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Time to Undetectable Viral Load after Highly Active Antiretroviral Therapy Initiation among Adults with HIV: Real World Evidence

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Presenter Disclosure Information

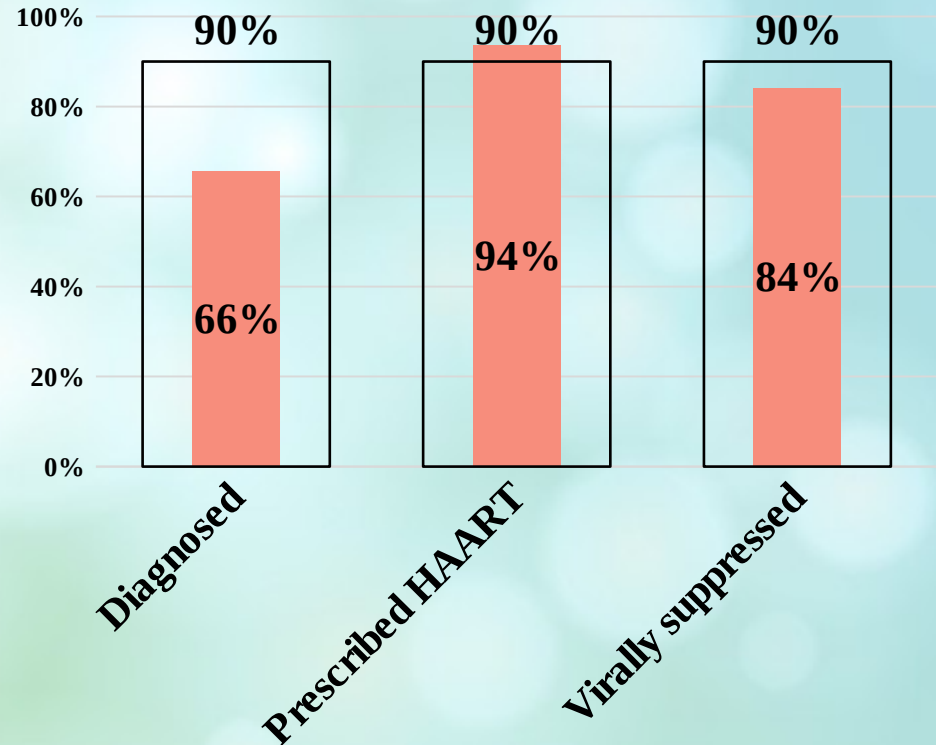
Marisol Valenzuela Lara,

No real or apparent conflict of interest



Background

- Since 2003 the Mexico Ministry of Health provides ARV universal coverage to the people with HIV that does not have social security.
- Between 210 and 220 thousand people were living with HIV in Mexico in 2016.
- Only 64-67% were aware of HIV infection, 94% of them were receiving HAART, and 84% of them were virally suppressed.
- 63% of people on treatment receives medication through the MoH.



