

P251: Transmitted drug resistance to antiretroviral therapy: Interim analysis from a cross-sectional study including 11 healthcare centres in Chile

María Elena Ceballos¹, Cinthya Ruiz-Tagle¹, Felipe Castañeda¹, Marcela Ferrés^{1,2}, Carlos Palma², Angélica Domínguez de Landa¹, Manuel Espinoza¹, Alejandro Afani³, María Elvira Balcells¹

¹ Pontificia Universidad Católica de Chile, Santiago, Chile; ² Red de Salud UC-CHRISTUS, Santiago, Chile; ³ Hospital Clínico Universidad de Chile, Santiago, Chile

1 Background

- ❖ Antiretroviral therapy (ART) has reduced HIV morbi-mortality and its transmission.
- ❖ Treatment failure can occur when acquiring a strain with mutations conferring resistance to ART.
- ❖ Transmitted drug resistance to ART (TDR) reported nationally was 10.45% in 2018 and is increasing worldwide.
- ❖ In Chile, we do not perform baseline genotyping test

2 Objective

Determine the percentage (n=151)/prevalence (n=168) of global TDR and the relevance of incorporating the genotyping study in naïve people living with HIV in Chile.

3 Methods

❖ Observational, cross-sectional study

❖ Inclusion criteria:

- ✓ ≥18 years old
- ✓ HIV diagnosis <12 months
- ✓ No prior ART

❖ Exclusion criteria:

- ✓ HIV viral load <1000 ARN copies/mL

❖ ARN genotyping (nested PCR/Sanger sequencing)

❖ TDR identified according to HIV Drug Resistance Database, Stanford University.



4 Results

Figure 1. Transmitted resistance to ART families.

