| Birth cohort | Vaccination cohort | Age at vaccination | 3 doses (fully vaccinated) | 2 doses (fully vaccinated) | 1 dose (at least minimally protected) | COVER report Number | Targeted for screening since year |
|--------------|--------------------|--------------------|----------------------------|----------------------------|--------------------------------------|---------------------|-------------------------------|
| 1990-1991    | Catch-up           | 17-18              | 30.2%                      | NR                         | 47.8%                                | 94                  | 2015-16                       |
| 1991-1992    | Catch-up           | 17-18              | 34.6%                      | NR                         | 49.7%                                | 96                  | 2016-17                       |
| 1992-1993    | Catch-up           | 16-17              | 49.3%                      | NR                         | 62.4%                                | 99                  | 2017-18                       |
| 1993-1994    | Catch-up           | 15-16              | 72.0%                      | NR                         | 81.6%                                | 100                 | 2018-19                       |
| 1994-1995    | Catch-up           | 14-15              | 79.6%                      | NR                         | 84.0%                                | 104                 | 2019-20                       |
| 1995-1996    | Routine            | 12-13              | 87.2%                      | NR                         | 89.9%                                | 108                 | 2020-21                       |
| 1996-1997    | Routine            | 12-13              | 83.9%                      | NR                         | 86.6%                                | 111                 | 2021-22                       |
| 1997-1998    | Routine            | 12-13              | 86.8%                      | NR                         | 88.3%                                | 116                 | 2022-23                       |
| 1998-1999    | Routine            | 12-13              | 87.0%                      | NR                         | 89.4%                                | 118                 | 2023-24                       |
| 1999-2000    | Routine            | 12-13              | 86.8%                      | NR                         | 89.9%                                | 118                 | 2024-25                       |
| 2000-2001    | Routine            | 12-13              | 84.8%                      | NR                         | 90.5%                                | 120                 | 2025-26                       |
| 2001-2002    | Routine            | 12-13              | NR                         | 87.2%                      | 91.3%                                | 124                 | 2026-27                       |
| 2002-2003    | Routine            | 12-13              | NR                         | 84.7%                      | 89.0%                                | 128                 | 2027-28                       |
| 2003-2004    | Routine            | 12-13              | NR                         | 80.3%                      | 89.3%                                | 128                 | 2028-29                       |
| 2004-2005    | Routine            | 12-13              | NR                         | NA                         | 85.6%                                | 128                 | 2029-30                       |

Abbreviations: NA=not available. NR=not relevant.

* Girls born between September in year 1 and August in year 2. For girls born between September 1990 and August 2001, three vaccine doses were recommended, whereas girls born from September 2001 onwards receive two doses.

Note: Data for women born after 2004-05 have not yet been reported. For these birth cohorts, we assumed that the vaccine coverage rates will remain stable compared to the preceding routinely vaccinated birth cohorts.
Table S2. List of parameters used for sensitivity analyses

| Parameter                                                                 | Value for sensitivity analysis                                                                                     | Scenario in Figures S1 and S2 |
|---------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|------------------------------|
| No vaccination                                                            | Vaccine effectiveness = 0                                                                                         | A                           |
| Main analysis                                                             | --                                                                                                                | B                           |
| Halved proportion of first HPV screens in the subsequent HPV rounds       | 5%                                                                                                                | B                           |
| Doubled proportion of first HPV screens in the subsequent rounds          | 20%                                                                                                                | C                           |
| Proportion with colposcopy decreased by one-third                         | Any colposcopy frequency * 0.67                                                                                  | D                           |
| Proportion with colposcopy increased by one-third                         | Any colposcopy frequency * 1.33                                                                                  | E                           |
| 50% more colposcopies in the subsequent HPV round                        | Subsequent round colposcopy frequency * 1.5                                                                     | F                           |
| PPV for CIN2+ in the subsequent HPV rounds equal those in the first HPV round | Same as PPVs for CIN2+ during the first HPV round                                                               | G                           |
| PPV for CIN2+ in the subsequent HPV rounds halved compared to those in the first HPV round | First-round PPVs for CIN2+ * 0.5                                                                               | H                           |
| Vaccine effectiveness increased for herd immunity                         | For routinely vaccinated women: decrease in colposcopy 38% for bivalent and 29% for quadrivalent vaccine; decrease in the risk of CIN2+ 64% for bivalent and 49% for quadrivalent vaccine | I                           |
| Vaccine effectiveness as in Scottish studies                              | For routinely vaccinated women: decrease in colposcopy 43% for bivalent and 33% for quadrivalent vaccine; decrease in the risk of CIN2+ 77% for bivalent and 59% for quadrivalent vaccine | J                           |
|                                                                           | Women vaccinated through the catch-up campaign: decrease in colposcopy 17%; decrease in the risk of CIN2+: 39%      |                             |