

Herpes zoster vaccines effectiveness against herpes zoster and postherpetic neuralgia

James Mbinta¹, Alex Wang¹, Binh Nguyen¹, Janine Paynter², Prosper Mandela Awuni³, Russell Pine¹, Andrew Sporle², Colin Simpson^{1,4}

¹Victoria University of Wellington; ²The University of Auckland; ³Laurentian University; ⁴The University of Edinburgh



Introduction

Herpes zoster (HZ) and associated complications substantially impact health and quality of life. Treatment options are limited, and prevention through vaccination is a priority

Objectives

- To evaluate the effectiveness of the HZ vaccines (recombinant zoster vaccine (RZV) and zoster vaccine live (ZVL)) against HZ and postherpetic neuralgia (PHN) in older adults.
- To assess the effectiveness of the ZVL against HZ and PHN in Aotearoa New Zealand.

Methods

Systematic review and meta-analysis of studies assessing the effectiveness of HZ vaccines in adults. Observational studies published in any language between May 25, 2006, and Dec 31, 2020. Random-effects meta-analysis models were used to estimate pooled vaccine effectiveness (VE) for outcomes of interest.

Nationwide retrospective matched cohort study from 1 April 2018 to 1 April 2021 using a linked de-identified patient level Ministry of Health data platform. A Cox proportional hazards model was used to estimate ZVL VE against HZ and PHN adjusting for covariates

Results

The pooled VE for ZVL against HZ in adults was 45.9% (42.2–49.4; seven studies). The VE for ZVL against PHN was 59.7% (58.4–89.7; three studies).

274,272 vaccinated with ZVL matched with 549,870 unvaccinated. VE against hospitalised HZ and hospitalised PHN was 57.8% (41.1–69.8) and 73.7% (14.0–92.0) respectively. VE against hospitalised HZ for Māori was 45.2% and for Pacific peoples was 52.2%