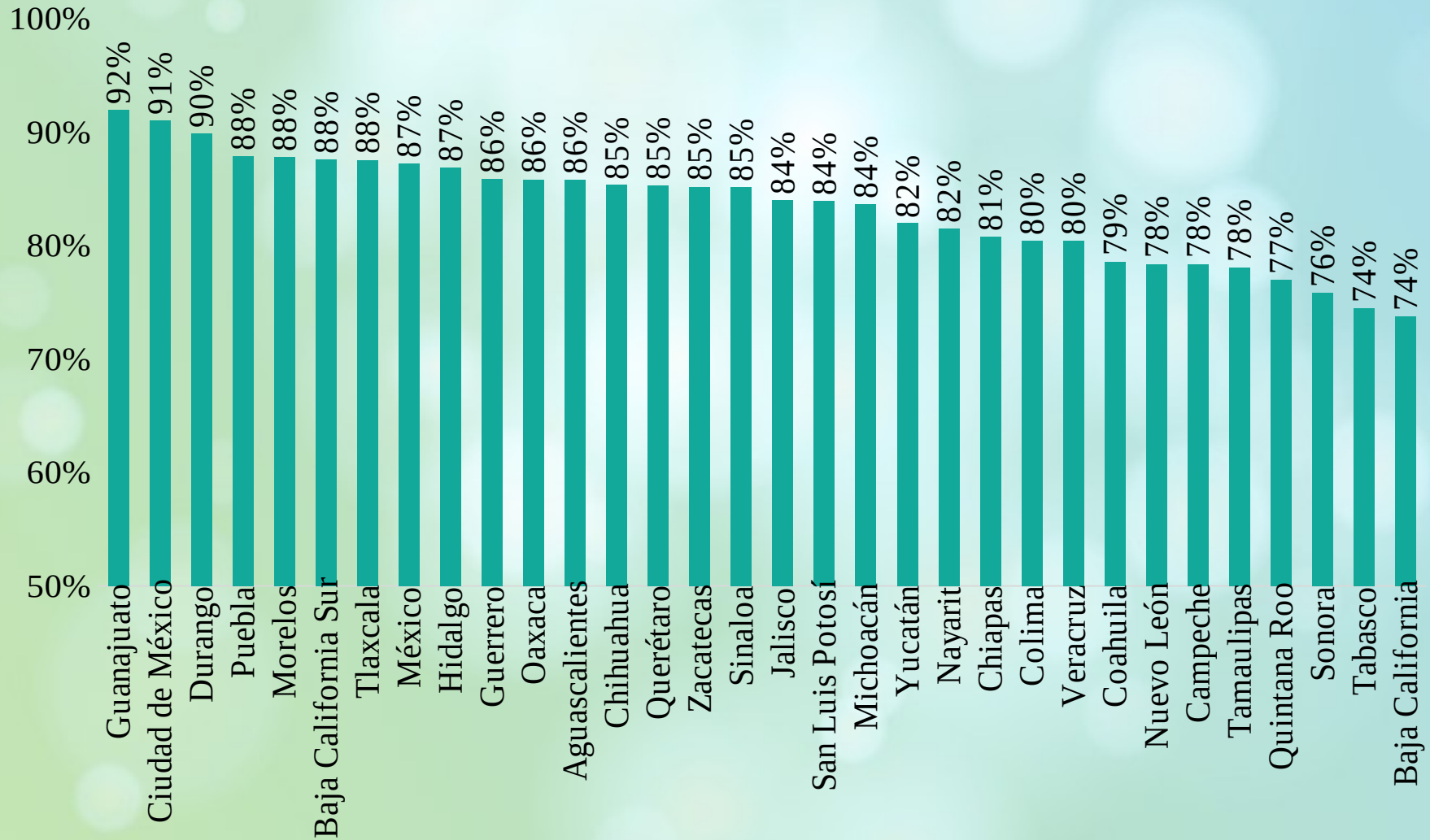


Background

- The records of all the 82,960 patients were routinely collected in the “Antiretroviral Management, Logistic and Surveillance System” (SALVAR in spanish).
- SALVAR was originally created as an ARV management system, but right now is also used to monitor ARV prescription and treatment outcomes.
- The database contains patient’s socio-demographic information (age, sex, birth date, HIV clinic), antiretroviral regimens, viral loads and CD4 counts.
- All personal identifiable information is removed from any data sets, so that the people whom data describes remains anonymous.



Viral suppression by state





Background

- Some factors associated with the response to HAART are CD4 cell count and viral load at the time of HAART initiation.
- Age at HAART initiation has also been a factor that affects the virologic response to HAART, may be because patients who are diagnosed at an older age, have been infected for a longer period of time, rather than age per se.
- Plasma HIV RNA load is the preeminent risk factor for transmission of HIV infection, a high viral load can significantly increase the risk of sexual transmission, and monitoring it is an important indicator of HIV programme performance, in order to gauge the effectiveness of ART in preventing transmission

The aim of the study was to estimate the time to attain undetectable viral load after HAART initiation in real-world context



Methods

- A retrospective patient's record analysis was conducted using the anonymized dataset.
- We analyzed PLWH whom initiated HAART between 2010-2016 with 10 years or older at HAART initiation.
- We measured time from HAART initiation to undetectable viral load, and performed Kaplan-Meier estimates.
- Patients that did not achieve viral suppression during observation or were LTFU were censored

PLWH who initiated HAART at the MoH between 2010-2016 with 10 years or older

N=79,990

Patients excluded for:

Duplicate records (287)
Undetectable viral loads before first 2 weeks of HAART (6,952)
Trans people (90)
Incomplete record (225)

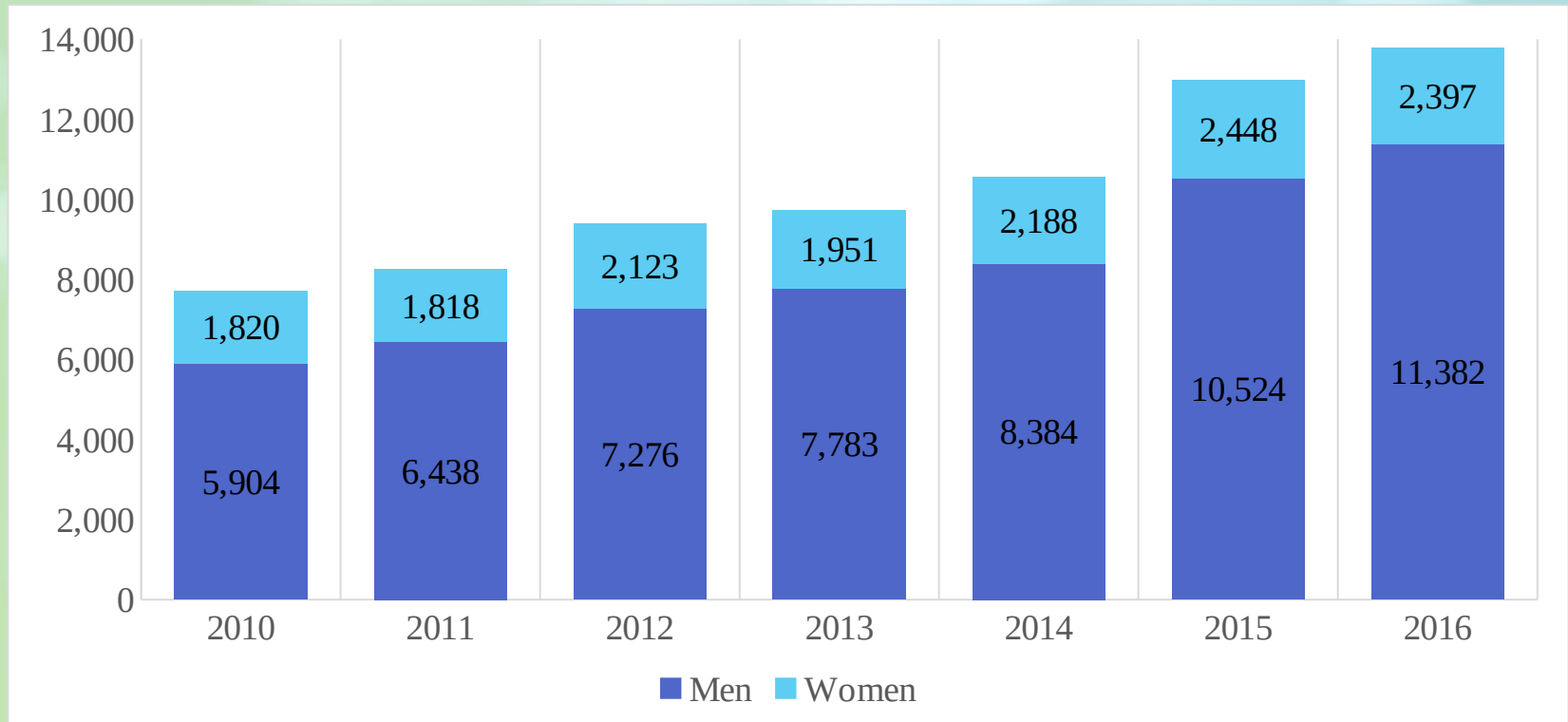
Patient records included on the analysis

