



# EHEC on the rise in Switzerland: outbreak or testing artefact?

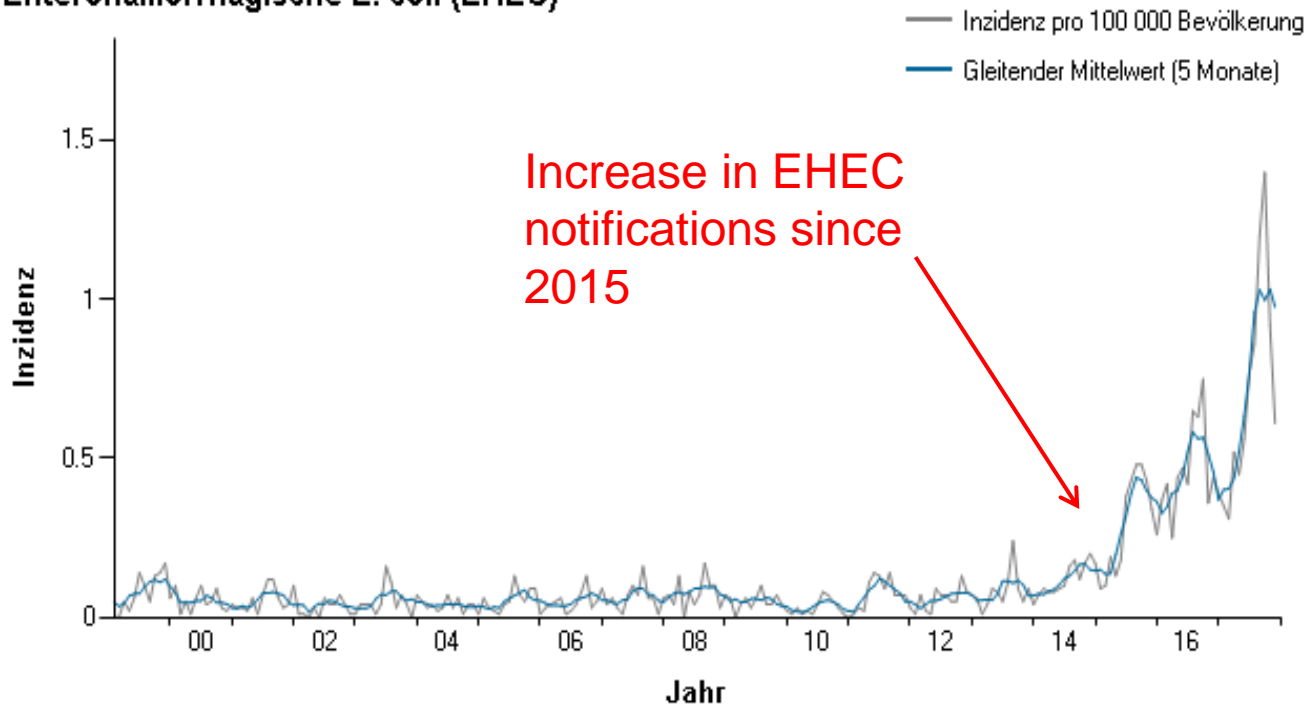
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## Monthly incidence of EHEC infections per 100'000 inhabitants, as reported to FOPH.

### Enterohämorrhagische E. coli (EHEC)



EHEC notification mandatory in CH

- ↑ Incidence ?
- ↑ Testing ?

Introduction of multiplex PCR

Data needed !

→ POSITIVITY study



## Aim

To relate EHEC case notification data with number of test performed and thus calculate the **positivity rate of EHEC infections over time**

$$\textit{Positivity rate} = \frac{\textit{Number of positive tests}}{\textit{overall number of tests performed}}$$

## Data collection

### 11 diagnostic laboratories across Switzerland

All EHEC tests performed (2007-2016)

1. Patient identification number
2. Birthdate
3. Sex
4. Canton of residence
5. Test date
6. Test method
7. Test result



Patient information

Test-related information

## Inclusion /Exclusion criteria

All EHEC tests performed (2007-2016)

