Immunogenicity of 2 vs. 3 doses of HPV vaccination in immunocompetent girls

**Population**: Immunocompetent females

**Intervention**: 2 doses of HPV vaccination in girls (9-14 years)

**Comparison**: 3 doses of HPV vaccination in girls or women

**Outcome**: Immunogenicity (GMT)

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**What is the scientific evidence of non-inferior immunogenicity of a 2 dose HPV vaccination schedule in girls (9-14 years) compared to a three dose schedule in girls or women?**

<table>
<thead>
<tr>
<th>Rating</th>
<th>Adjustment to rating</th>
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<tbody>
<tr>
<td>4/ RCT 2/ observational¹</td>
<td>4</td>
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**Factors decreasing confidence**

| Limitation in study design ii | Serious | -1 |
| Inconsistency | None serious | 0 |
| Indirectness | None serious | 0 |
| Imprecision | None serious | 0 |
| Publication bias | None serious | 0 |

**Factors increasing confidence**

| Large effect | Not applicable | 0 |
| Dose-response | Not applicable | 0 |
| Antagonistic bias and confounding | Not applicable | 0 |

**Final numerical rating of quality of evidence**

3

**Statement on quality of evidence**

We are moderately confident in the estimate of effect on health outcome. The true effect is likely to be close to the estimate of the effect.

**Conclusion**

We are moderately confident that a 2-dose HPV schedule induces non-inferior immunogenicity compared to a 3-dose HPV schedule. Evidence from 3 RCTs as well as 2 non-randomized / non-controlled trials indicate that a two dose HPV schedule in girls induces non-inferior levels of GMT to HPV 16 and 18 than a three dose schedule in girls or women. Bridging studies allow assumption of efficacy of a 2-dose

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¹ 4 RCTs and two non-randomized trials (Lazcano-Ponce et al., 947 participants), (Dobson et al., 520 participants): a 2 dose schedule in girls compared to a 3 dose schedule in girls or women has proven non-inferior immunogenicity (GMTs for anti-HPV 16 and anti-HPV 18). Licensure of the three dose schedule in girls relied on the immunological bridging studies (assessment of GMT) in young women (15-25 years of age) where efficacy of this schedule has been demonstrated.

Smolen et al. based on a Phase III quadrivalent HPV vaccine RCT assessed memory T cell response which revealed that the group that received only 2 doses (Group 1) had significantly lower responses for HPV 6, 16, and 18 (P value < 0.001) compared to the 3 dose group.

Reference List


4. Romanowski B, Schwarz TF, Ferguson LM et al. Immune response to the HPV-16/18 AS04-adjuvanted vaccine administered as a 2-dose or 3-dose schedule up to 4 years after vaccination: Results from a randomized study. Hum Vaccin Immunother 2014;10(5).