n=72,436



Results

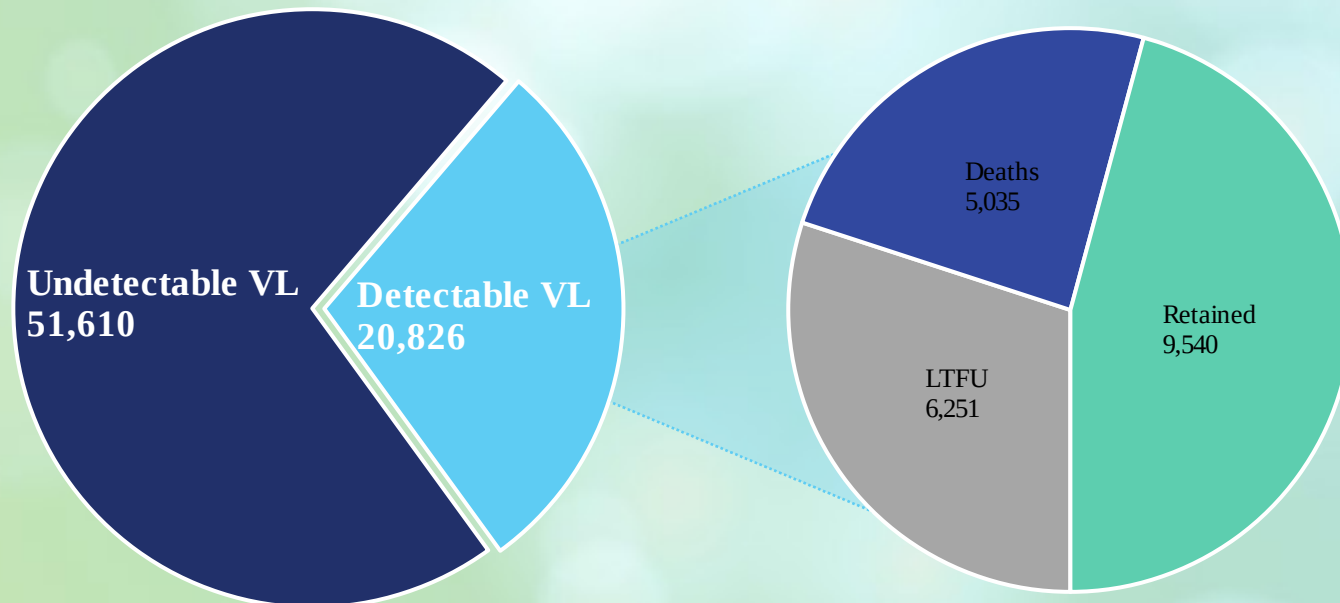
- A total of 72,436 patients who initiated HAART between 2010 and 2016 were analyzed
- The median age to HAART initiation for men and women was 32 years old





