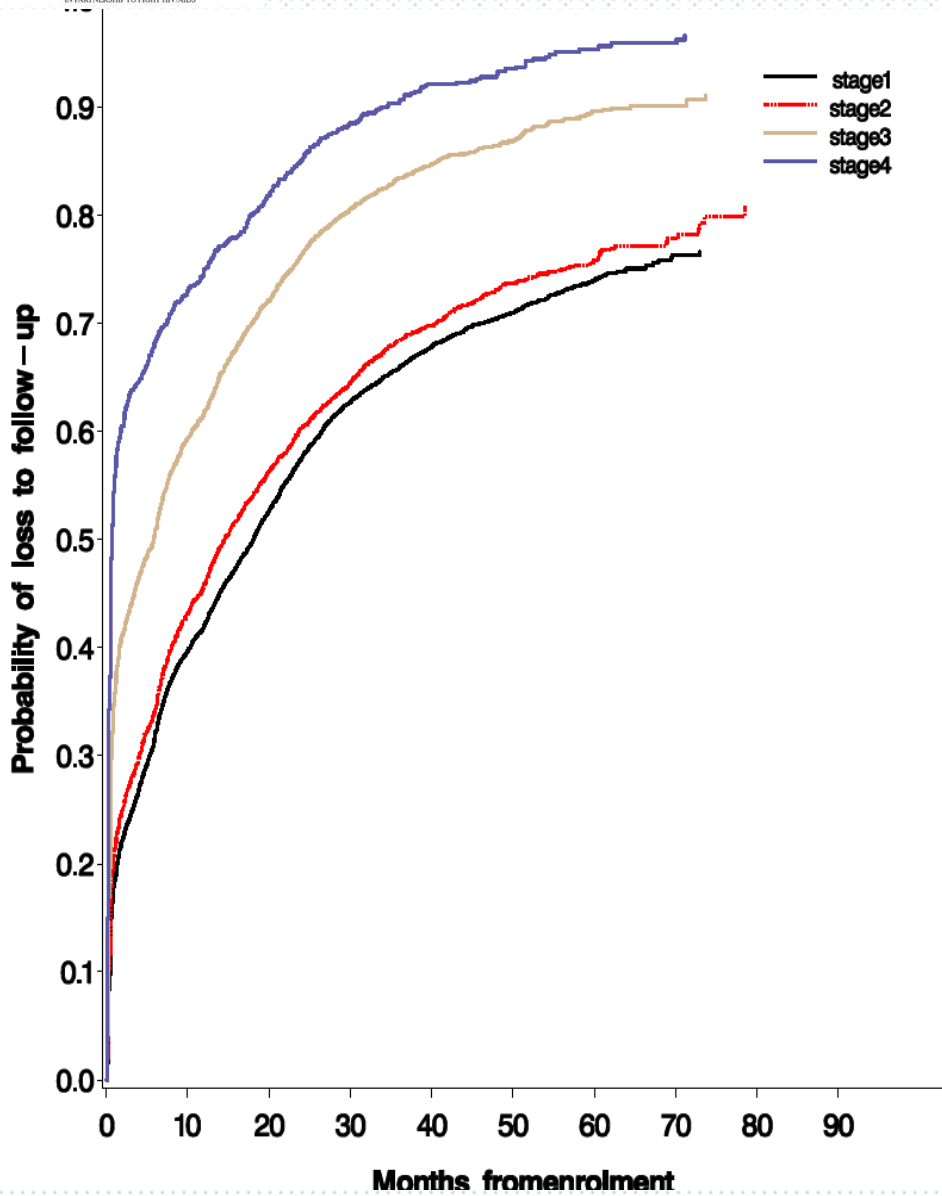
**Table 2: Univariate and Multivariate for LTFU for Patients enrolled in care and not initiated ART (N = 25,433 patients with 13,395 events)**

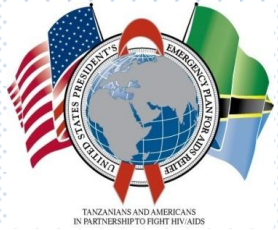


Variable	Univariate HR (95% CI)	P for Trend	Multivariate HR (95% CI)	P for Trend
<b>CD4 count, cells/mm<sup>3</sup></b>		<0.0001		<0.0001
<200	2.60 (2.53 – 2.65)		2.10 (2.07 – 2.22)	
200 - <350	1.30 (1.23 – 1.86)		1.26 (1.20 – 1.33)	
350+	Reference		Reference	
<b>WHO stage:</b>		<0.0001		<0.0001
I	Reference		Reference	
II	1.04 (0.99 – 1.09)		0.96 (0.91 – 1.02)	
III	1.73 (1.66 – 1.81)		1.18 (1.11 – 1.26)	
IV	2.61 (2.48 – 2.75)		1.26 (1.14 – 1.39)	
<b>Married</b>		<0.0001		0.001
No	Reference		Reference	
Yes	0.88 (0.84- 0.92)		0.92 (0.88- 0.97)	



# Kaplan Meier probability of LTFU by Clinical stage and CD4 count

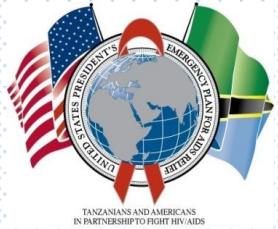




# Conclusion



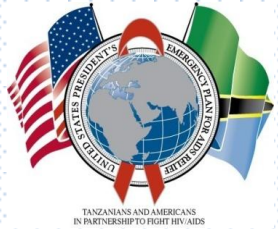
- Patients with advance HIV/AIDS disease have significant increased risk of being LTFU
- The identified clinical and immunological pattern among LTFU patients correspond to the risk factors associated with HIV/AIDS mortality identified in other studies ([Chalamilla et al, 2012](#))
- This suggests possibility of AIDS mortality among the LTFU patients in programs that do not have efficient patient tracking system



# Recommendations



- Special adherence counseling targeting patients with advance HIV disease in tandem with early ART initiation may reduce LTFU
- HIV Programs to design more effective patient tracking systems targeting patients in HIV care awaiting ART initiation.
- Further studies on effective models to improve patient retention in HIV care and treatment



# Acknowledgements

- The govt of Tanzania through Ministry of Health and Social welfare
- The Dar es Salaam regional secretariat and its municipal councils health management teams
- Management and Development for Health staff
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**THANK YOU**

**AHSANTENI SANA**