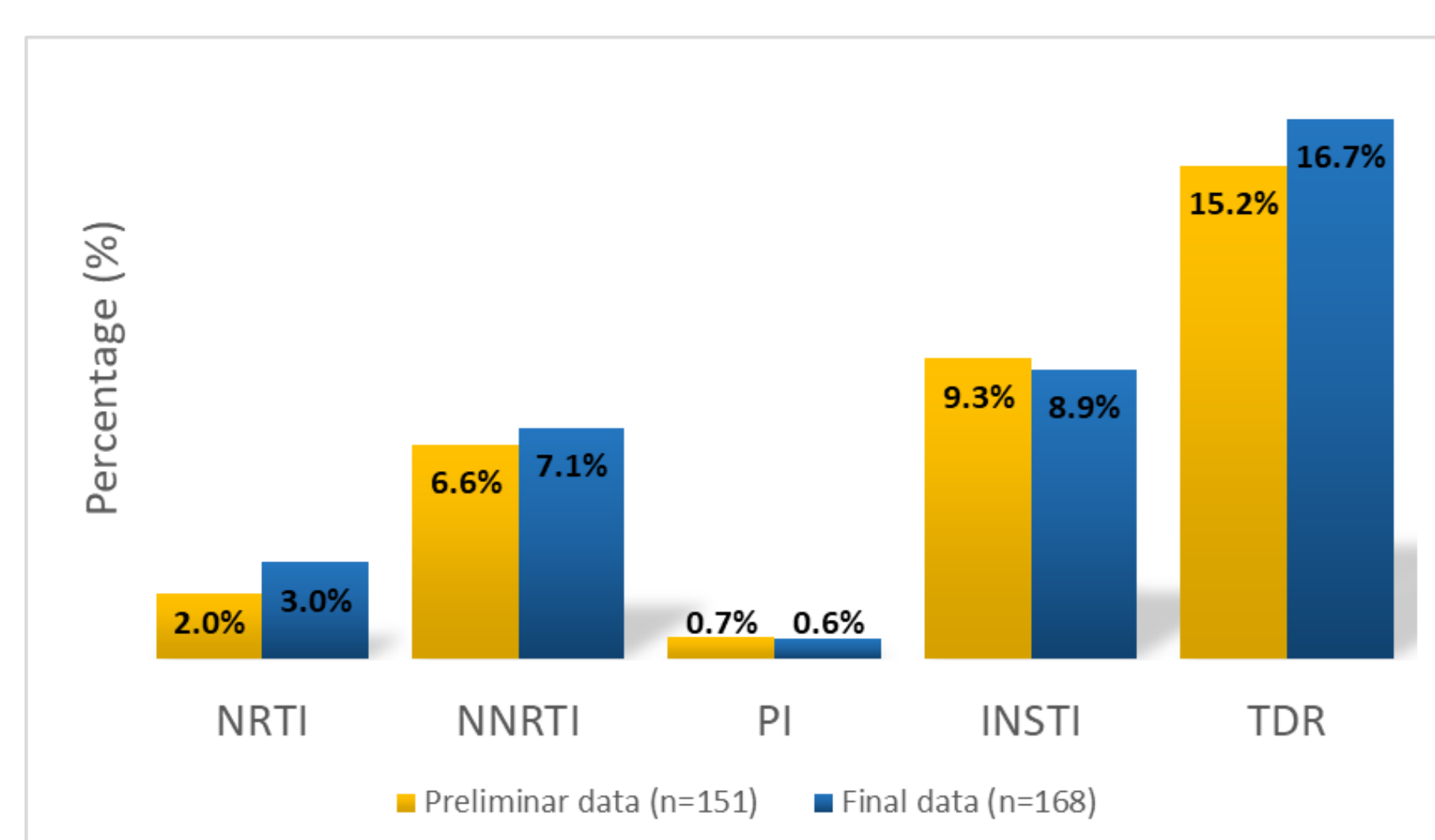
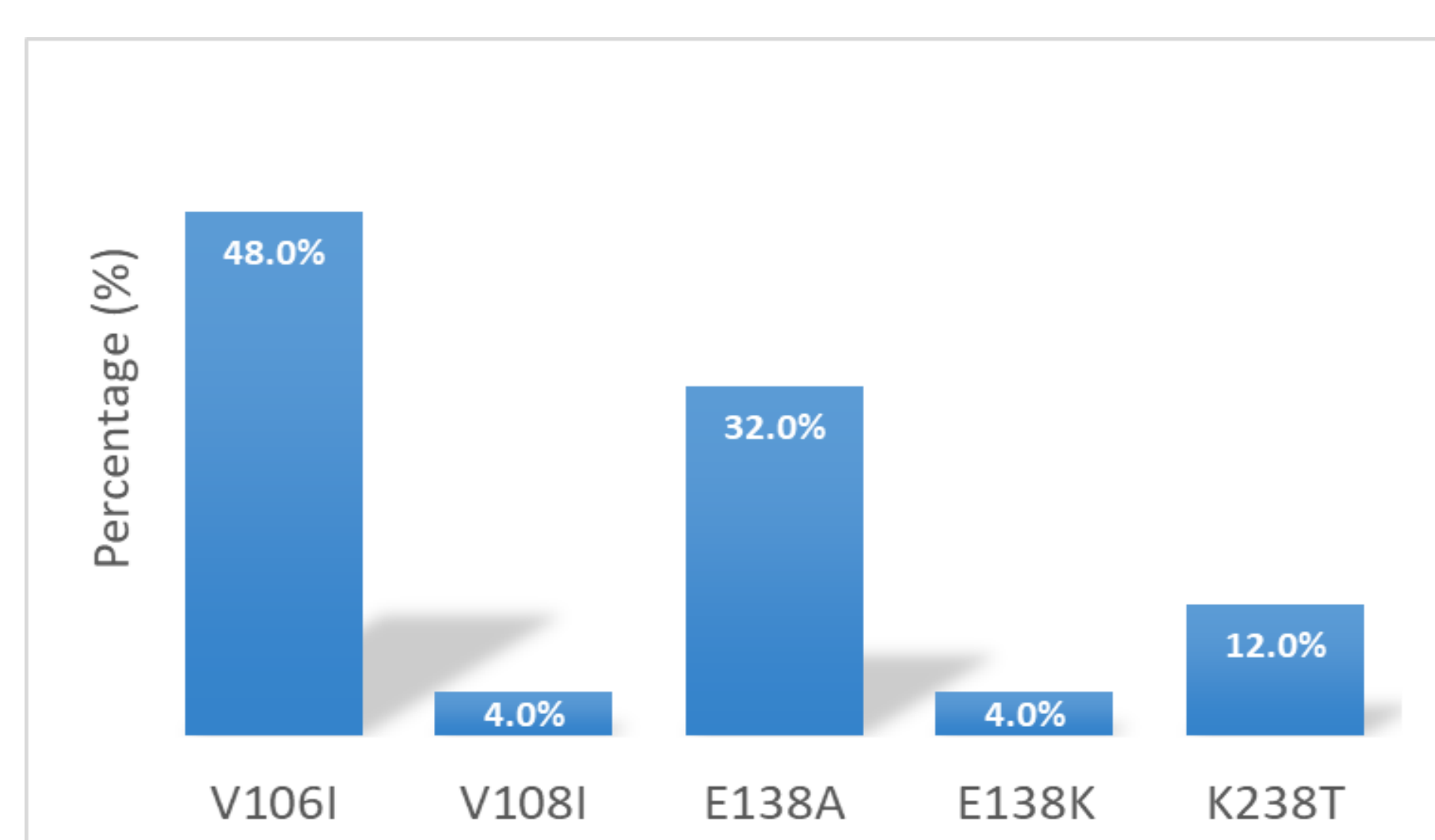