Results

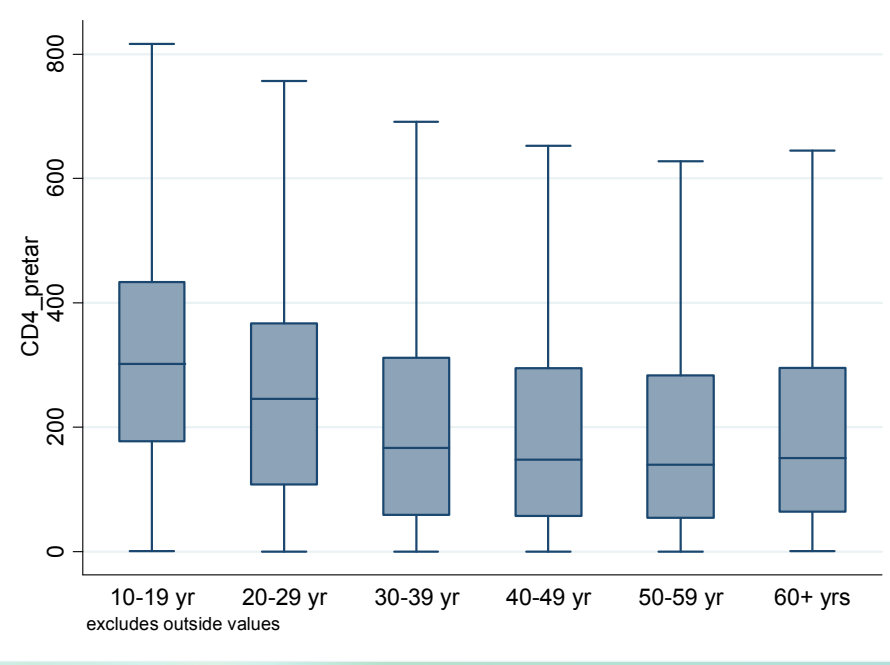
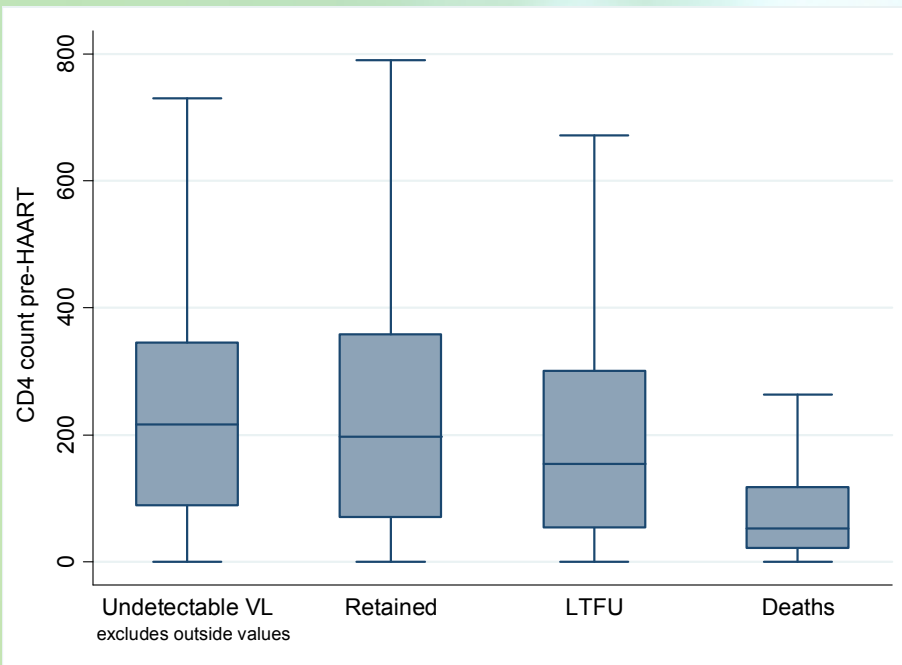
- **71.3%** reached undetectable VL during the observation time
- 82.4% of people retained on HAART attained viral control
- The median observation time of PLWH remained on HAART without viral control was 162 days (IQR 30-359), and 150 days (IQR 67-354) for PLWH that died before viral control





Results

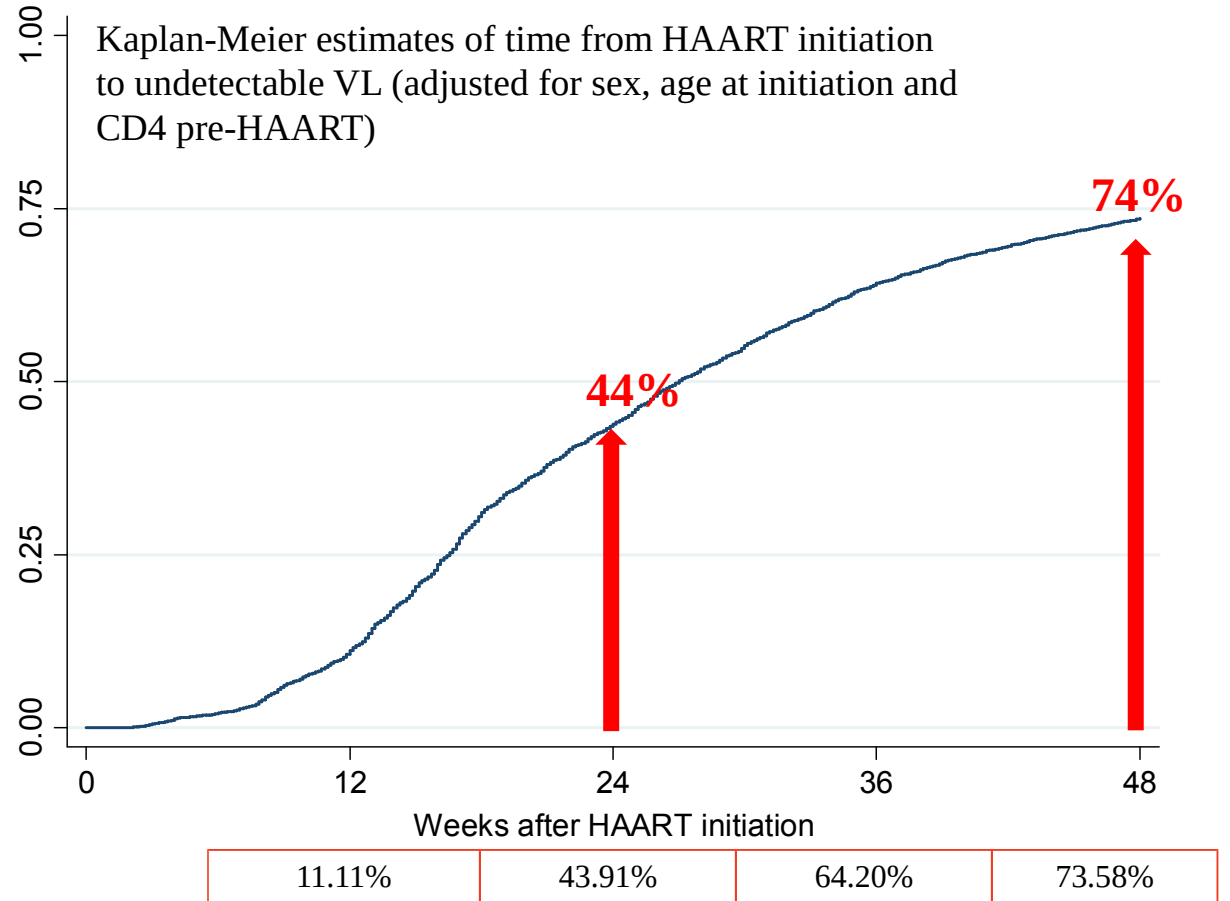
- The highest median CD4 count pre-HAART observed was on people that achieved viral control (216 cells) and the lowest was on people that died before achieving viral control (52 cells) ($p < 0.0001$)
- Also we found significant differences between group ages, being the groups of 10 to 19 and 20 to 29 the group with the higher CD4 count (302 and 246 cells)





