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Background

Maintenance of a suppressed viral load (VL) allows people living with HIV (PLWH) to experience health and longevity, while also eliminating transmission of HIV to sexual partners. We examined the frequency of virologic failures among those in care using a longitudinal cohort study.

Methods

The OHTN Cohort Study (OCS) is a longitudinal cohort of PLWH receiving care in 15 clinics across Ontario. VL data are obtained through chart review and linkage with the Public Health Ontario Laboratory, which provides all VL testing for the province.

Virologic failure is defined as a person who had achieved viral suppression (VL<200 copies/ml) who later experiences a VL higher than 200 copies/ml.

Analysis was limited to participants receiving VL tests from 2007 to 2021, and whose first VL was not suppressed (n=5,858).

Results

Among 5,858 participants 17.4% are women, 17.6% from ACB, 62.7% from GBMSM, 13.9% from PWID priority populations.

The proportion of participants with VL failure improved steadily over time:

- in 2007 (n=3,625), 367 experienced VL failure (10.1%),
- in 2021 (n=3,772), 154 experienced VL failure (4.1%).

The frequency of VL failure per person has declined. For those with a first VL in:

- 2007 (n=207), the median (IQR) number of VL failures was 2 (1-3),
- 2017 (n=126), the median (IQR) was 1 (1-2).

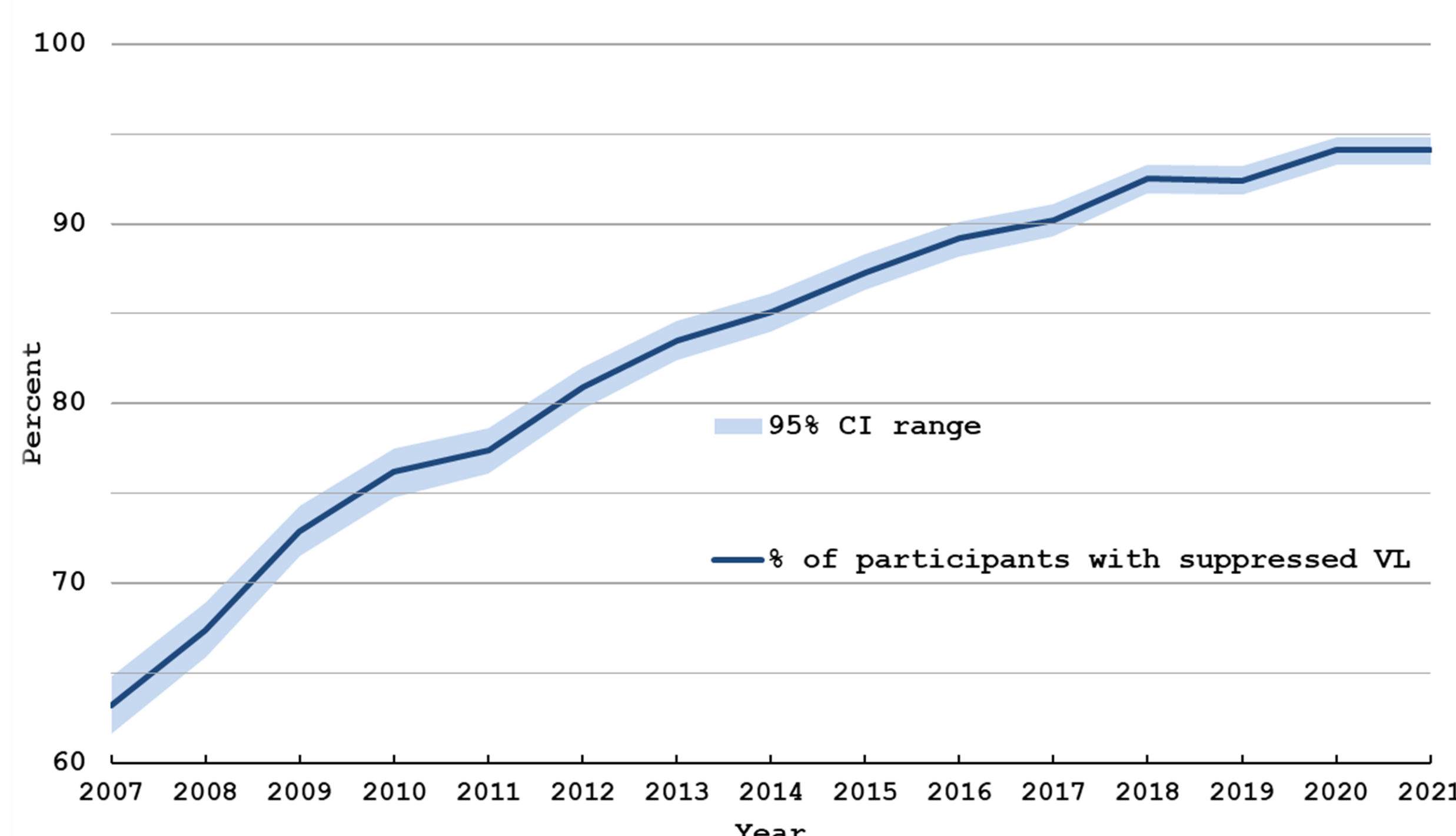
Time to re-suppression improved. Among those who experienced VL failure and were re-suppressed, it took less days to achieve re-suppression over time, with a median (IQR):