Figure 2. Other NNRTI mutations (not included in the WHO list) conferring transmitted resistance to ART.



Rilpivirine resistance 6,5% (E138A/K, K101E)

Table 1. Transmitted resistance to ART.

	Preliminar data (N=151)	Final data (N=168)
HIV subtype		
B	100 (66.2%)	114 (67.9%)
C	1 (0.7%)	1 (0.6%)
B+F	48 (31.8%)	51 (30.3%)
AG	2 (1.3%)	2 (1.2%)
Overall TDR	23 (15.2%)	28 (16.7%)
TDR to NRTI	3 (2.0%)	5 (3.0%)
NRTI mutations resistance		
M41L	-	1 (14.3%)
D67N	2 (50%)	2 (28.6%)
T69D	-	1 (14.3%)
L210W	1 (25%)	1 (14.3%)
T215E	-	1 (14.3%)
K219Q	1 (25%)	1 (14.3%)
TDR to NNRTI	10 (6.6%)	12 (7.1%)
NNRTI mutations resistance		
K101E	-	1 (9.1%)
K103N	8 (80%)	8 (72.7%)
Combined mutations	2 (20%)	2 (18.2%)
TDR to PI	1 (0.7%)	1 (0.6%)
TDR to INSTI	14 (9.3%)	15 (8.9%)
First generation		20 (11.9%)
Second generation		2 (1.2%)
INSTI mutations resistance		
E92G	1 (5.88%)	1 (5.0%)
T97A	1 (5.88%)	1 (5.0%)
E138A	-	1 (5.0%)
G140S	-	1 (5.0%)
Q148H	-	1 (5.0%)
Q148K	1 (5.88%)	1 (5.0%)
E157Q	2 (11.77%)	2 (10.0%)
G163K	2 (11.77%)	2 (10.0%)
G163R	10 (58.82%)	10 (50.0%)

5 Conclusions

- ❖ In Chile, an increase is observed in the percentage of TDR to ART compared to what has been historically reported.
- ❖ The main families affected are the NNRTIs and the INSTIs (mostly first generation).
- ❖ Considering these preliminary results, it is considered pertinent to incorporate the baseline genotyping study in patients starting ART with both NNRTI efavirenz or rilpivirine and first-generation INSTI.

Funding: FONIS SA22I0035, Agencia Nacional de investigación y Desarrollo (ANID).

Acknowledgement: HIV medical care teams from Hospital de Arica, Iquique, Antofagasta, Van Buren, Sótero del Río, Barros Luco Trudeau, Concepción, Talcahuano, Puerto Montt; Red de Salud UC-CHRISTUS and ANID.

