

Community CD4 count as a marker of morbidity potential: Results from the Western Cape, South Africa

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Background

In the Western Cape Province of South Africa; (population 5,8 million with an estimated 300,000 adults with HIV), all public sector laboratory results are available centrally through a data warehouse. People and in recent years patients have been uniquely identified in this database irrespective of where they receive care. It is therefore possible to examine trends in Province-wide CD4 counts as a marker of morbidity and mortality potential. We hypothesised that with the expansion in of access to ART, we would eventually see a decline in the number of patients with very low CD4 counts at risk of severe HIV-related morbidity. We were prompted to explore this due to the anecdotal concern that hospitalised cases of cryptococcal meningitis were not declining.



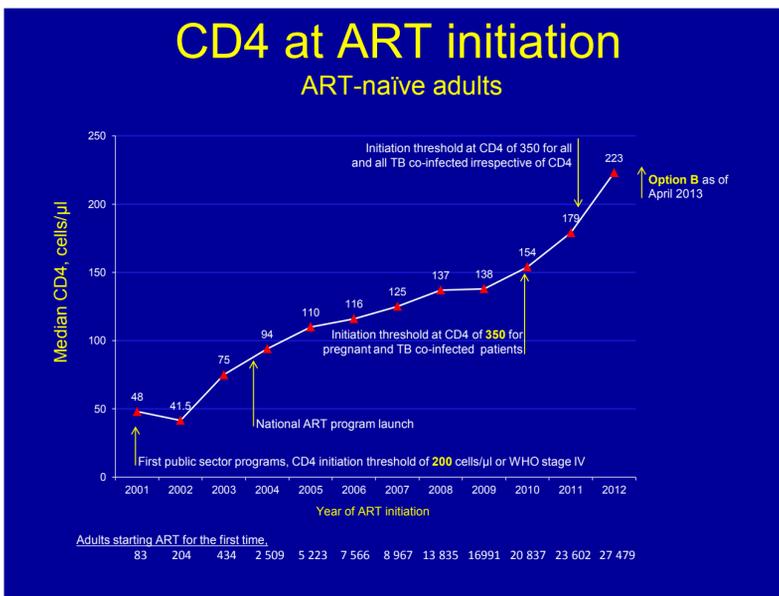
Figure 1: Map of Western Cape Health Facilities

Methods

We looked at All CD4 counts in patients >16 years of age from the beginning of 2007 until the end of December 2012 are included in this analysis. Specimens were classified as being repeat or first-presentation specimens based on the existence of prior specimens for the same patient; and as being from patients on ART based on linkage to a concurrent or prior viral load (viral load tests are not done at baseline in the majority of adults starting ART) or being recorded as being on ART in the routine information system. Annual counts of unique patients with a lowest CD4 <50 <100 cells/μl were tabulated. Patients were considered eligible for ART based on guidelines in operation at the time of the test, variously with CD4 count values <200 and <350 cells/μl.

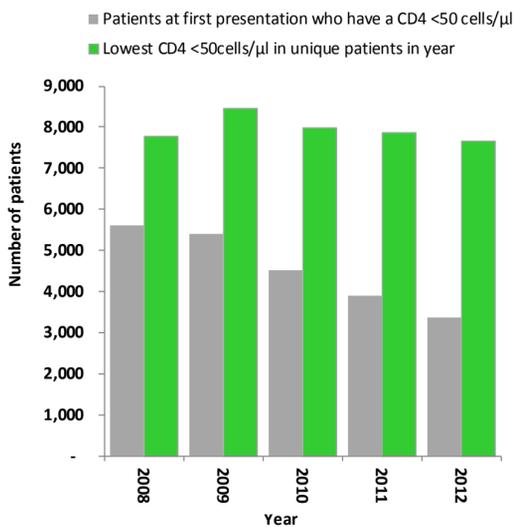
Results

Figure 1: Mean CD4 count at ART initiation



The total number of CD4 counts performed increased from 175,588 in 2008 to 286,770 in 2012, while the number of unique patients with lowest CD4 <50 (Figure) or <100 cells/μl was stable at around 7,500 and 16,500 patients per year respectively. There was however an appreciable decline over time in the number of patients presenting for the first time ever with a CD4 count <50 cells/μl, dropping from 5601 to 3372. Of the 7657 patients with a lowest CD4 count <50 cells/μl in 2012, 35% had already initiated ART, 40% were presenting for the first time below this threshold without previously being eligible for ART, and 25% could should have been started on ART based on eligibility criteria, almost 70% of whom were eligible more than a year previously.

Figure 2 : Patients with CD4 counts < 50 cells/μl



In 2012
25% previously ART eligible not yet on ART
35% on ART
40% first presentation

Improve retention in care pre ART referral systems:

- 70% of these patients were previously eligible > 1 year ago

Improve retention in care on ART ways to retain people in care:

- 53% of these patients have been on ART > 2 years
 - Of these, 23% have become lost to care and have returned with low CD4 counts

Increase health promotion and access to care:

- Although decreasing with each year, some people are still accessing care severe immunodeficiency

Conclusion

Unexpectedly Surprisingly, while there has been a decline in extreme late presentation in the Western Cape, the absolute burden of patients with CD4 <50 cells/μl known to the services has remained constant over 5 years as patients on ART or already in care present with CD4 counts in this range. This exploratory analysis demonstrates the surveillance value of a unified laboratory service coupled with unique patient identification, which could be extended to pharmacy, hospital and vital registration data systems to derive more complete population-based cohorts.

