

DARWIN EU® – HPV Vaccine Effectiveness in Norway



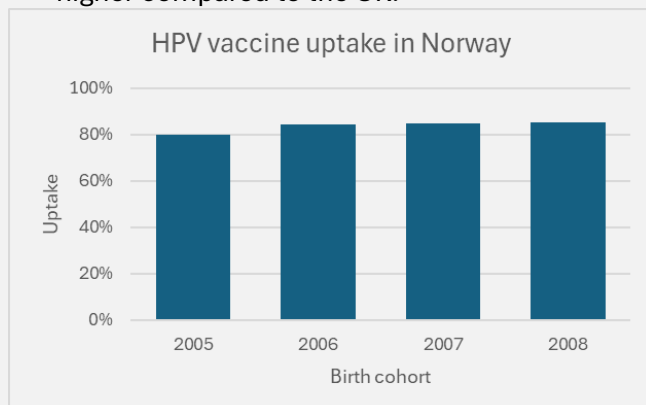
Human papillomavirus (HPV) vaccination programs aim to reduce HPV infection and prevent cervical cancer. This DARWIN EU® study evaluated real-world effectiveness of HPV vaccines in preventing severe outcomes (invasive cervical cancer, CIN2+, conization) among Norwegian females born in 2005–2008.

Study overview

- Design: New-user propensity score matched study across UK, Spain, and Norway.
- Population: Females born in 2005–2008 in Norway, aged 9–15 years during observation.
- Exposure: HPV vaccination status (brand, number of doses).
- Follow-up: Up to 6 years post-vaccination.
- Outcomes: Invasive cervical cancer, CIN2+, and conization.

HPV vaccine uptake in Norway

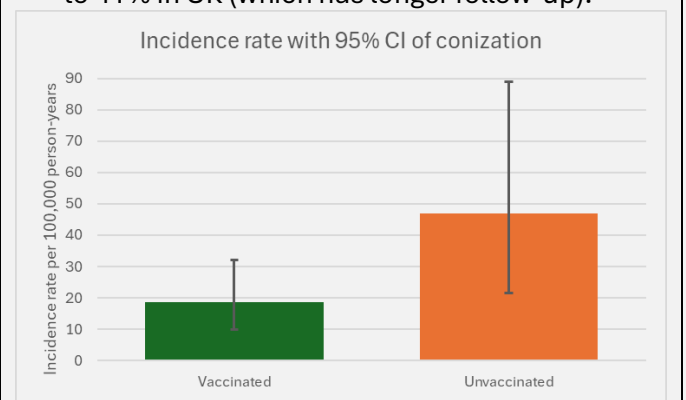
- Uptake increased from 80.1% for females born in 2005 to 85.3% for those born in 2008. Uptake was comparable to Spain, but substantially higher compared to the UK.



- Most women (95%) had Cervarix®, followed by Gardasil® (4%) and Gardasil-9® (<1%).
- The most common schedule was 2 doses for Cervarix® (74%), one dose for Gardasil® (54%), and 2 doses for Gardasil-9® (64%).
- Mean age at first dose: 12 years.

Norway-specific results

- Effectiveness of HPV vaccination against invasive cervical cancer (by brand): Not estimable, <5 cases observed.
- Effectiveness of HPV vaccination against CIN2+ (by brand): Not estimable, too few cases in Norway
- Effectiveness of HPV vaccination against conization, regardless of brand: 60%; compared to 41% in UK (which has longer follow-up).



Data & Methods notes

- Latency for invasive cervical cancer outcomes necessitates extended follow-up beyond current data.
- Brand-specific effectiveness in Norway not estimable due to small numbers (Cervarix® was predominant).
- Estimates pertain to Norwegian females born 2005-2008 and may not generalize to other birth cohorts.

How was this useful?

High HPV vaccine uptake (80–85%) across multiple birth cohorts with predominance of Cervarix® was observed. Effectiveness estimates for conization seem to align with clinical trial evidence, while invasive cancer endpoints require longer latency to assess. Norwegian data provided valuable insights despite the relatively short follow-up time, whereas small numbers of cases also limit brand-specific estimates.

This study supports HPV vaccine effectiveness in real-world settings and informs public health strategies for cervical cancer prevention in Norway. It demonstrated the feasibility of using linked national health registries for regulatory science.

Access to the full report

[DARWIN EU® Effectiveness of Human Papillomavirus Vaccines \(HPV\) to prevent cervical cancer](#)

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