

# Human Papillomavirus (HPV) vaccine coverage rates (VCR) in France: a claims data study

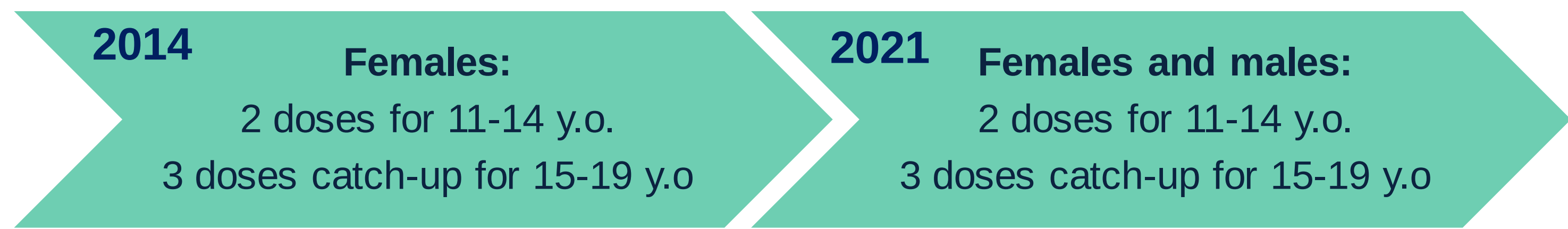
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## Introduction

- HPV vaccination represents a powerful measure to prevent persistent infections which can lead to cancers (cervix, vulva, vagina, anus). There is growing evidence of HPV being a relevant factor in other cancers (oropharynx, oral cavity, larynx and penis). In France, over 6,300 cancers are caused by HPV (1,2).
- The French Cancer Plan 2021-2030 targets to reach 80% in 2030 in adolescents (girls and boys)(4).
- Since October 2014 HPV vaccination is recommended in females aged between 11 and 14 with catch-up vaccination between 15 and 19. This recommendation has been extended to males since 2021 (5) (Figure 1).

Figure 1. Current HPV vaccination schedule in France



## Objective

- The PAPILLON study aimed to monitor HPV VCR from 2017 to 2025 using French National claims database through several indicators: age-specific initiation rates, full schemes, and cumulative VCR. The results presented here are from an interim analysis covering the period 2017-2020. Because the vaccine is reimbursed for boys since January 2021, the data presented focus on outcomes in girls.

## Methods

### Study design

- Observational retrospective cohort study using the French national claims database (SNDS - Système National des Données de Santé), which covers around 99% of the French population.
- All females eligible for HPV vaccine in 2017-2020 were included.
- Estimations of annual HPV vaccine initiation rates were calculated on 11-14 (target population) and 15-19-year-old females (catch-up).
- Cumulative VCR at a given age were estimated on females aged between 11 and 19 at the time of first vaccination.

### Definition of indicators

#### Schemes of vaccination

- Partial scheme: pharmacy dispensing of at least one dose of HPV vaccine.
- Full scheme: two (for 11-14) or three (for 15-19) dispensing's in pharmacy of doses over an 18-month period, according to current French recommendations.

#### Annual HPV vaccine initiation rate

- for the overall population
  - Nominator: number of females aged between 11 and 19 and initiating HPV vaccine in the reporting year.
  - Denominator: number of females aged between 11 and 19 in the reporting year and not having initiated HPV vaccine in previous years (estimated from INSEE data as of 31 December of the reporting year).
- by year of birth
  - Nominator: number of females of a birth year initiating HPV vaccine in the reporting year.
  - Denominator: number of females of the same birth year who have not initiated HPV vaccine in previous years.

#### Vaccination coverage

- Cumulative HPV vaccination rate (i.e., HPV vaccination coverage for each birth cohort) by ages 15, 16, 20 and 21. For instance, the cumulative HPV vaccination rate by age 15 in the reporting year for full scheme is the ratio between:
  - Nominator: number of females turning 15 in the reporting year, who have been dispensed the full scheme of HPV vaccine during the reporting year or before.
  - Denominator: number of females turning 15 in the reporting year.

## Results

### Study population

Table 1. Selection of the females who were dispensed a first dose of HPV vaccine between 2017 and 2020 and aged between 11 and 19 at initiation

| Selection criteria                                                                                | Overall   | Percentage |
|---------------------------------------------------------------------------------------------------|-----------|------------|
| People who were dispensed a first dose of HPV vaccine between 1 January 2017 and 31 December 2020 | 1,187,293 | 100%       |
| Females aged between 11 and 19 at initiation                                                      | 1,056,288 | 89.0%      |
| Females with full scheme at 18 months                                                             | 600,860   | 50.6%      |

