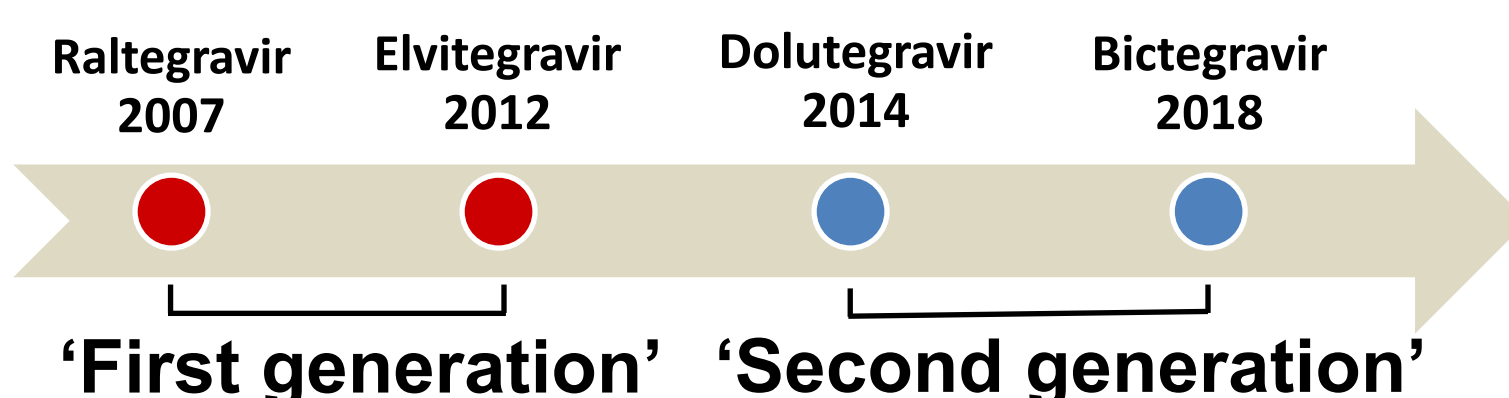


## Introduction

- Integrase strand transfer Inhibitors (INSTIs), the newest class of antiretroviral (ARV) agents have revolutionized management of HIV and have quickly become the cornerstone of ARV regimens globally.
- International guidelines now recommend use of INSTIs as first line agents for management of HIV
- Prior studies have suggested that 'second generation' INSTIs have a higher barrier to resistance than 'first generation' INSTIs
- Despite their widespread use throughout the globe, little is known about patterns in the prevalence of INSTI resistance, and how this resistance has changed over time as subsequent INSTIs were introduced.

### Timeline of FDA approval of INSTIs



## Methods

**Aim:** To determine reported prevalence of INSTI resistance globally and over time among people living with HIV/AIDS clade B

### Methods

- Searched both [PubMed](#) and Conference on Retroviruses and Opportunistic Infections ([CROI](#)) website for abstracts pertaining to INSTI resistance prevalence from 2008 – 2020.
- Included in our final analysis were those studies which included INSTI resistance data on over 100 patients infected with HIV-1B (31 peer-reviewed papers, 11 CROI Abstracts).
- Stratified by time period based on subsequent INSTI development and availability.
- Performed descriptive analysis on prevalence of INSTI resistance



• Individuals infected with HIV-1B  
• More than 100 individuals tested for INSTI resistance (N>=100)