Results

- The median time from HAART initiation to obtaining an undetectable VL between 2010-2016 was 28 weeks
- The probability to achieve undetectable VL at 24-weeks post-HAART initiation was 42.5% (95%CI 42.1-42.8) and 71.3% (95%CI 70.9-71.7) at 48-weeks.
- Once adjusted for sex, age at HAART initiation and CD4 pre-HAART it was 44% at 24-weeks and 74% at 48-weeks.

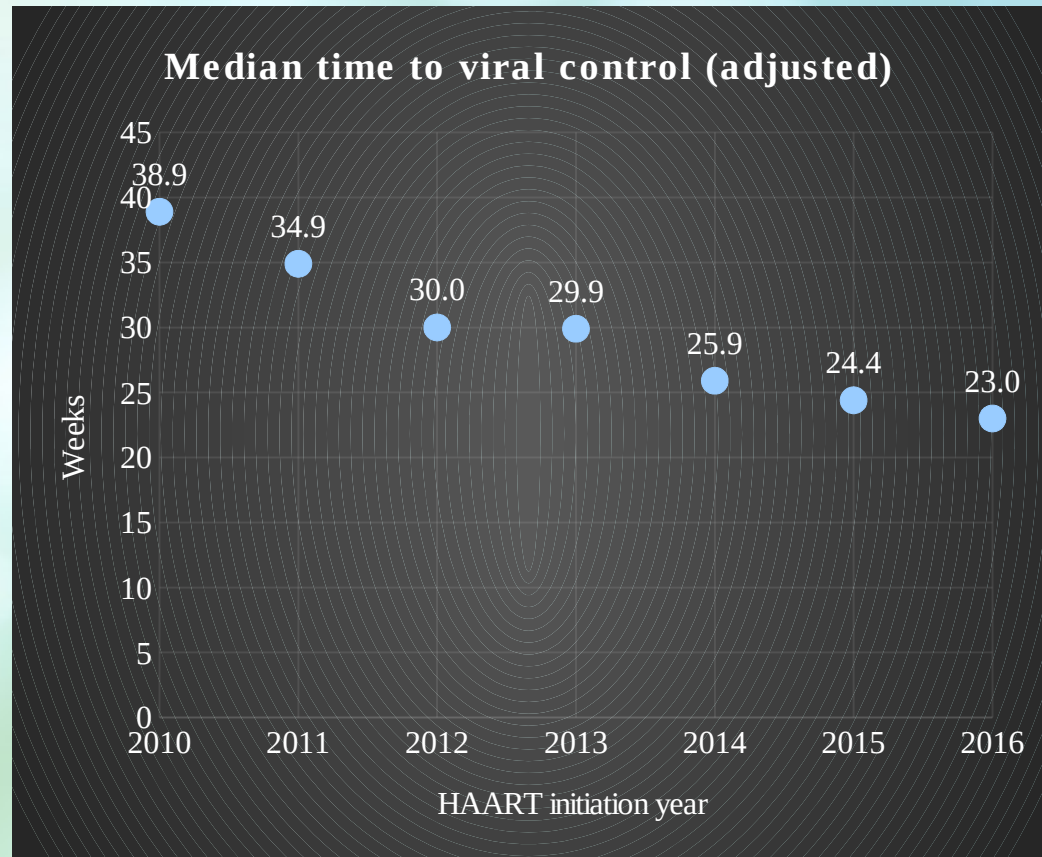


A total of 51,187.38 years at risk were observed.



Results

- We observed a decrease on the time to achieve viral control on the last six years.
- The median time from HAART initiation to obtaining an undetectable VL was 33.6 weeks in 2010 and 25.7 in 2016.
- Once adjusted by age at HAART initiation CD4 count pre-HAART and sex, we observed a 38.9 w median time in 2010 and 23 weeks in 2016.