INCLUSION	EXCLUSION
<ul style="list-style-type: none"><li>• All EHEC tests performed between 2007 and 2016 in the selected laboratories</li></ul>	<ul style="list-style-type: none"><li>• Patient with residence <b>outside Switzerland</b></li><li>• Test <b>result unavailable</b></li><li>• <b>Duplicate</b> observations</li><li>• <b>Repeated</b> tests</li></ul>



## Analysis

- Calculation of age and sex standardized positivity rate over time
- Uni- and multivariable logistic regressions are performed to test the association of age, sex, laboratory, test year and test method with the outcome (positive VS negative)

**ONGOING**



## Data collection

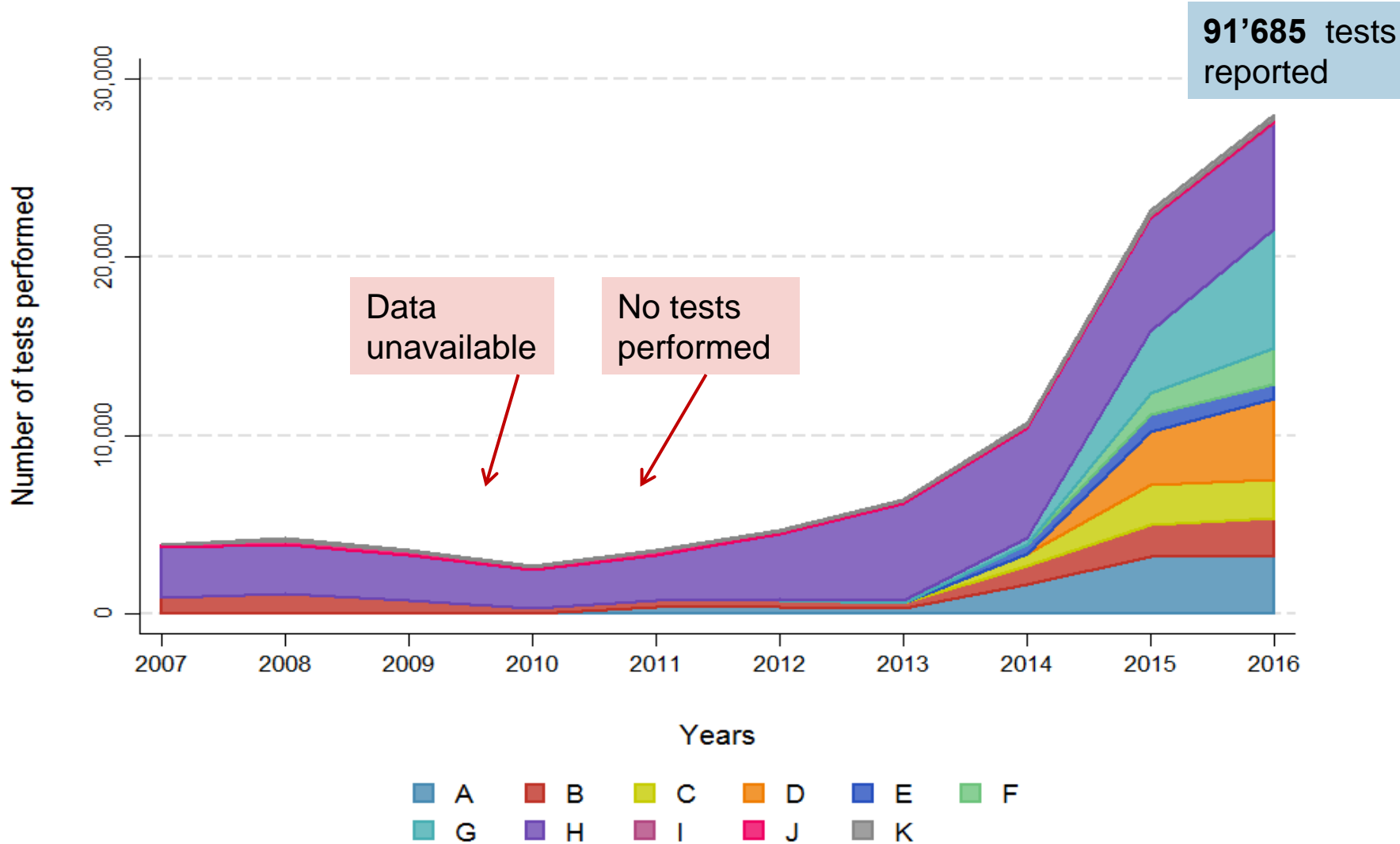
- First contact important
- Close follow-up
  - Data not provided
  - Data clarification
- **Data availability** – change in laboratory software → manual workload or data unavailable



