



Despite Gardasil 9 Success Not Reached in Complete Eradication of High Risk Human Papilloma Virus - What is the Next Step For Cervical, Oropharyngeal Cancers Prevention

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We reviewed earlier the importance of human papilloma virus (HPV), in Cervical Cancer development with role of various viral proteins, as well as oropharyngeal cancer [1,2]. Although 90% of HPV infections get cleared within 2 yrs without need for medical treatment, persistent infections with HPV's at high risk (HR- HPV's) can progress to cancer. Low risk HPV (LR HPV) usually don't cause cancers but get correlated with genital warts as well as respiratory papillomatosis [3,4]. Besides that other proof correlated HPV with vaginal, vulvar penile, anal along with oropharyngeal Cancer particularly tonsillar, as well as base of tongue [4].

In 2008-2010 cervical HPV prevalence (69.5%) as well as HPV 16 prevalence (34.7%) was >in nonvaccinated women at a youth clinic in Stockholm 2013-2015 following quadrivalent -Gardasil^(R) HPV vaccine introduction, reduction of HPV 16 as well as HPV 6 prevalence took place. Thus Ahrlund-Richter, *et al.* evaluated the cervical HPV prevalence 10 yrs following primary sampling. In 2017-2018, 178 cervical swabs among women 15-23 yrs age, were evaluated for 27 HPV kinds utilizing bead based multiplex method. HPV prevalence data was associated with vaccination status and age as compared to HPV prevalence in 615 samples from 2008-2010 as well as 338 from 2013 to 2015 from the same clinic, as well as to HPV kinds in 143 cervical cancer cases during 2003 to 2008 in Stockholm, Percentage of vaccinated women enhanced from 10.7% (2008-2010) to 82.1% (2017-2018). Prevalence of all 27 HPV's at high risk (HR- HPV's) as well as combined presence of quadrivalent -Gardasil^(R) types HPV 16, 18, 6 and 11 was lower in vaccinated as compared to nonvaccinated women (67.4% vs 93.

3%, $p = 0.0031$, 60.1 vs 86.7%, $p = 0.0057$ and 5.8 vs 26.7%, $p = 0.002$, respectively). Moreover HPV 16 prevalence in nonvaccinated women 2017-2018 was lower than those in 2008-2010 (16.7% and 34.7% respectively, $p = 0.0471$) with similar trends were seen towards HPV 18 as well as 11, Within both vaccinated as well as nonvaccinated women, the commonest non quadrivalent - Gardasil^(R) vaccine HR-HPV's types were HPV 39, 51, 52, 56 as well as 59. Overall these represented roughly 9.8% of cervical cancer cases in Stockholm during 2003-2008, with their prevalence having a tendency to rise during 2017-2018 as compared to 2008-2010. Thus quadrivalent-Gardasil^(R) vaccination has reduced HPV-vaccine type prevalence significantly. But, nonvaccine HR- HPV's types continue to be high in potentially HR women at a youth clinic in Stockholm [5]. Gardasil^(R) 9 is the latest HPV vaccine, covering HPV 6, 16, 18, 31, 33, 45, 52 as well as 58 [6]. It includes HPV 52 but not the other 4 HPV 39, 51, 56 as well as 59 observed in 2017-2018 clinic although it does include 5/6 common HR-HPV-16, 18, 33, 45 and 56 found in 2003 to 2008 in Stockholm [7]. One needs to cautiously note irrespective of rise in HPV 39, 51, 52, 56 as well as 59 as they accounted for 9.8% of Cancer cervix in 2003 to 2008 in Stockholm [7]. Thus despite reduction in 4 HR-HPV's 16, 18, 6 and 11, 5 non vaccine specific HR- HPV's 39, 51, 52, 56 and 59 remain high in potentially HR-HPV's of these one only (52) is included in Gardasil^(R) 9. Thus important is to follow up most HPV prevalent type in next generation of HPV vaccines (Figure 1 and 2).

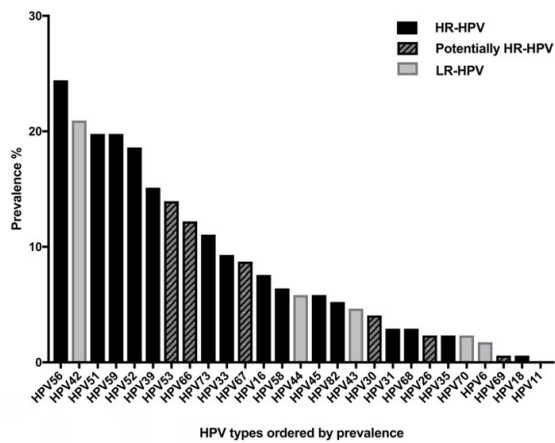


Figure 1: Courtesy ref no-5-Cervical human papillomavirus (HPV) prevalence of all tested HPV types irrespective of vaccination status.

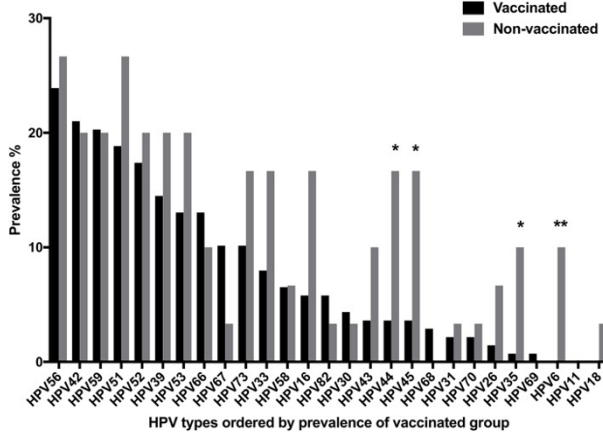


Figure 2: Courtesy ref no-5-Cervical human papillomavirus (HPV) prevalence of all tested HPV types according to vaccination status (Vaccinated or non-vaccinated). *p < 0.05, **p < 0.01.

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