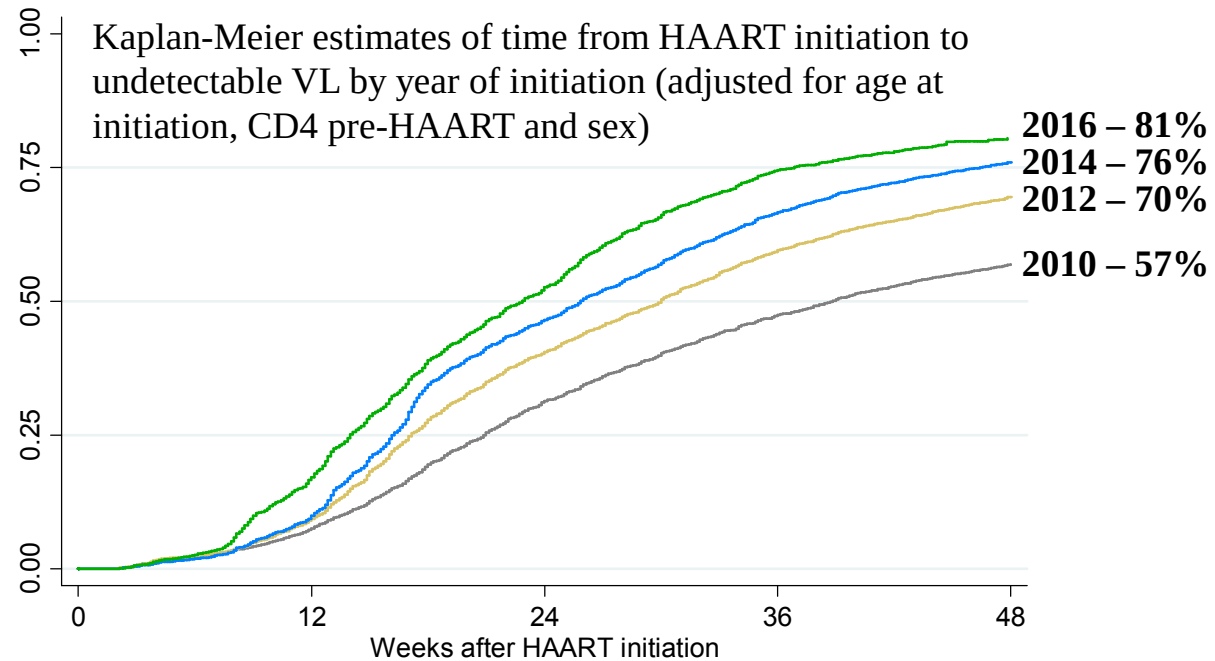


Log-rank test for equality of survivor functions $p < 0.0001$



Results

- The probability to achieve viral control has increased in the last years.
- After adjusting by age at HAART initiation, sex, and CD4 count the probability to achieve undetectable VL after 24 weeks at HAART was 31.4% in 2010, 40.6% in 2012, 45.6% in 2014 and 52.6% in 2016.



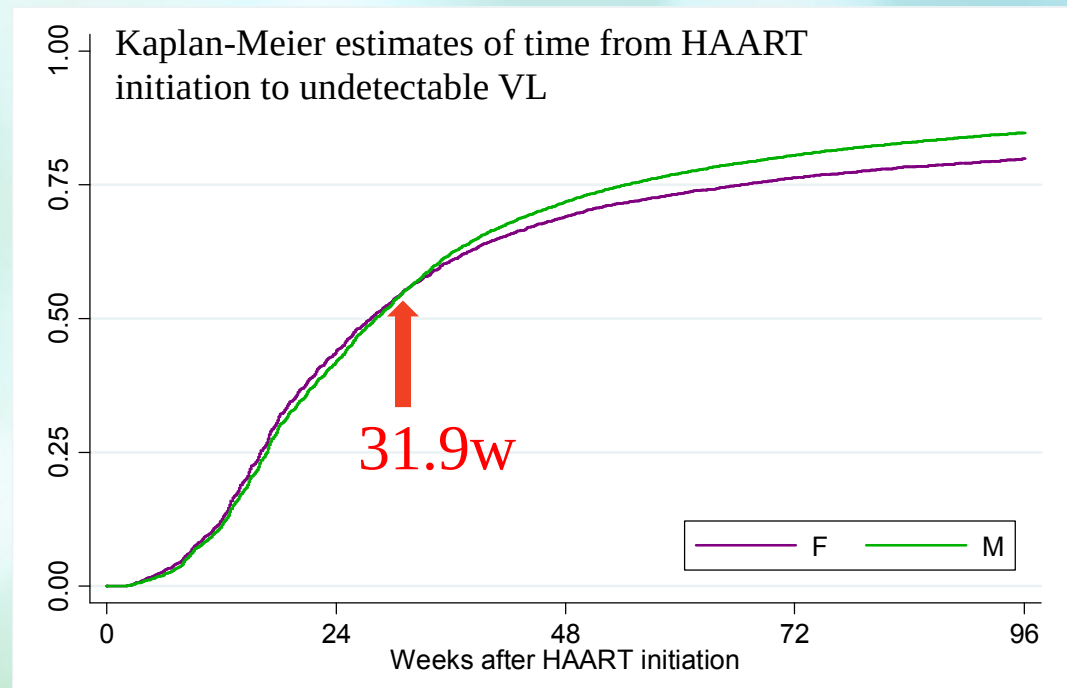
2010	7.54%	31.38%	47.51%	56.94%
2012	9.30%	40.57%	59.52%	69.57%
2014	9.86%	46.56%	66.63%	76.04%
2016	17.12%	52.64%	74.53%	80.48%