## Data cleaning

- **Database not uniform**
  - Different **coding techniques**
  - Different software used
  - **No unique patient identifier in CH**

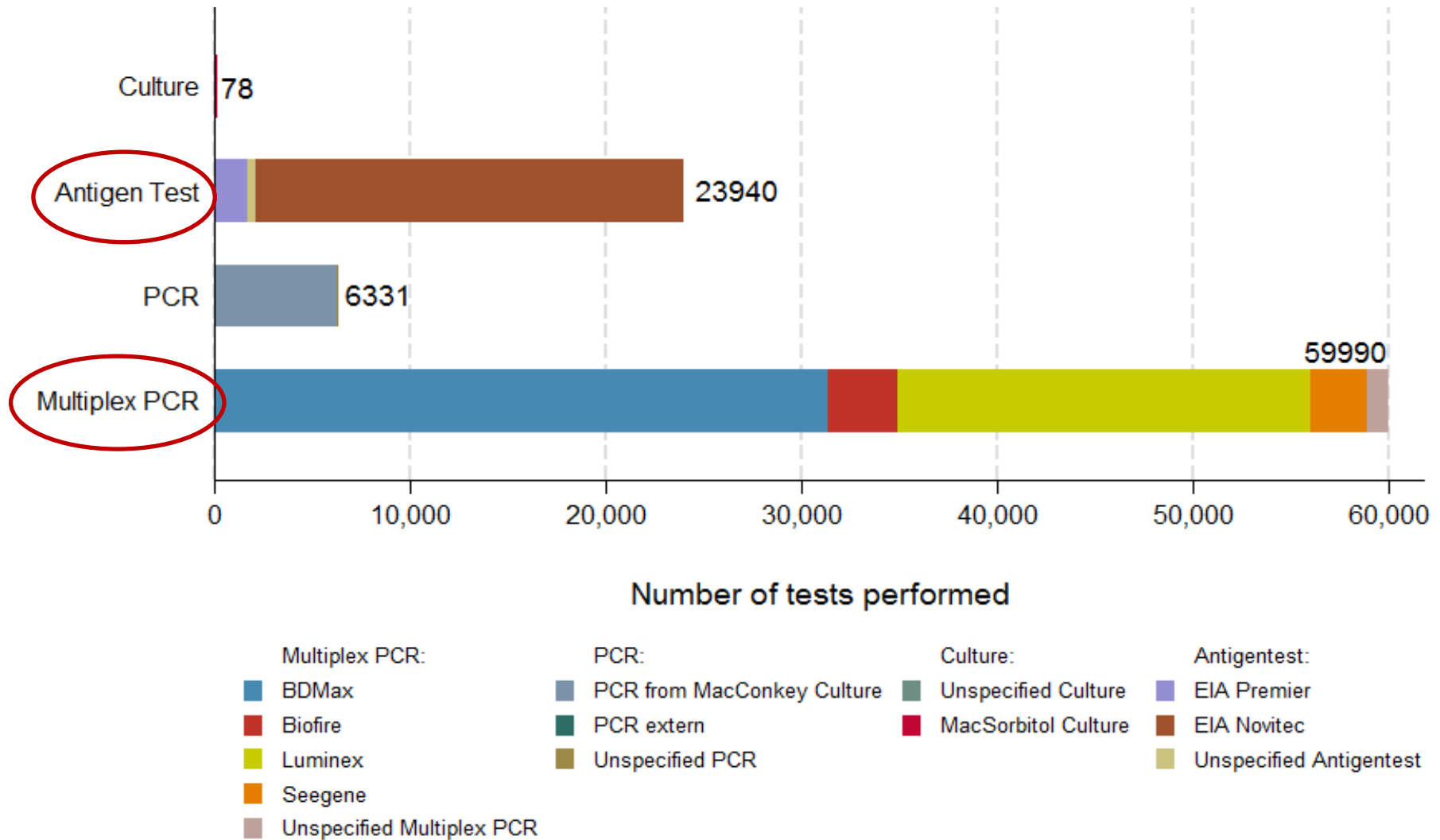
**Overlap of observations between the laboratories?**