- in 2007 (n=416) of 197 (89-630) days,
- in 2017 (n=232) of 116 (56-294) days.

Increase in VL Suppression

Overall VL suppression increased over time. In 2007 (n=3,625) the proportion of participants with suppressed VL (95%CI) was 63.2% (61.6-64.8), in 2017 it increased to 90.2% with 95%CI (89.3-91.1), and in 2021 further increased to 94.1% with 95%CI (93.3-94.8).

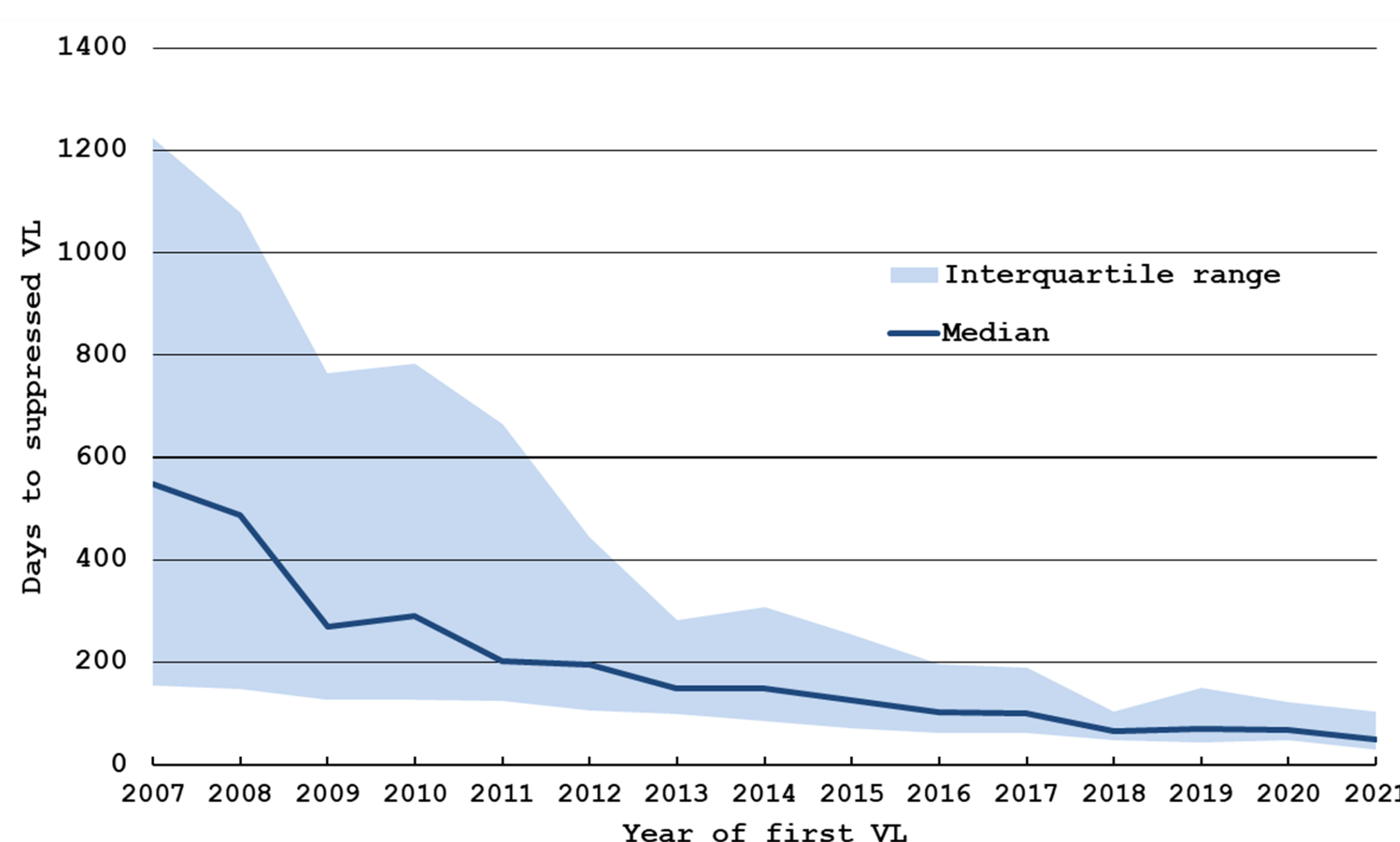
Figure 1: Proportion of participants with suppressed VL by year