P251: Transmitted drug resistance to antiretroviral therapy: Interim analysis from a cross-sectional study including 11 healthcare centres in Chile

María Elena Ceballos¹, Cinthya Ruiz-Tagle¹, Felipe Castañeda¹, Marcela Ferrés^{1,2}, Carlos Palma², Angélica Domínguez de Landa¹, Manuel Espinoza¹, Alejandro Afani³, María Elvira Balcells¹

¹ Pontificia Universidad Católica de Chile, Santiago, Chile; ² Red de Salud UC-CHRISTUS, Santiago, Chile; ³ Hospital Clínico Universidad de Chile, Santiago, Chile

Address: Diagonal Paraguay 362, Oficina 616, Santiago, Chile; E-mail: meceball@uc.cl; Telephone: +56 95504-3508

1 Background

- ❖ Antiretroviral therapy (ART) has reduced HIV morbi-mortality and its transmission.
- ❖ Treatment failure can occur when acquiring a strain with mutations conferring resistance to ART.
- ❖ Transmitted drug resistance to ART (TDR) reported nationally was 10.45% in 2018 and is increasing worldwide.
- ❖ In Chile, we do not perform baseline genotyping test

2 Objective

Determine the percentage (n=151)/prevalence (n=168) of global TDR and the relevance of incorporating the genotyping study in naïve people living with HIV in Chile.

3 Methods

❖ Observational, cross-sectional study

❖ Inclusion criteria:

- ✓ ≥18 years old
- ✓ HIV diagnosis <12 months
- ✓ No prior ART

❖ Exclusion criteria:

- ✓ HIV viral load <1000 ARN copies/mL

❖ ARN genotyping (nested PCR/Sanger sequencing)

❖ TDR identified according to HIV Drug Resistance Database, Stanford University.



Table 1. Transmitted resistance to ART.

	Preliminar data (N=151)	Final data (N=168)
HIV subtype		
B	100 (66.2%)	114 (67.9%)
C	1 (0.7%)	1 (0.6%)
B+F	48 (31.8%)	51 (30.3%)
AG	2 (1.3%)	2 (1.2%)
Overall TDR	23 (15.2%)	28 (16.7%)
TDR to NRTI	3 (2.0%)	5 (3.0%)
NRTI mutations resistance		
M41L	-	1 (14.3%)
D67N	2 (50%)	2 (28.6%)
T69D	-	1 (14.3%)
L210W	1 (25%)	1 (14.3%)
T215E	-	1 (14.3%)
K219Q	1 (25%)	1 (14.3%)
TDR to NNRTI	10 (6.6%)	12 (7.1%)
NNRTI mutations resistance		
K101E	-	1 (9.1%)
K103N	8 (80%)	8 (72.7%)
Combined mutations	2 (20%)	2 (18.2%)
TDR to PI	1 (0.7%)	1 (0.6%)
TDR to INSTI	14 (9.3%)	15 (8.9%)
First generation		20 (11.9%)
Second generation		2 (1.2%)
INSTI mutations resistance		
E92G	1 (5.88%)	1 (5.0%)
T97A	1 (5.88%)	1 (5.0%)
E138A	-	1 (5.0%)
G140S	-	1 (5.0%)
Q148H	-	1 (5.0%)
Q148K	1 (5.88%)	1 (5.0%)
E157Q	2 (11.77%)	2 (10.0%)
G163K	2 (11.77%)	2 (10.0%)
G163R	10 (58.82%)	10 (50.0%)

4 Results

Figure 1. Transmitted resistance to ART families.