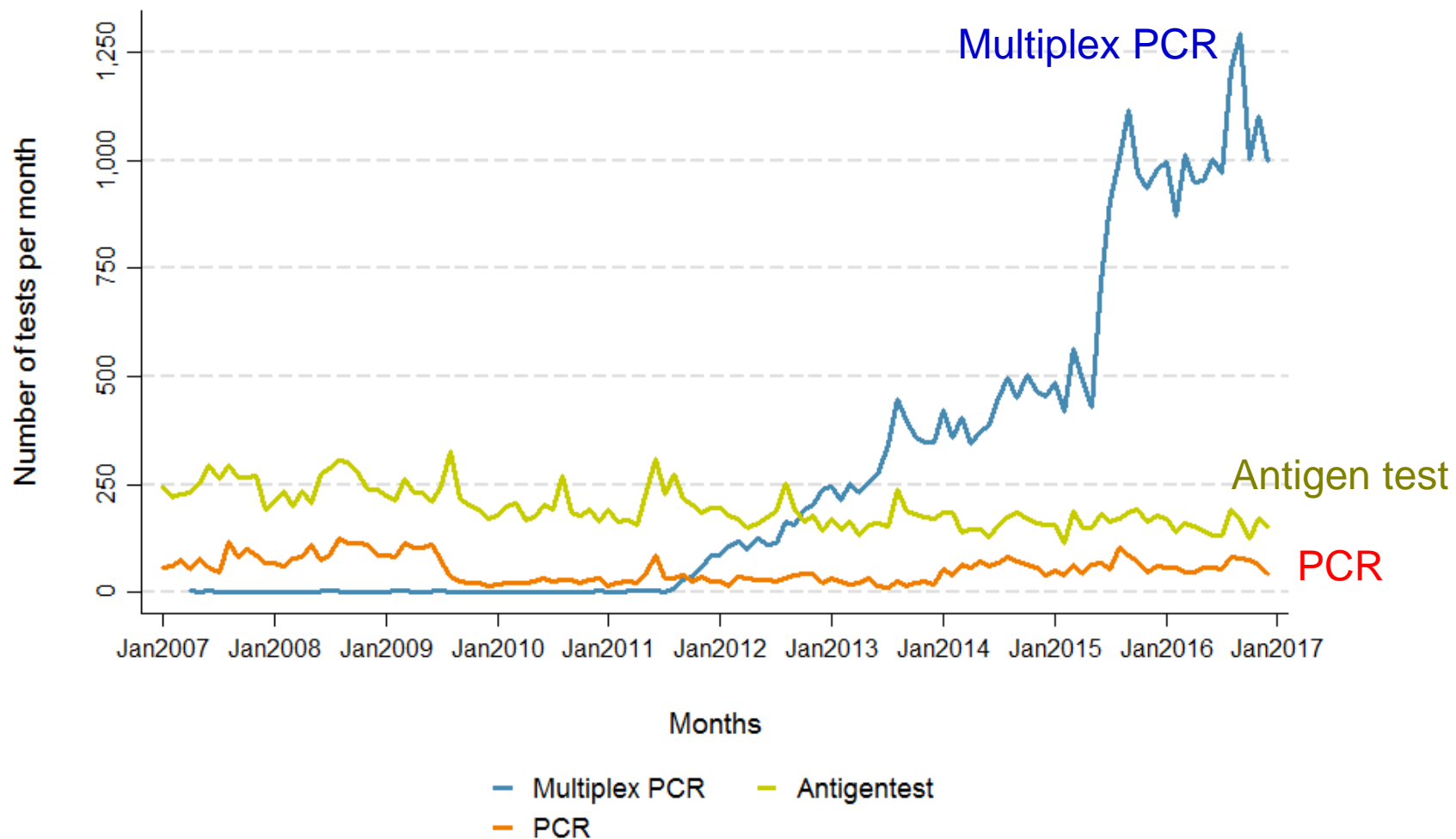
**Yearly number of tests reported for EHEC between 2007 and 2016, cumulated over the different Swiss diagnostics laboratories**



