

Trends in neurosyphilis hospitalisation in Australia, 2007-2020

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Background: Neurosyphilis is a less common, but serious complication of syphilis infection. It is not a notifiable disease and therefore, the epidemiology of the neurosyphilis is poorly understood. The treatment of neurosyphilis usually involves hospitalisation and examining hospitalisation rates may give us some understanding on the trend of neurosyphilis. Our study aimed to examine trends in hospitalisation rates of neurosyphilis in Australia.

Methods: We analysed publicly available hospitalisation data for patients who were diagnosed with neurosyphilis and admitted to Australian hospitals, recorded using the Australian Modification of the International Classification of Diseases as the principal diagnosis, between 1 July 2007 and 20 June 2020. Data were extracted from the National Hospital Morbidity Database at the Australian Institute of Health and Welfare. Annual hospitalisation rates, stratified by gender and reproductive age group (15-50 years old) were calculated using population data estimated from Australian Bureau of Statistics. The average length of hospital stay and hospitalisation cost per person with neurosyphilis were calculated.

Results: In 2007-2020, 458 men and 62 women aged 15-50 years were admitted to Australian hospitals with neurosyphilis. The annual hospitalisation rate of neurosyphilis for men had increased from 3.0/100,000 population in 2007-2008 to 7.7/100,000 population in 2019-2020 ($P_{trend}=0.005$). The annual hospitalisation rate for women was stable at around 1.0/100,000 population in 2007-2020 ($P_{trend}=0.149$). The hospitalisation rate of neurosyphilis increased with age (especially from aged over 40 years) for both men ($P_{trend}<0.001$) and women ($P_{trend}=0.008$). The average length of stay in hospitals was 8.7 days (SD: 2.4 days) and the average hospitalisation cost was estimated to be AUD 18,223 per person.

Conclusion: Hospitalisation rates for neurosyphilis have increased for men and individuals aged over 40 years. Increasing rates of hospitalisation for neurosyphilis are likely to incur a substantial cost on healthcare.

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