Poster: 1010

Successful Implementation of Extended ART Initiation Criteria in Rural South Africa

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Background

- There is concern that earlier initiation of antiretroviral treatment (ART) in lower resource settings may:
  1. Compromise access to care for patients with lower CD4 counts, and
  2. Result in lower retention in care (RIC) among patients with higher CD4
- In July 2014 we extended ART initiation criteria from CD4 cell counts of ≤350 to ≤500 copies/ µl in nine primary health clinics in KwaZulu-Natal, South Africa (Figure 1)
- Here, with operational data from our public sector setting, we assess whether:
  1. There was any compensatory reduction in initiation of patients with lower CD4 counts , and
  2. Retention among those newly eligible (e.g., patients with CD4 350-500) was satisfactory

Methods

- A retrospective cohort analysis was used to compare proportions initiated on ART and RIC at 12 months among pre-art patients. Therefore, for this analysis, baseline CD4 was taken as the most recent pre-ART CD4 for each patient
  - *Inclusion criteria*:
    - ***CD4≤500 cohort:*** Baseline CD4 between July 1 and December 31, 2014
    - ***CD4≤350 cohort:*** Baseline CD4 between July1 and December 31, 2013
  - *Exclusion criteria*:
    - Pregnancy, TB, age <15 years and WHO stage 3 or 4 at ART initiation
- Outcomes were determined from date of baseline CD4 and analysed descriptively using survival analysis

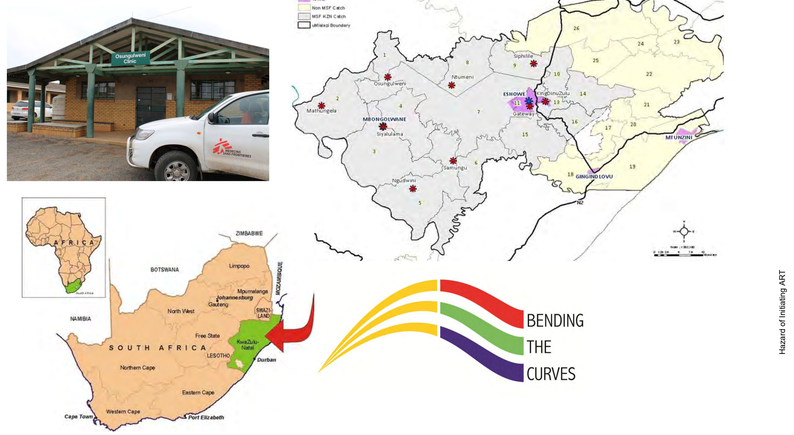

Figure 1: Location of Bending the Curves Project and Supported Hospitals

Results

- There were 1090 patients in the CD4≤350 cohort and 962 in the CD4 ≤500 cohort
- No differences in the distributions of age , sex or baseline CD4 were observed between the cohorts (Table 1).

Time to ART Initiation (Table 2, Figure 2)

- Time to ART initiation and the cumulative hazard of ART initiation remained constant across cohorts among those with CD4≤350 between
- Among the 241 patients in the CD4≤350 cohort and the 218 in the CD4≤500 cohort who had a baseline CD4 351-500 :
  - The proportion initiated by 3 months increased 3.5 times from 20% to 69%. Similar increases were observed for the proportions initiated by 1 and 6 months
  - The hazard of initiating ART within 3 months of the baseline CD4 increased from 0.22 (95%CI: 0.16-29) to 1.15 (95%CI: 0.97-1.37)
- Increases in the proportion initiated by 6 months were also observed among those with CD4 ≥ 500

Retention in Care (Table 3)

- RIC from baseline CD4 remained consistent among those with baseline CD4 ≤350 (Table 3)
- With minimally overlapping confidence intervals, RIC at 12 months increased from 65% (95%CI: 59-71%) in the CD4≤350 cohort to 75% (95%CI: 68-80%) in the CD4≤500 cohort

Table 1: Baseline patient characteristics by Cohort

Characteristic		CD4≤350 cohort N=1090 n (%)	CD4≤500 cohort N=962 n (%)	P-value
Age	Median (IQR)	30 (25-39)	29 (24-38)	--
Sex	Female	736 (67.5%)	640 (66.5%)	0.52*
	Male	354 (32.5%)	322(33 .5%)	
Baseline CD4	<200	235 (21.56%)	197 (20.5%)	0.63**
	201-350	304 (27.9%)	266 (27.7%)	
	351-500	241 (22.1%)	218 (22.7%)	
	>500	310 (28.4%)	281 (29.2%)	