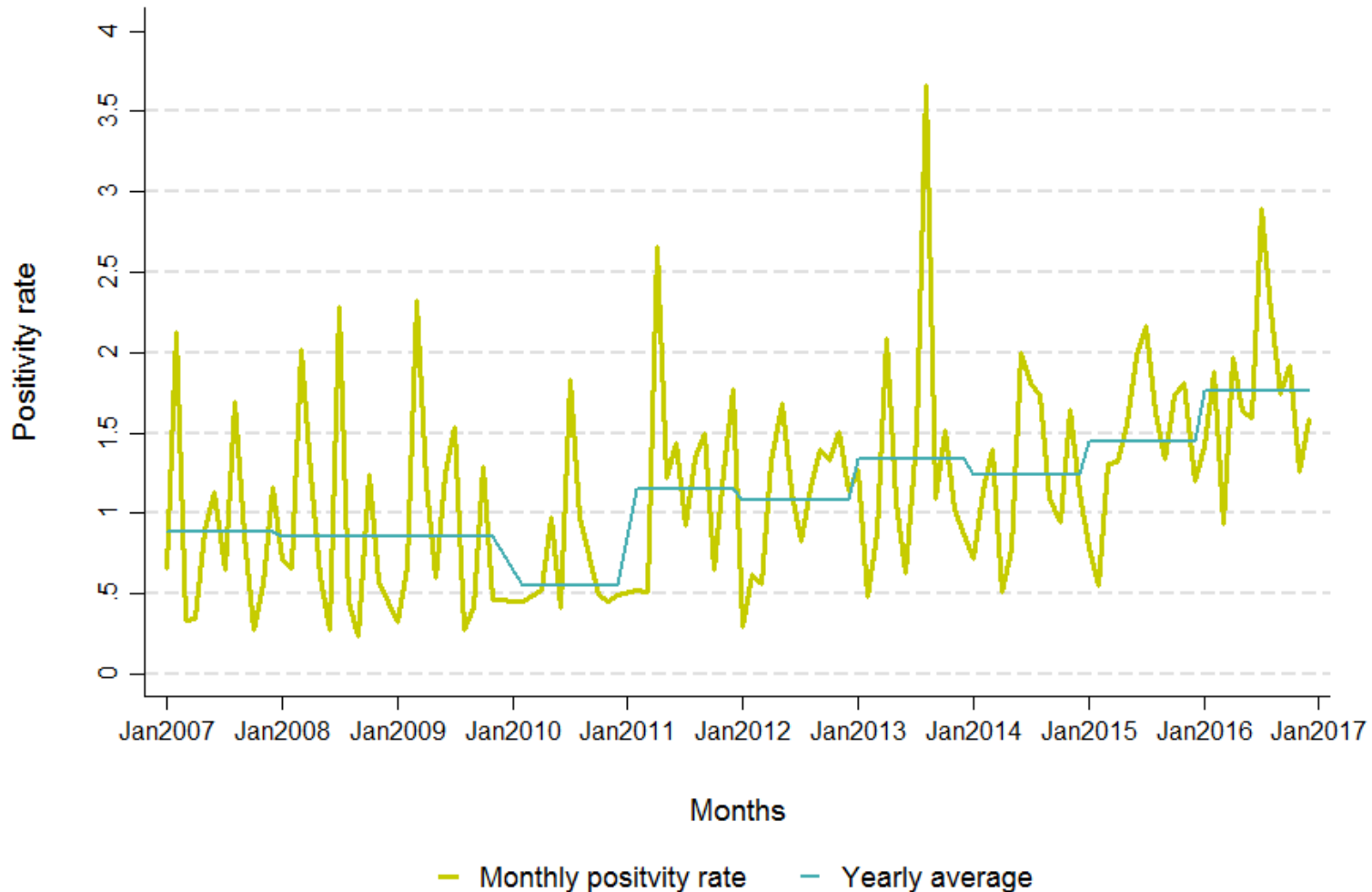
# Preliminary results



Number of tests performed for each diagnostic test category for the analysis of EHEC over the whole study period



Type of test method for EHEC analysis performed between 2007 and 2016. Laboratories, which have not provided data for the whole study period, are not represented in this graph.