Log-rank test for equality of survivor functions $p < 0.0001$



Results

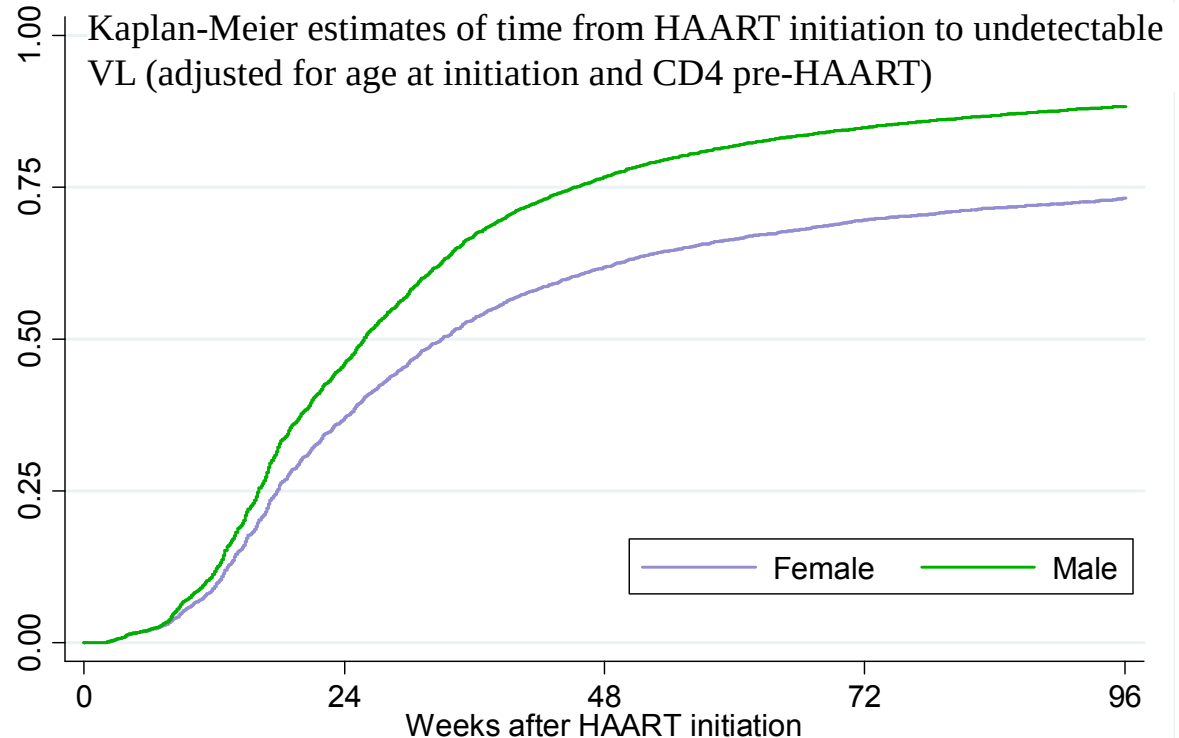
- The median time to obtain undetectable VL without adjustment was very similar for men and women: 28.1 and 27.7 weeks
- We observed a tipping point at 32 weeks, showing a higher probability to achieve undetectable VL in men than in women after 32 weeks.





Results

- Once adjusted by age at HAART initiation and CD4 pre-HAART, we observed a 32.9 w median time for women and 25.9 w for men
- The probability to achieve undetectable VL was consistently 15% higher in men than in women after 48 weeks.



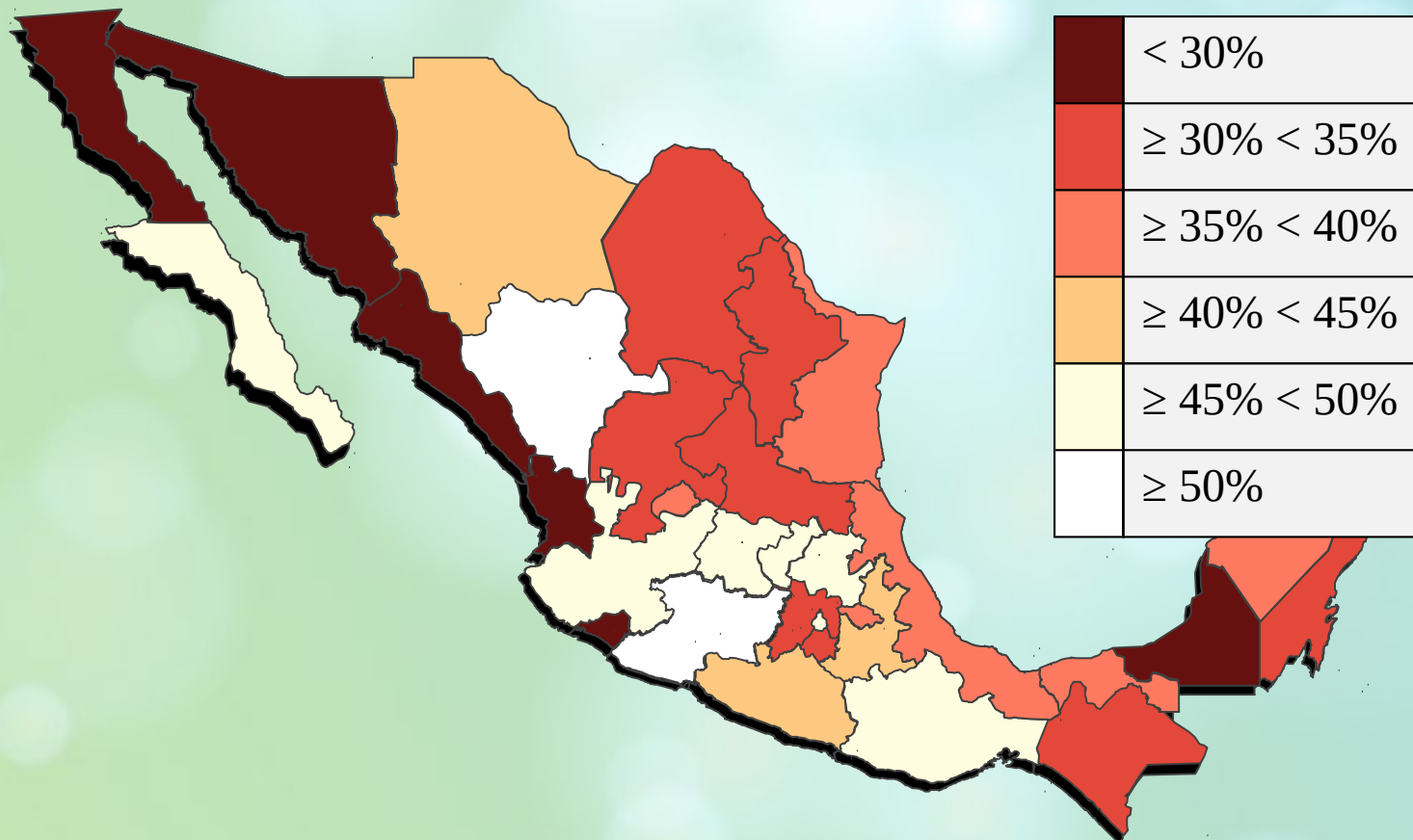
Female	37.12%	61.90%	69.65%	72.32%
Male	46.05%	76.76%	84.86%	87.68%
Difference	8.93%	14.86%	15.21%	15.36%