Achieving VL Suppression

Time to achieving viral suppression is becoming shorter. For those with a first VL in 2007, it took a median of 548 days (IQR:154-1,224), in 2017 the median number decreased to 99 days (IQR: 62-188), and in 2021 further decreased to 50 days (IQR: 30-103) to reach VL suppression.

Figure 2: Time taken to achieve viral suppression



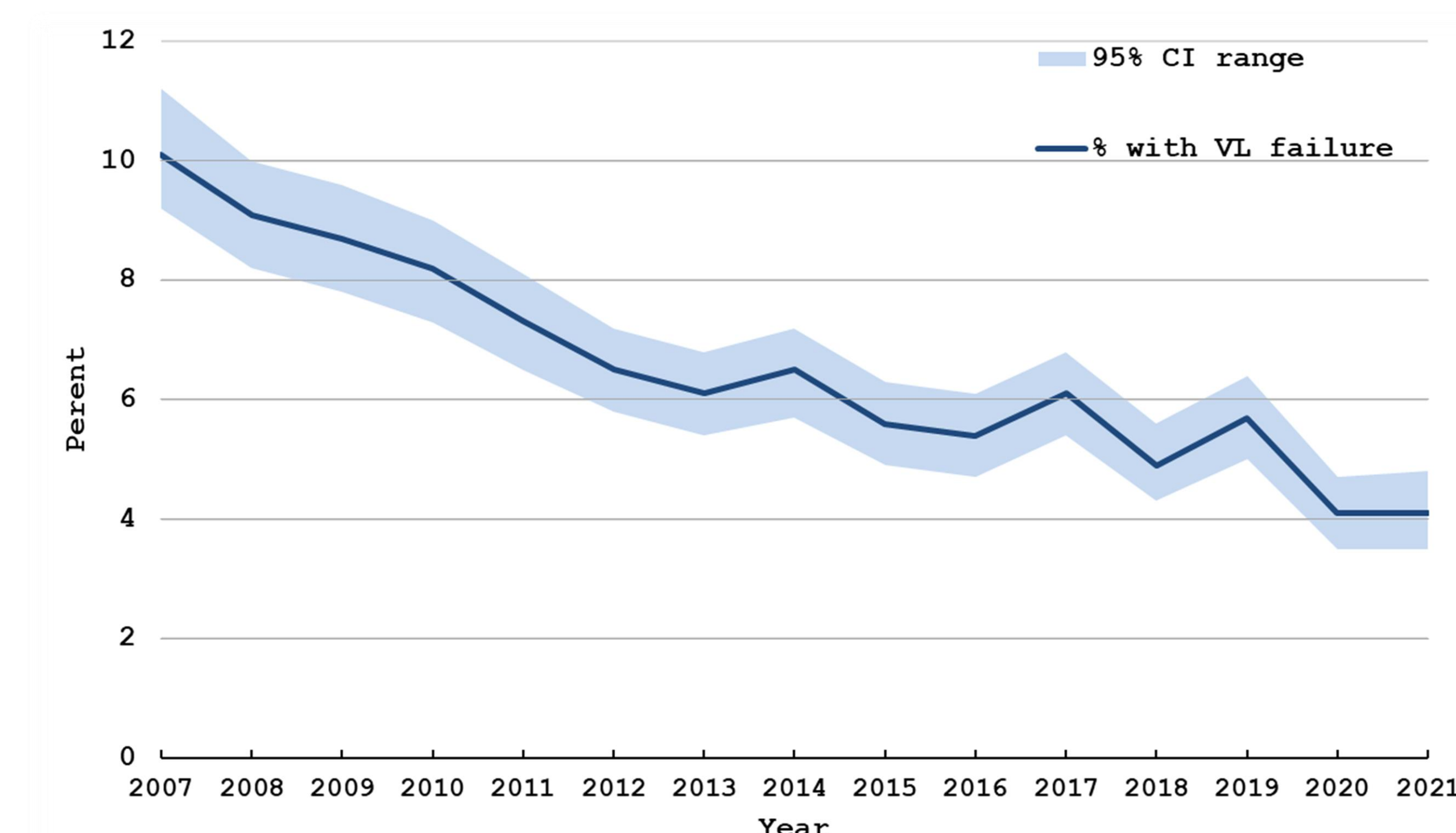
Conflict of Interest Disclosure

I have no conflicts of interest

Virologic Failure

Virologic failure, as well as the number of virologic failures per participant, decreased over time.

