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# A Joinpoint Regression Analysis of Trends in Tuberculosis Notifications in Two Urban Regions in Namibia

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**Abstract :** An analysis of trends in Case Notification Rates (CNR) can be used to monitor the impact of Tuberculosis (TB) control interventions over time in order to inform the implementation of current and future TB interventions. A retrospective analysis of trends in TB CNR for two urban regions in Namibia, namely Khomas and Erongo regions, was conducted. TB case notification data were obtained from annual TB reports of the national TB programme, Ministry of Health and Social Services, covering the period from 1997 to 2015. Joinpoint regression was used to analyse trends in CNR for different types of TB groups. A trend was considered to be statistically significant when a p-value was less than 0.05. During the period under review, the crude CNR for all forms of TB declined from 808 to 400 per 100 000 population in Khomas, and from 1051 to 611 per 100 000 population in Erongo. In both regions, significant change points in trends were observed for all types of TB groups examined. In Khomas region, the trend for new smear positive pulmonary TB increased significantly by an annual rate of 4.1% (95% Confidence Interval (CI): 0.3% to 8.2%) during the period 1997 to 2004, and thereafter declined significantly by -6.2% (95%CI: -7.7% to -4.3%) per year until 2015. Similarly, the trend for smear negative pulmonary TB increased significantly by 23.7% (95%CI: 9.7 to 39.5) per year from 1997 to 2004 and thereafter declined significantly by an annual change of -26.4% (95%CI: -33.1% to -19.8%). The trend for all forms of TB CNR in Khomas region increased significantly by 8.1% (95%CI: 3.7 to 12.7) per year from 1997 to 2004 and thereafter declined significantly a rate of -8.7% (95%CI: -10.6 to -6.8). In Erongo region, the trend for smear positive pulmonary TB increased at a rate of 1.2% (95%CI: -1.2% to 3.6%) annually during the earlier years (1997 to 2008), and thereafter declined significantly by -9.3% (95%CI: -13.3% to -5.0%) per year from 2008 to 2015. Also in Erongo, the trend for all forms of TB CNR increased significantly by an annual rate of 4.0% (95%CI: 1.4% to 6.6%) during the years between 1997 to 2006 and thereafter declined significantly by -10.4% (95%CI: -12.7% to -8.0%) per year during 2006 to 2015. The trend for extra-pulmonary TB CNR declined but did not reach statistical significance in both regions. In conclusion, CNRs declined for all types of TB examined in both regions. Further research is needed to study trends for other TB dimensions such as treatment outcomes and notification of drug resistant TB cases.

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