UK experience of herpes zoster vaccination can inform varicella zoster virus policies

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Reactivation of latent varicella zoster virus (VZV) can lead to herpes zoster (also known as shingles). Herpes zoster is generally a painful disease associated with substantial morbidity, including a long-term neuropathic pain syndrome called postherpetic neuralgia. Substantial costs and health-related quality-of-life impairments are incurred by both ambulatory and hospitalised patients with herpes zoster.[1]

The Shingles Prevention Study[2]—the first clinical trial of a live-attenuated VZV vaccine against herpes zoster (Zostavax; Merck & Co, Kenilworth, NJ, USA)—showed that in the 3 years after vaccination, Zostavax reduced herpes zoster and postherpetic neuralgia incidence by 37·6% (95% CI not shown) and 66·8%, (43·3–81·3%), respectively, in vaccine recipients aged 70 years or older.[2] Vaccine efficacy, however, waned substantially with time, down to 22·4% (6·0–36·6) against herpes zoster and 49·7% (15·6–72·5) against postherpetic neuralgia 7–11 years after vaccination.[3,4]

In *The Lancet Public Health*, Gayatri Amirthalingam and colleagues[5] show that over the 3 years after the introduction of herpes zoster vaccination in the UK, incidence of herpes zoster and postherpetic neuralgia decreased in routine cohorts (individuals aged 70–71 years at time of vaccination) and catch-up cohorts (individuals aged 78–80 years at time of vaccination). Incidence of herpes zoster decreased by 35% (95% CI 28–40) in the routine cohorts and 33% (26–39) in the catch-up cohorts. Incidence of postherpetic neuralgia decreased by 50% (33–62) in the routine cohorts and 38% (21–50) in the catch-up cohorts. Vaccine uptake was relatively high—varying between 58% and 72% between cohorts—possibly due to the encouragement of concomitant administration during seasonal flu vaccination. Vaccine effectiveness during the 3 years after vaccination was estimated to be 62% (50–71) against herpes zoster and 88% (59–100) against postherpetic neuralgia in the routine cohorts and 62% (48–72) against herpes zoster and 70% (39–93) against postherpetic neuralgia in catch-up cohorts.

The VZV exogenous boosting hypothesis proposes that re-exposure to chickenpox boosts VZV-specific immunity and thereby reduces the risk of herpes zoster.[6,7] If true, this hypothesis implies that the potential effect of herpes zoster vaccination in older adults would be greater in the USA than in the UK, because the USA has had universal childhood chickenpox vaccination since 1995, whereas the UK has no such programme. However, Amirthalingam and colleagues' vaccine effectiveness estimates for the UK are similar—and even a bit higher—than those reported in earlier papers for the USA: 48% (95% CI 39–56) against herpes zoster and 59% (21–79) against postherpetic neuralgia in individuals aged 65 years or older;[8] and 32·9% (23·1–41·5) against herpes zoster in individuals aged 60 years or older over 3–6 years after vaccination.[9] Nevertheless, a different distribution of risk factors for herpes zoster might have affected herpes zoster occurrences in the two countries, thereby preventing major conclusions regarding exogenous boosting.

Finally, the novel VZV gE subunit vaccine (Shingrix; GlaxoSmithKline, Brentford, UK) has a two-dose vaccine efficacy of 91·3% (95% CI 86·8–94·5) against herpes zoster and 88·8% (68·7–97·1), against postherpetic neuralgia 3·7 years after vaccination in individuals aged 70 years or older.[10] Shingrix's superior efficacy data by age and over time were decisive for the US Advisory Committee on Immunization Practices, who recommended on Oct 25, 2017, the switch from Zostavax to Shingrix in all healthy adults aged 50 years or older, including those who had already received Zostavax.[11] In Europe, cost-effectiveness considerations are central to policy making; European policy makers will probably also consider quantitative and practical differences in costs, health-related quality of life, and implementation (one *vs* two doses) as well as safety and effectiveness by age and over time. Such considerations have previously led to diverse programme choices across Europe for rotavirus, pneumococcal, and human papillomavirus vaccines. For countries introducing VZV vaccination in childhood, integrated models of both policy choices (on chickenpox and herpes zoster) are likely to be adapted yet again to compare adult strategies using vaccines such as Zostavax versus Shingrix. Amirthalingam and colleagues' work[5] provides useful information for such models.

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We declare no competing interests.

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