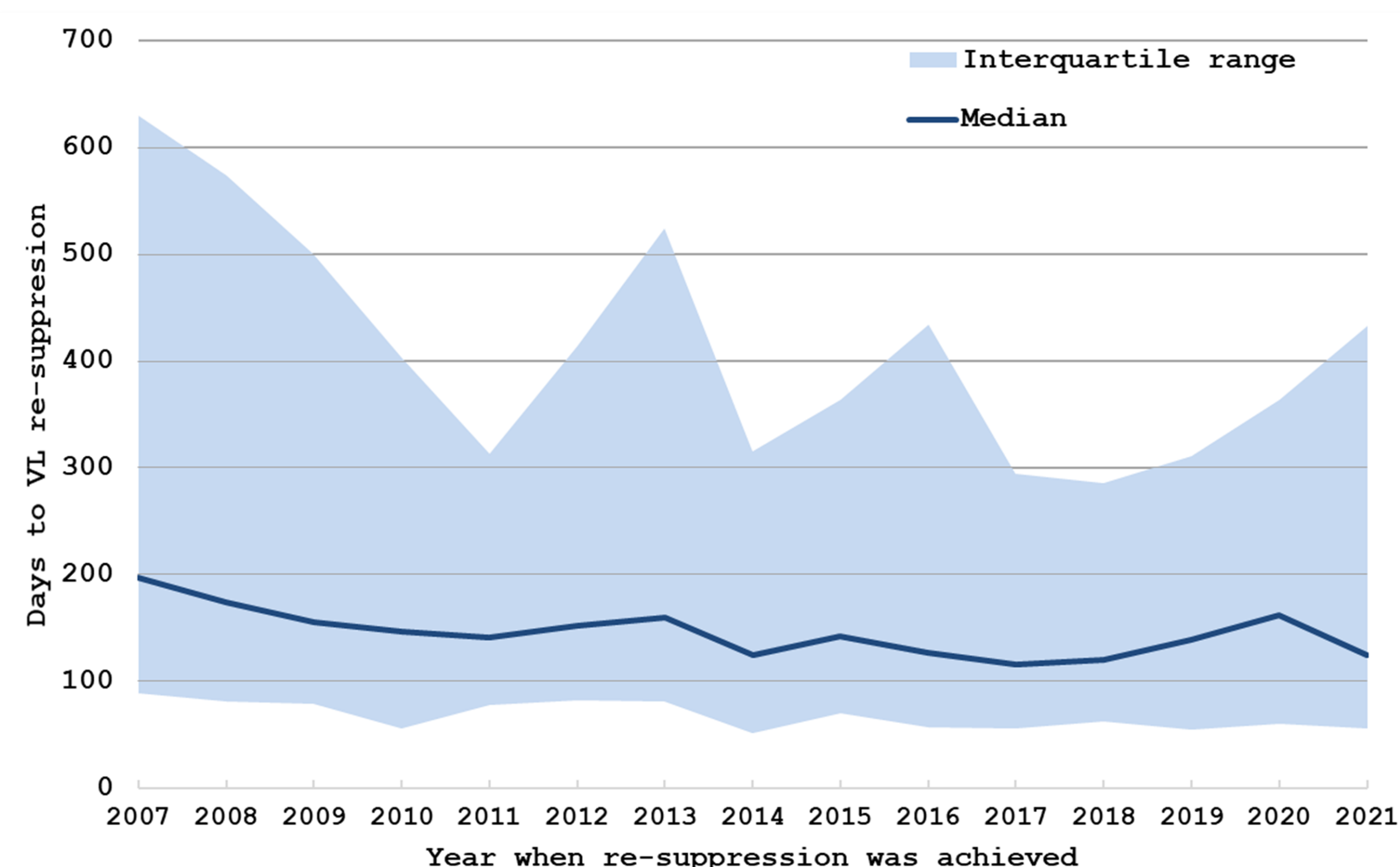
Figure 3: Proportion of participants with VL failure per year.



Time to VL Re-suppression

Among those who experienced VL failure and were re-suppressed in 2007 (n=416) it took a median (IQR) of 197 (89-630) days to achieve VL suppression again, as compared to those experiencing VL re-suppression in 2017 (n=232), where it took a median of 116 (56-294) days.

Figure 4: Time to VL re-suppression



Discussion

While a very high percentage of people on treatment achieve viral suppression, virologic failure is not uncommon. Most are able to re-achieve VL suppression, though it can take some time. Outcomes have improved over time, and the drivers of continued virologic failure must be better understood.

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