**Monthly positivity rate and yearly mean of the positivity rate for EHEC between 2007 and 2016**



- **Heterogeneity between and within** laboratories
  - Absence of **national database** / unique **patient ID**
    - Lack of transparency / no clear overview of diseases evolution in CH (public health and research)
  - **Data difficult to access** / missing data (ex. **Software change**)
  
- **↑ EHEC testing** since 2012-2015 (especially by **multiplex PCR**)
  
- **(↑) positivity** over the study period
  - Maybe other factors than multiplex PCR involved ?
  
- Outlook: define **disease episode & analysis**

- We thank all 11 Swiss **laboratories** for providing the data
- The **Federal Office of Public Health (FOPH)** for funding and collaboration

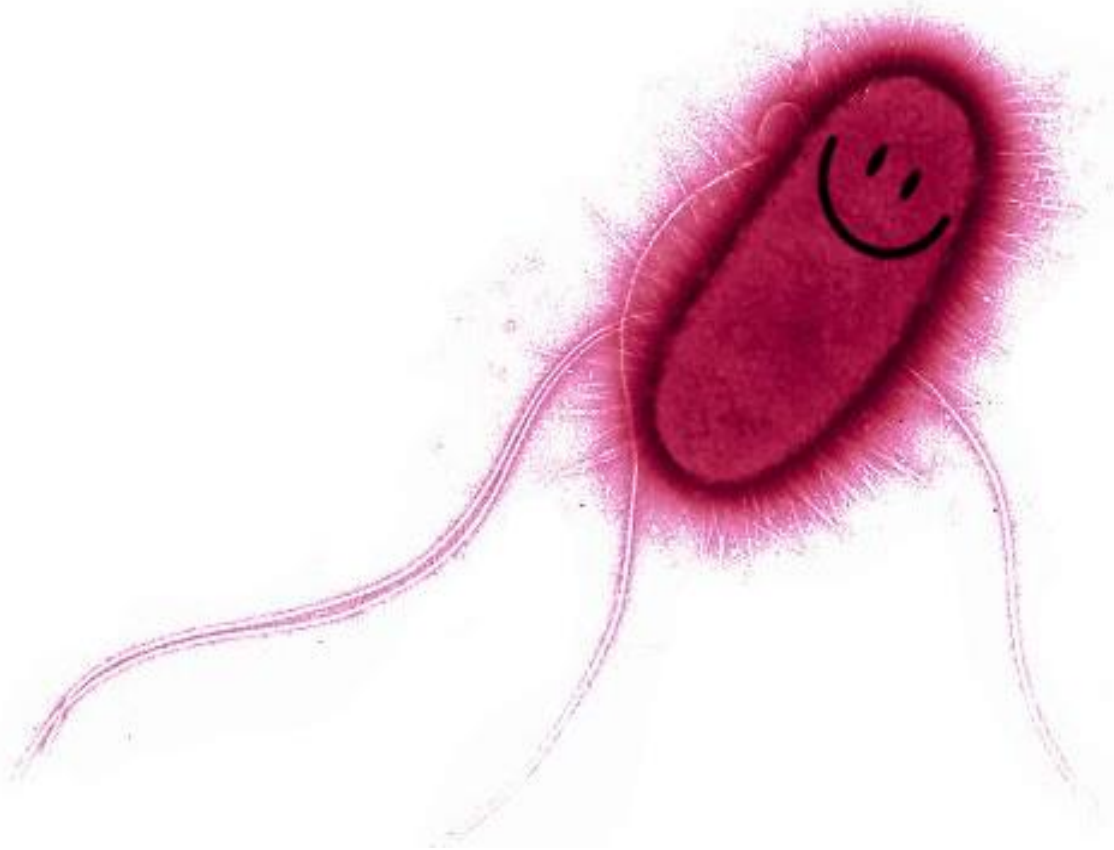


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**THANK YOU FOR YOUR ATTENTION !**