*Chi-square, **Wilcoxon Rank Sum

Table 2: Time to ART initiation by Baseline CD4 and Cohort

CD4 at ART initiation (copies/ µl)	Time from Baseline CD4 to ART Initiation (months)	CD4≤350 cohort Baseline CD4 July 1 – December 31, 2013			CD4≤500 cohort Baseline CD4 July 1 – December 31, 2014		
		Percent initiated	95%CI		Percent initiated	95%CI	
			Lower limit	Upper limit		Lower limit	Upper limit
≤200	One	75.7	70.1	81.0	80.2	74.4	85.4
	Three	81.3	76.1	86.0	85.8	80.5	90.2
	Six	83.8	78.8	88.2	87.3	82.3	91.5
201-350	One	73.0	67.9	77.9	73.7	68.3	78.8
	Three	85.2	81.0	88.9	82.7	77.9	87.0
	Six	86.8	82.8	90.4	87.6	83.3	91.2
351-500	**One**	**13.3**	**9.6**	**18.3**	**55.1**	**48.6**	**61.7**
	Three	**19.5**	**15.0**	**25.1**	**69.3**	**63.1**	**75.3**
	Six	**24.9**	**19.9**	**30.9**	**73.9**	**67.9**	**79.5**
≥500	One	3.9	2.2	6.7	12.1	8.8	16.5
	Three	6.1	3.9	9.4	15.3	11.6	20.1
	Six	9.7	6.9	13.6	17.4	13.5	22.4

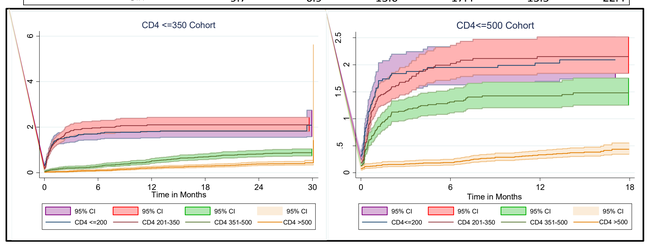

Figure 2: Cumulative Hazard of Initiating ART by cohort

We have no conflicts of interest to declare.



Conclusions:

- Expanding eligibility for ART to CD4≤500 resulted **in rapid change in time to ART initiation among those with baseline CD4 351-500 without any reduction in initiation among those with a CD4 ≤ 350**
  - ART uptake remained higher in patients with CD4 201-350 than among those with CD4 351-500, indicating that there is room to improve uptake among those initiating with higher CD4 counts as guidelines shift towards test-and-treat.
- **High RIC across time and groups** suggests that 'healthier' patients do not have increased loss to follow-up. Further, this analysis suggests that there may be an improvement in RIC among patients with higher CD4 if they initiated on ART earlier.
- With sufficient resources, staff and patients can effectively implement extended initiation criteria
  - In our setting we use community models of care to assist with decongestion and maximize existing clinic resources
- It was **possible to implement earlier ART initiation in our high HIV prevalence, low resource-setting** without compromising access to care for more vulnerable patients.

Table 3: Retention in Care by Baseline CD4 and Cohort

CD4 at ART initiation (copies/ µl)	Months Retained in Care from Baseline CD4	CD4≤350 cohort Baseline CD4 July 1 – December 31, 2013			CD4≤500 cohort Baseline CD4 July 1 – December 31, 2014		
		Percent RIC	95%CI		Percent RIC	95%CI	
			Lower limit	Upper limit		Lower limit	Upper limit
≤200	Six	81.0	75.2	85.5	78.6	72.1	83.8
	Nine	79.5	73.6	84.2	75.8	69.1	81.3
	Twelve	76.9	70.8	82.0	73.1	66.1	78.8
201-350	Six	80.8	75.9	84.9	78.3	72.8	82.8
	Nine	77.6	72.4	82.0	76.6	70.3	80.7
	Twelve	76.9	71.6	81.3	73.6	67.3	78.1
351-500	Six	72.0	65.8	77.2	80.6	74.6	85.2
	Nine	67.7	61.3	73.2	77.2	71.0	82.3
	Twelve	65.1	58.6	70.8	74.8	68.4	80.1
≥500	Six	70.7	65.4	75.6	71.5	65.8	76.4
	Nine	67.1	61.6	72.1	67.8	61.9	73.0
	Twelve	64.2	58.5	69.3	66.0	60.0	71.2

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