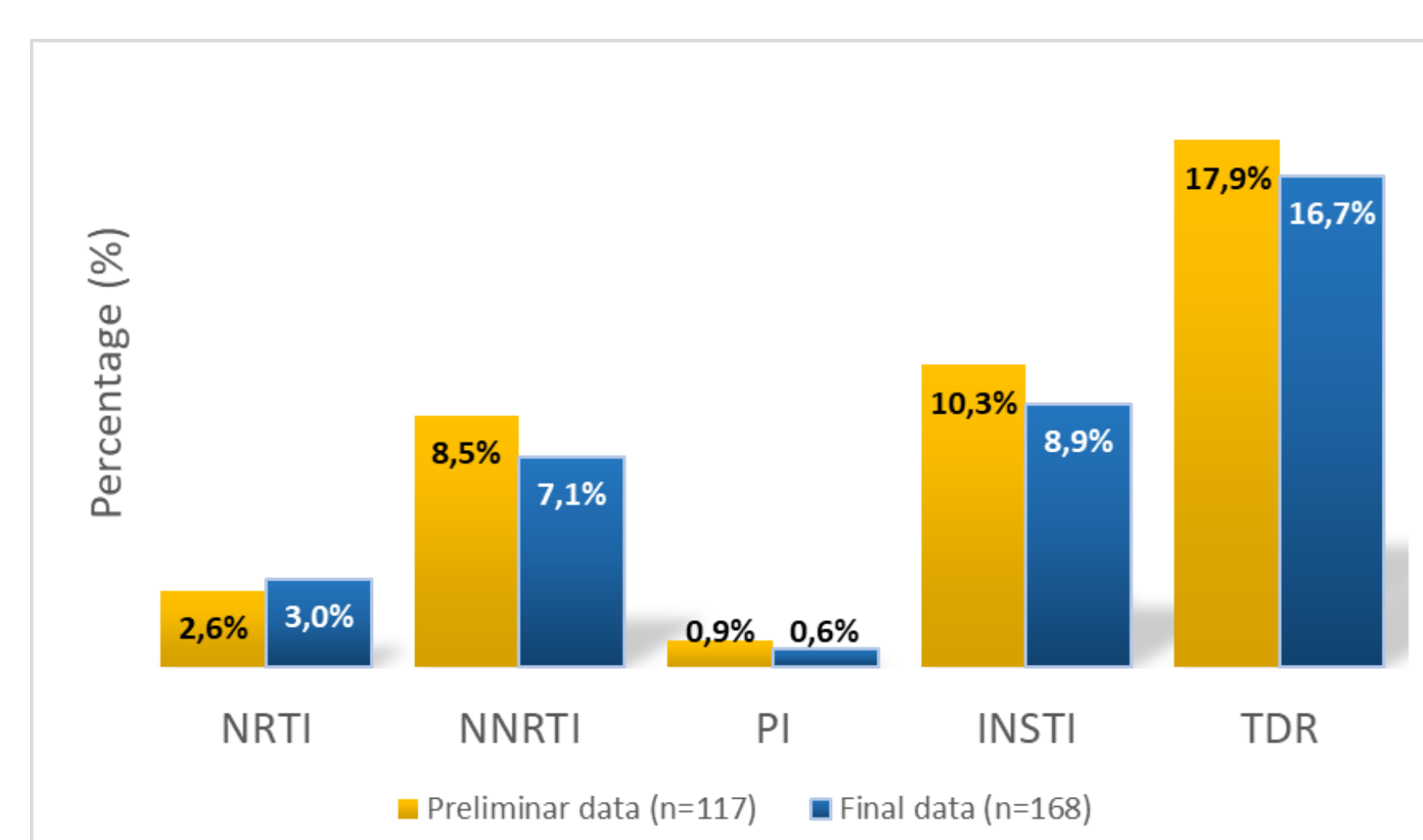
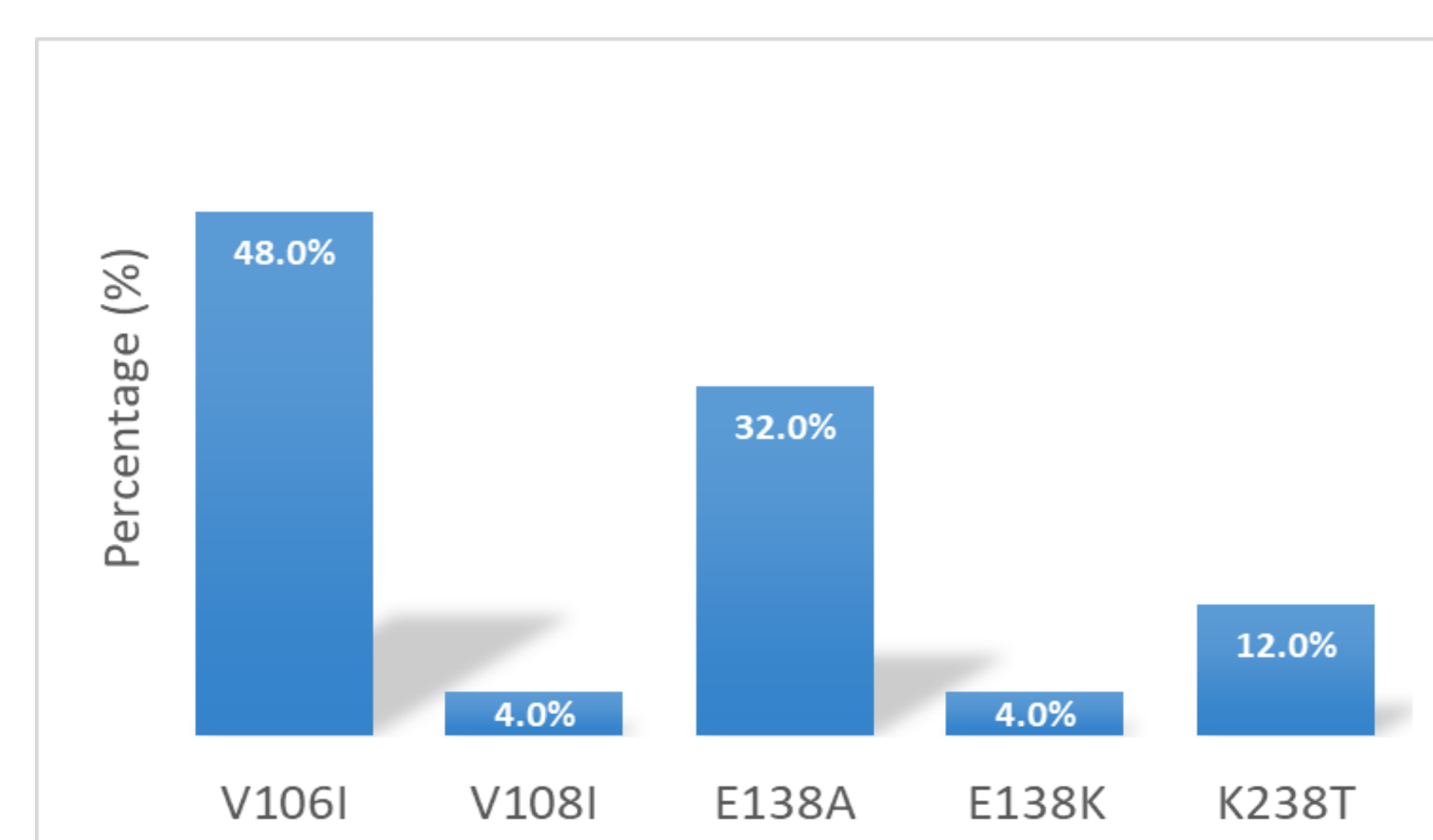


Figure 2. Other NNRTI mutations (not included in the WHO list) conferring transmitted resistance to ART.



Rilpivirine resistance 6,5% (E138A/K, K101E)

5 Conclusions

- ❖ In Chile, an increase is observed in the percentage of TDR to ART compared to what has been historically reported.
- ❖ The main families affected are the NNRTIs and the INSTIs (mostly first generation).
- ❖ Considering these preliminary results, it is considered pertinent to incorporate the baseline genotyping study in patients starting ART with both NNRTI efavirenz or rilpivirine and first-generation INSTI.

Funding: FONIS SA22I0035, Agencia Nacional de investigación y Desarrollo (ANID).

Acknowledgement: HIV medical care teams from Hospital de Arica, Iquique, Antofagasta, Van Buren, Sótero del Río, Barros Luco Trudeau, Concepción, Talcahuano, Puerto Montt; Red de Salud UC-CHRISTUS and ANID.