31 Papers, 11 CROI Abstracts

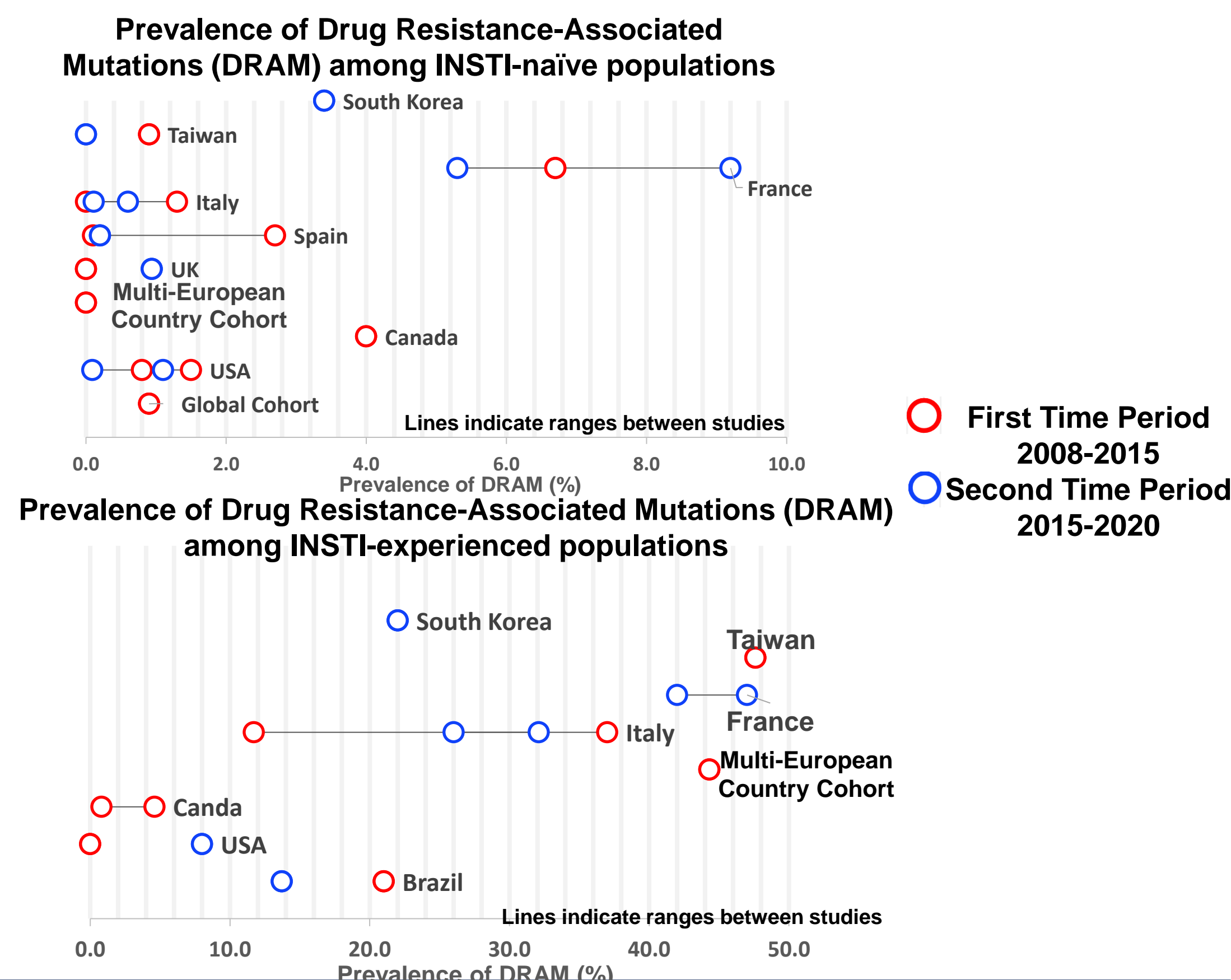
Time Period 1:  
2008 - 2015

Time Period 2:  
2015 - 2020

## Results

- Integrase strand transfer Inhibitors (INSTIs), the newest class of antiretroviral (ARV) agents has revolutionized management of HIV and have quickly become the cornerstone of ARV regimens globally.
- International guidelines now recommend use of INSTIs as first line agents for management of HIV
- Prior studies have suggested that 'second generation' INSTIs have a higher barrier to resistance than 'first generation' INSTIs
- Despite their widespread use throughout the globe, little is known about patterns in the prevalence of INSTI resistance, and how this resistance has changed over time as subsequent INSTIs were introduced.

Countries	# of publications
Asia	
South Korea	1
Taiwan	2
Europe	
France	4
Italy	7
Spain	3
UK	2
Multi-European Country Cohort	1
North America	
Canada	3
United States	13
South America	
Brazil	1
Global	
Global Cohort	1



## Results: cont.

### Most Common Major Mutations:

- N155H
  - Q148H/RK
  - Y143C/R
  - G140S
  - E92Q
- Reduced Susceptibility to:  
RAL/EVG>>>  
DTG/BIC

### Key Findings:

- Global Resistance to INSTIs remains rare.
- Transmitted resistance to INSTIs is rare among INSTI-naïve patients.
- In general, INSTI-experienced patients in the first time period, when 'first generation' INSTIs predominated, had higher rates of resistance compared to those in the second time period, when 'second generation' INSTIs predominated, reflecting higher barrier to resistance.

## Conclusions

- Continued vigilance and surveillance is necessary to monitor continuing trends in INSTI resistance over time, particularly as they are increasingly used as first-line agents.
- Future studies investigating recent trends in INSTI resistance among vulnerable PLWH populations (i.e. low SES, homeless, transgender, etc.), particularly in the metro Atlanta area, are warranted.

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