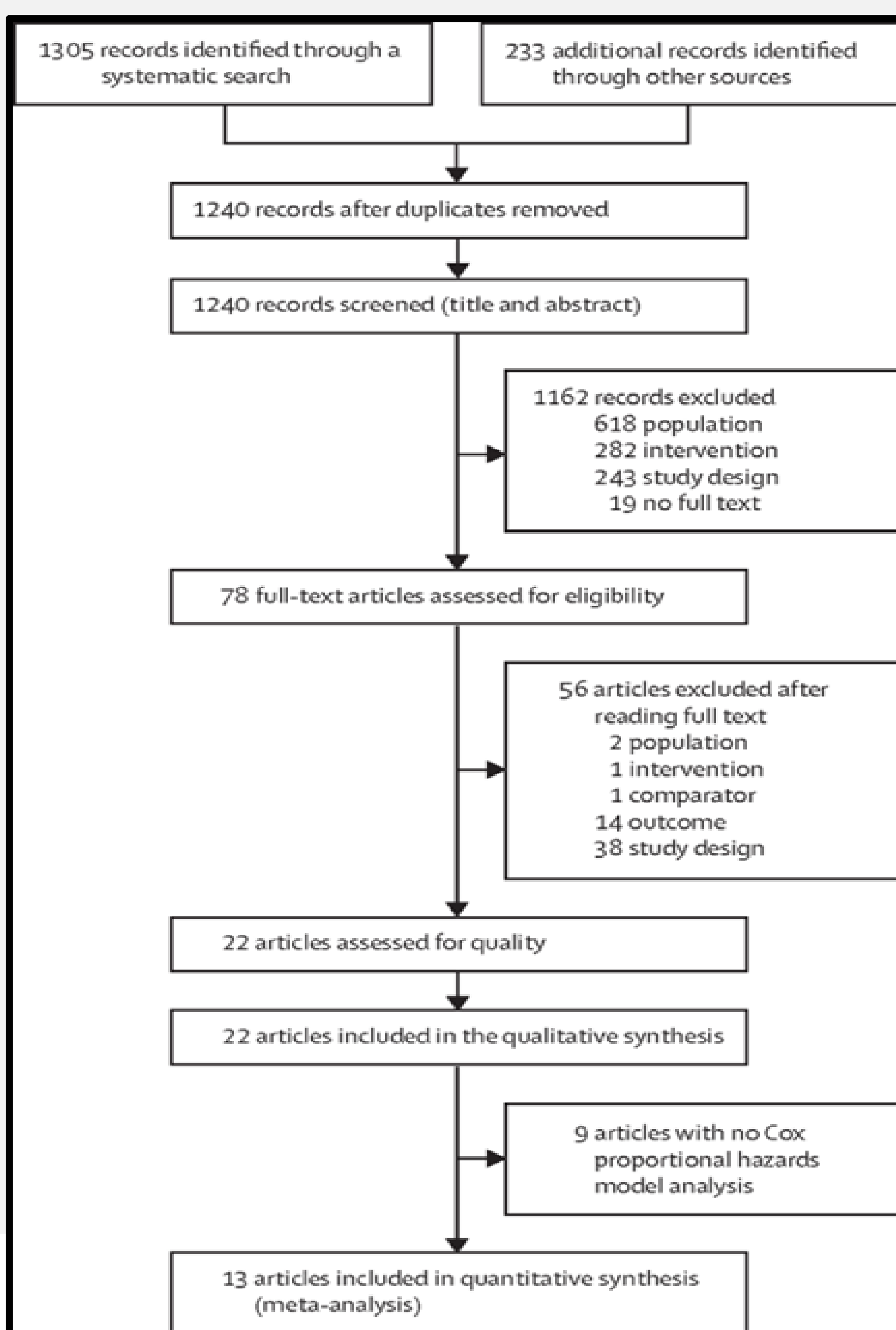


Figure 1. PRISMA flow diagram

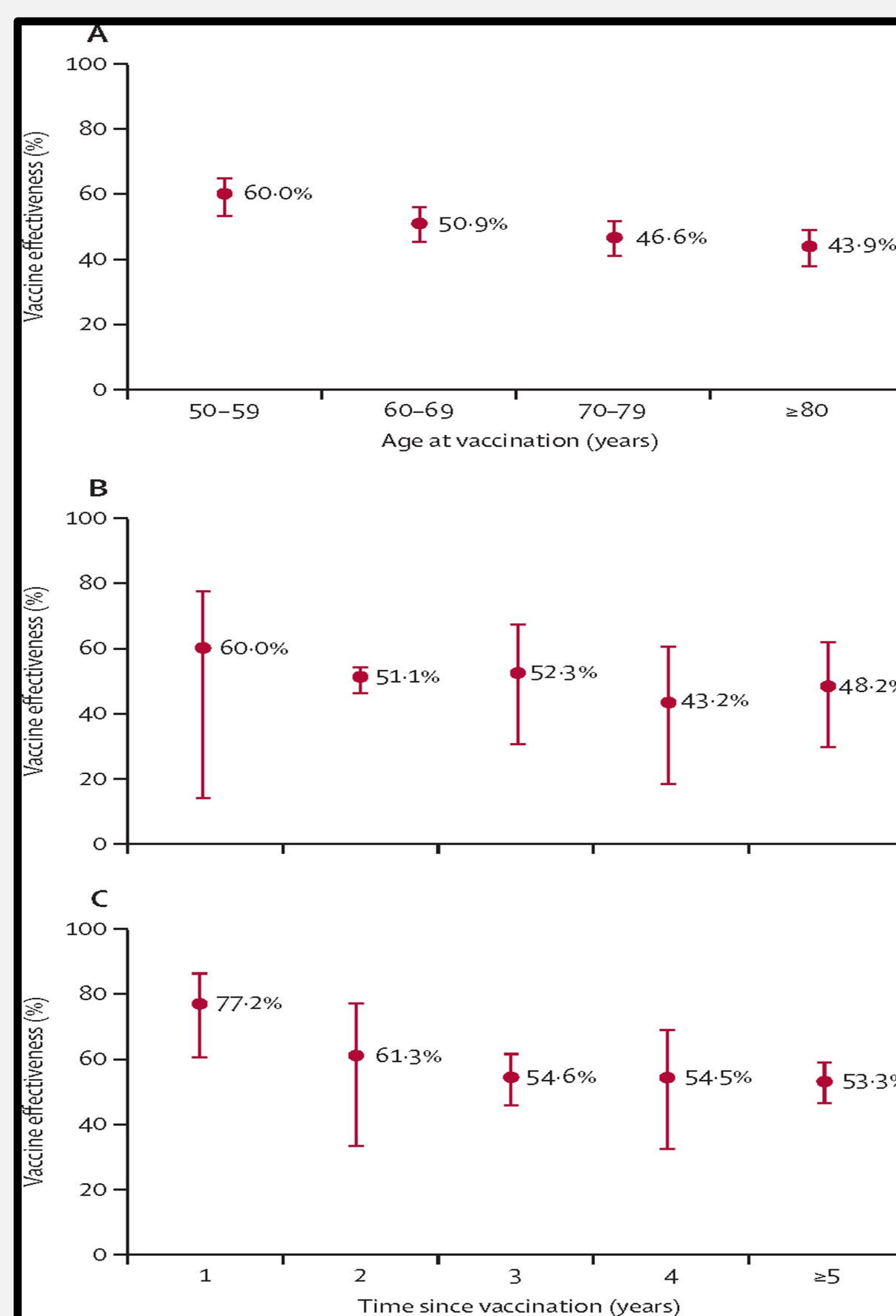


Figure 2. Effectiveness of zoster vaccine live against herpes zoster and postherpetic neuralgia.

