



## Encouraging Developments: One-Dose

Despite the HPV vaccine's known efficacy, most girls living in countries with the greatest risk for cervical cancer are not being vaccinated. The cost and logistical difficulties of vaccinating girls with the recommended multiple-doses has been a significant barrier. **Moving to one-dose of HPV vaccine** could result in lower-cost vaccination programmes and more girls receiving the vaccine in the future.

Since 2006, when the HPV vaccination began to be rolled out globally, data suggesting protection after just one dose has been building. Several large-scale trials have been set up to investigate if one dose is as effective in preventing the development of pre-cancerous lesions (and therefore cervical cancer), as two or three doses. Previously, the WHO recommendation for dosing was reduced from three doses to two doses based on scientific evidence of the effectiveness of two doses.

### What's the current WHO guideline and why would it be significant if it changed to one-dose?

WHO currently recommends two doses of HPV vaccine for girls between 9 and 14 years of age (target age group), to help fully protect against cervical cancer. However, currently only about 15% of eligible girls worldwide have been fully vaccinated and we can see marked drops in the number of girls receiving their second dose, compared to a first dose globally. If one dose could prevent pre-cancerous cervical lesions in the same way two doses does: (1) concerns around girls not receiving subsequent doses and therefore not being adequately protected, would be eliminated; (2) HPV vaccination programmes would be lower cost overall (currently one of the barriers to implementation); and (3) coverage rates are likely to be improved

## What is the current evidence?

### Clinical trials

PRIMAVERA, based in Costa Rica, is one of the large-scale one-dose research trials taking place around the world. Interim results are expected in 2022 and full results in 2023. The goal of this research is to establish whether there is convincing and actionable evidence for regulatory bodies that a single dose of the HPV vaccine will elicit an immune response sufficient to protect against targeted HPV infections and subsequent precancerous lesions.

### Observational studies

The JAMA study found that in the US, where 68% of girls had only received one dose (as they had missed their second), there was a similar reduction in HPV infection as in the girls that had received additional doses. While no causal link was identified, this suggested that one dose had a similar effect to two.

### What's next for one-dose research?

Whilst this research is exciting, for now, the WHO official guidance maintains that two doses are required (unless individuals fall into a category with additional guidance). Any changes would take several years as the evidence is not yet strong enough, and regulatory changes would need to be implemented. Different studies and trials use different clinical endpoints to investigate the efficacy of one dose; ranging from antibody levels to the reduction in HPV infection. They often use different licensed vaccines too, so all the data will need to be pooled together and reviewed by SAGE technical working group, to create a large evidence bank before any changes to official guidance are made.