# Rates of hospitalisation for herpes zoster may warrant vaccinating Indigenous Australians under 70

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Herpes zoster (HZ) is caused by reactivation of latent varicella zoster virus infection. The most common complication of HZ is post-herpetic neuralgia (PHN), which is often debilitating and refractory to treatment.[1] The incidence of both HZ and PHN increases markedly with age.[2] In November 2016, a vaccine for HZ was included in Australia's National Immunisation Program (NIP) for all people aged 70, together with a 5-year catch-up program for those aged 71–79 years.[3] The vaccine is cost-effective for people aged 70–79, but is registered for vaccinating people from age 50.[3]

Concerns have been raised by clinicians in Aboriginal and Torres Strait Islander (Indigenous) health care that the NIP age criterion does not take into account the special circumstances of Indigenous Australians. First, fewer than 2% of Indigenous Australians are 70 years or older, compared with 10% of the non-Indigenous population (Box). Second, vaccines for pneumococcal disease and influenza are funded for Indigenous people from a younger age (50 and 15 years respectively) than for non-Indigenous Australians (65 years).[4]

There are few published data on the incidence of HZ among Indigenous Australians; in particular, analyses of HZ-related general practice encounters have not reported Indigenous-specific data.[2] We therefore compared data from the Australian Institute of Health and Welfare (AIHW) National Hospital Morbidity Database on the rates of HZ-related hospitalisations of Indigenous and non-Indigenous Australians during 2007–2011. We excluded Tasmanian and Australian Capital Territory data, as recommended by the AIHW for this period.[5] Hospitalisations associated with HZ were identified by International Classification of Diseases, revision 10, Australian modification (ICD-10-AM) codes B02.0–B02.9, and classified as principal diagnoses if recorded in the primary diagnostic field. Mid-year population estimates were obtained from the Australian Bureau of Statistics. Age-specific hospitalisation rates, incidence rate ratios (IRRs), and 95% confidence intervals (CIs) were estimated by negative binomial regression in Stata 13.1 (StataCorp).

We identified 214 HZ-related (principal) hospitalisations of Indigenous people and 11 252 of non-Indigenous people (Box). Hospitalisation rates were similar for Indigenous and non-Indigenous people aged 70–79 years or over 80, but were significantly higher among Indigenous people in younger age groups. For people aged 60–69 years, the IRR was 1.77 (95% CI, 1.27–2.48); further, the confidence interval for the hospitalisation rate of Indigenous people aged 60–69 years (34 [95% CI, 22–50] per 100 000 population) overlapped that of the rate for non-Indigenous people aged 70–79 years (44.8 [95% CI, 43.1–46.5] per 100 000 population). The results were similar when hospitalisations for which HZ was recorded in any diagnostic field were analysed (data not shown).

Patients hospitalised for HZ are at the severe end of the disease spectrum, accounting for only 3% of all HZ cases.[2,6] Nevertheless, our findings suggest that the burden of severe HZ among Indigenous Australians in their 60s is higher than for non-Indigenous Australians. This higher disease burden adds to other considerations that support reviewing the age criteria for funded zoster vaccination of Indigenous Australians.

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**Hospitalisations for herpes zoster (principal diagnosis) of Indigenous and non-Indigenous Australians, 2007–2011**

| | Indigenous Australians | | | Non-Indigenous Australians | | | |
|---|---|---|---|---|---|---|---|
| Age group | Number, 2007–2011* | 5-year population (% of Indigenous population) | Average annual hospitalisations per 100 000 population (95% CI) | Number, 2007–2011* | 5 year population (% of non-Indigenous population) | Average annual hospitalisations per 100 000 population (95% CI) | Incidence rate ratio† (95% CI) |
| 0–49 years | 110 | 2 687 761 (87.6%) | 4.1 (3.3–5.1) | 1553 | 68 660 660 (68.1%) | 2.3 (2.1–2.5) | 1.81 (1.46–2.24) |
| 50–59 years | 34 | 218 589 (7.1%) | 16 (11–22) | 1071 | 12 819 945 (12.7%) | 8.3 (7.4–9.4) | 1.87 (1.29–2.71) |
| 60–69 years | 35 | 104 776 (3.4%) | 34 (22–50) | 1804 | 9 581 725 (9.5%) | 18.8 (17.9–19.8) | 1.77 (1.27–2.48) |
| 70–79 years | 16 | 42 995 (1.4%) | 37 (18–79) | 2631 | 5 877 963 (5.8%) | 44.8 (43.1–46.5) | 0.83 (0.51–1.36) |
| ≥ 80 years | 19 | 14 315 (0.5%) | 132 (67–262) | 3390 | 3 825 213 (3.8%) | 89.8 (48.7–166) | 1.47 (0.57–3.78) |
| All ages | 214 | 3 068 436 | 7.0 (5.5–8.8) | 11 252 | 100 765 506 | 11.2 (10.6–11.7) | 0.62 (0.53–0.73) |

* Age-specific hospitalisations (ICD-10-AM codes B02.0–B02.9) in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory. † Ratio of hospitalisation rates for Indigenous *v* non-Indigenous Australians. ◆

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