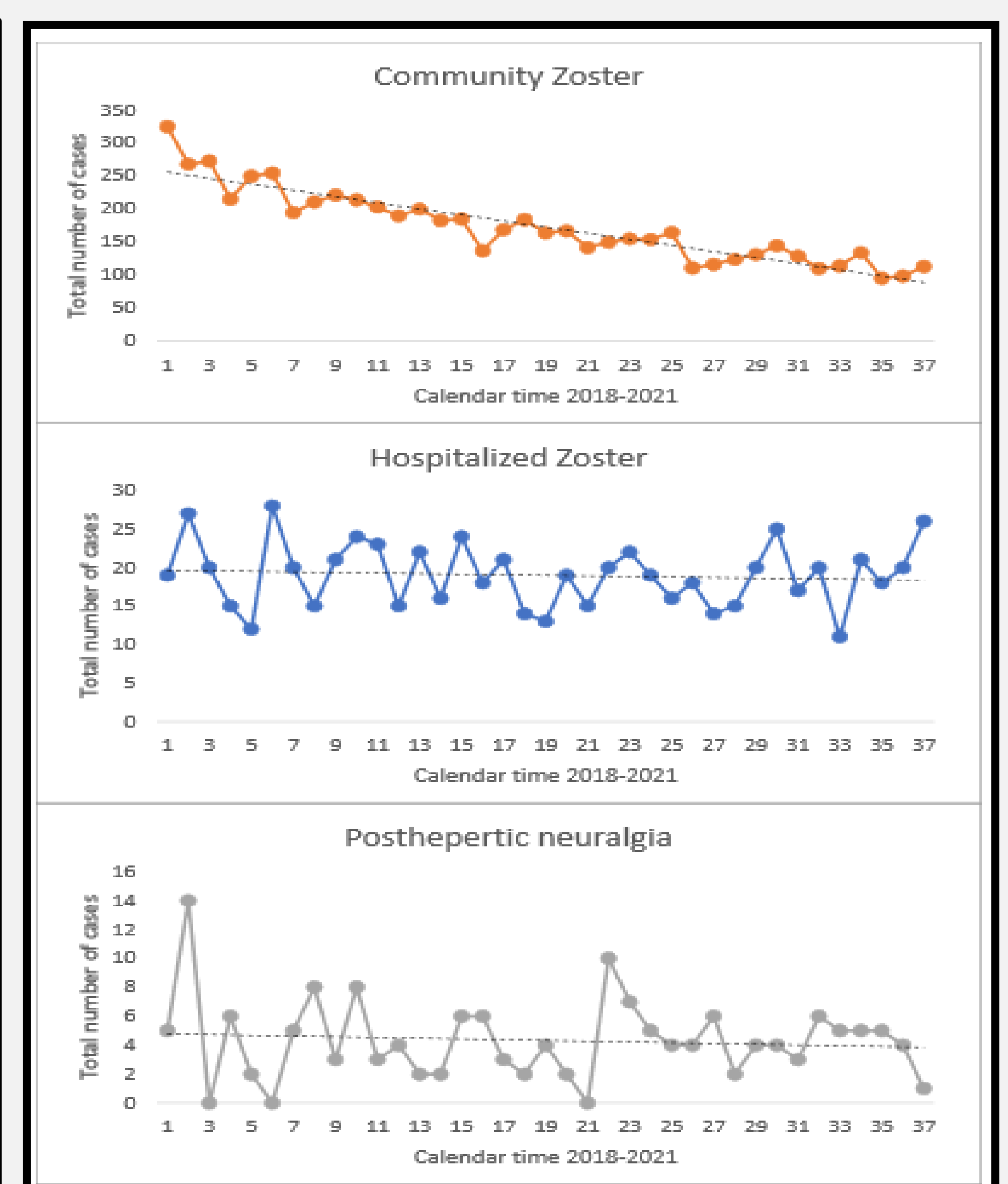


Figure 3. Distribution of herpes zoster and associated complications by calendar time (2018 – 2021)

Outcome	Matched cohort	Meta-analysis
Overall Herpes zoster	ZVL 44.1% (08.5 – 65.9)	ZVL: 45.9% (42.2–49.4) RZV: 79.2% (57.6–89.7)
Herpes zoster ophthalmicus	-	ZVL 30.0% (20.5–38.4)
Postherpetic neuralgia	ZVL 73.7% (14.0 – 92.0) (hospitalised)	ZVL: 59.7% (58.4–89.7)

Table 1. Effectiveness of herpes zoster vaccines

Conclusion

ZVL prevents HZ and associated complications in adults. RZV also offers protection against HZ

Key message

The results of our study should reassure those considering the herpes zoster vaccines that it works well, particularly for preventing severe complications

References

- Mbinta, J. F., Nguyen, B. P., Awuni, P. M. A., Paynter, J., & Simpson, C. R. (2022). Post-licensure zoster vaccine effectiveness against herpes zoster and postherpetic neuralgia in older adults: a systematic review and meta-analysis. *The Lancet Healthy Longevity*, 3(4), e263-e275. [https://doi.org/10.1016/S2666-7568\(22\)00039-3](https://doi.org/10.1016/S2666-7568(22)00039-3)
- Mbinta, J. F., Wang, A. X., Nguyen, B. P., Paynter, J., Awuni, P. M. A., Pine, R., Sporle, A. A., & Simpson, C. R. (2022). Herpes zoster vaccine effectiveness against herpes zoster and postherpetic neuralgia in New Zealand: A retrospective cohort study. *The Lancet Regional Health – Western Pacific*. <https://doi.org/10.1016/j.lanwpc.2022.100601>