Log-rank test for equality of survivor functions $p < 0.0001$



Results

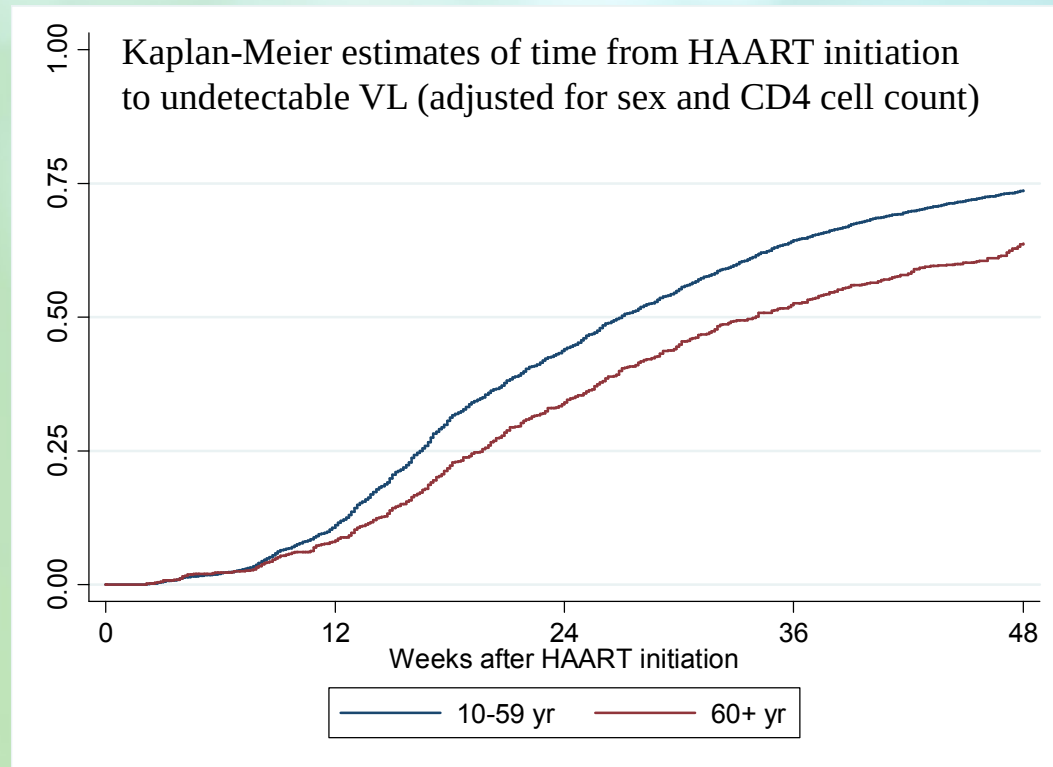
- We observed great heterogeneity between states, the probability of achieving undetectable viral load at 24 weeks (adjusted by sex, age at initiation and CD4 count pre-HAART) was between 22 and 64%





Results

- Individuals older than 60 years at HAART initiation had slower viral controls rates.





Conclusions

- Significant improvement in the viral control rate in recent years, could be associated with the updates on national Guidelines and an improvement on access to better therapies.
- Individuals older than 60 years at HAART initiation had a smaller probability of achieving viral control, which could be related to late diagnosis, since it was one of the age groups with lower CD4 cell counts at initiation.
- Early death during the first months of treatment was one of the main reasons patients did not achieve undetectability, which is also associated with late diagnosis.
- Men were more likely to achieve viral control than women.
- Women account for 47% of PLWH in the world; in order to achieve the 90-90-90 goals, it is necessary to continue developing models of care that take into account the specific characteristics of this groups.

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