### Vaccination coverage

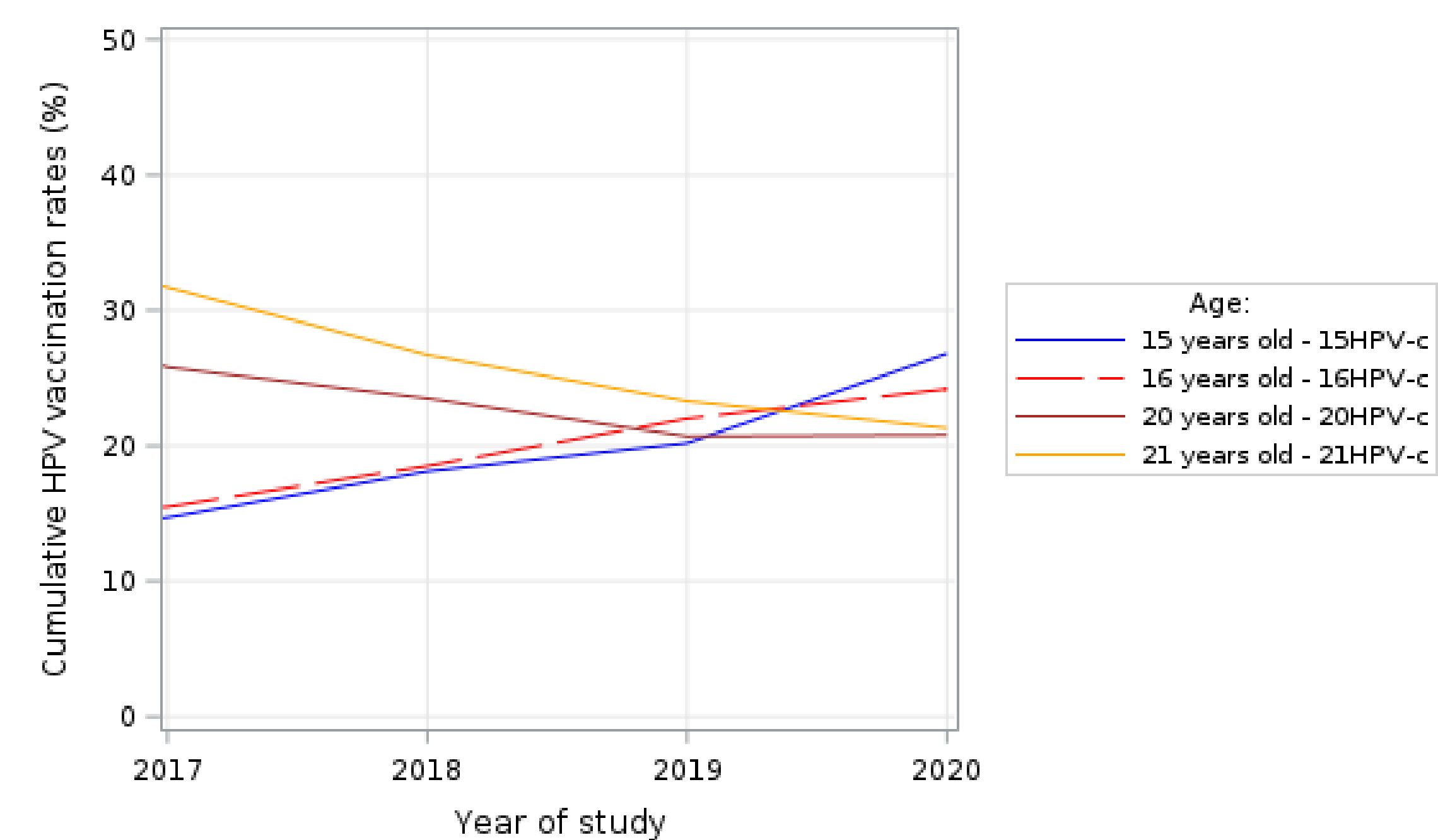
- Overall, 65.0% of initiations were between 11 and 14 years-old, with a median interval between the first two doses of 188 days (IQR=143 days).
- In 2020, except for 11-year-old, all initiation rates decreased compared to 2019 (see Table 2).

Table 2. Annual HPV vaccination initiation rates by age in the year of vaccination of female population

| Year of vaccination | Overall | By age in the year of vaccination |      |      |      |      |      |     |     |     |
|---------------------|---------|-----------------------------------|------|------|------|------|------|-----|-----|-----|
|                     |         | 11                                | 12   | 13   | 14   | 15   | 16   | 17  | 18  | 19  |
| 2017                | 6.1     | 5.3                               | 8.9  | 8.5  | 8.2  | 6.9  | 6.3  | 4.7 | 2.6 | 1.3 |
| 2018                | 8.9     | 7.8                               | 12.5 | 12.6 | 12.0 | 10.0 | 8.8  | 6.8 | 3.9 | 2.2 |
| 2019                | 11.2    | 10.2                              | 15.8 | 15.8 | 15.1 | 12.5 | 11.1 | 8.6 | 5.3 | 3.3 |
| 2020                | 10.3    | 10.8                              | 15.3 | 14.5 | 13.3 | 10.6 | 9.1  | 7.2 | 4.8 | 3.0 |

- The annual initiation rate increased from 7.7% in 2017 to 13.4% in 2020 in age group 11-14-year-old, and from 4.5% to 7.0% in age group 15–19-year-old (data not shown in Table 2).
- Cumulative VCR for full scheme ranged between 15.5% and 24.2% by age 16 and 25.8% and 20.8% by age 20 (see Figure 2).

Figure 2. Cumulative HPV vaccination rates at 15, 16, 20 and 21 years old by calendar year for the full vaccination scheme of female population



## Conclusion

- Because of its large cohort size, the French claims database allowed for an accurate estimate of HPV VCR, and showed their increase between 2017 and 2020, although they remain below the 60% target by 2023 set by INCa. Interval between doses seems to be well respected, but completion to full scheme remains an issue.
- Barriers to vaccination are well known in Europe and include lack of information or confidence in vaccines (6). On the other hand, factors associated to HPV vaccination have been studied in the SNDS (7). Policymakers should take actions to support public health goals.
- The disruption probably due to COVID19 lockdown observed in 2020 highlights the need for catching up on vaccination in these young women and consideration for expansion of age cohort. Many young women would then age out of the current recommendations, particularly in the oldest cohorts.
- The results of this study will be updated every year until 2025 to provide updates of VCR, and to assess the vaccination program performance. The impact of the extension of vaccine competencies to new actors on HPV vaccination will also be assessed.