

# Evaluating the Role of the 9-Valent HPV Vaccine in Preventing Recurrence of Genital Warts

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## BACKGROUND

Human papillomavirus (HPV) is the most common sexually transmitted infection worldwide,<sup>1</sup> with most sexually active individuals acquiring infection during their lifetime.<sup>2,3</sup> Low-risk human papillomavirus Types 6 and 11 account for the majority of anogenital warts,<sup>4</sup> a condition that affects approximately 1% of sexually active adults at any given time.<sup>5</sup> Although benign, genital condyloma imposes a significant psychosocial and economic burden as a result of stigma, repeated treatments, and prolonged follow-up.<sup>6</sup> The 9-valent human papillomavirus vaccine provides highly effective primary prevention against vaccine-type infection and genital warts in both women and men.<sup>4,7</sup> However, whether vaccination administered after treatment reduces recurrence or the need for additional procedures remains uncertain, as there was limited and inconsistent evidence in previously infected individuals, as reported in other studies.<sup>8,9</sup> The authors therefore evaluated the clinical predictors of recurrence after CO<sub>2</sub> laser ablation and examined whether post-treatment human papillomavirus vaccination is associated with reduced recurrence risk in a real-world male cohort who already had the infection.

## METHODS

The retrospectively reviewed men (who were 17 years of age or older) were treated with CO<sub>2</sub> laser ablation for genital condyloma at a tertiary centre (June 2016–June 2025). The primary outcome was recurrence after documented clearance. Logistic and mixed-effects regression models tested associations between post-treatment vaccination and recurrence, adjusting for demographic and clinical factors.

## RESULTS

Among the 560 patients included in the study (722 sessions), recurrence occurred in 28.4%. Those with recurrence were younger in age (32±10 versus 37±13 years;  $p < 0.001$ ) and more likely to need ≥2 sessions (18.6% versus 11.6%;  $p = 0.02$ ). Post-recurrence vaccination showed no significant association with reduced risk (adjusted odds ratio [aOR]: 0.49; 95% CI: 0.14–1.69;  $p = 0.26$ ). Independent predictors were younger age (aOR: 0.96 per year;  $p < 0.001$ ) and ≥2 sessions (aOR: 2.44;  $p = 0.003$ ).

## CONCLUSION

Post-treatment human papillomavirus vaccination did not reduce recurrence of genital condyloma in patients who already had the infection. Younger age and multiple treatment sessions independently predicted recurrence, reinforcing the role of vaccinations primarily in primary prevention.

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