

(18% vs 2% mean annual change). Vehicles per 1000 capita increased 36% in Zambia but 800% in Botswana (18 in 1990, 156 in 2007). Between 1981 and 2005 the road traffic fatality rate increased 4.7 fold in Zambia and 9.2 fold in Botswana. Annual road traffic fatality rates in Botswana were associated with GDP (billions) 4 years earlier ( $b=9.9$ ,  $p<0.01$ ). Similarly, despite being lower, annual road traffic fatality rates in Zambia were associated with GDP 3 years earlier ( $b=0.2$ ,  $p<0.05$ ). Granger tests suggested that in both countries, directionality went from GDP to fatalities and not vice versa.

**Conclusion** The economic development that occurred in Botswana and Zambia produced proportionate road traffic fatality increases. Road safety improvements should be concomitant with economic development.

# 0934 ECONOMIC DEVELOPMENT AND ROAD TRAFFIC FATALITIES IN TWO NEIGHBOURING AFRICAN NATIONS

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**Background** Botswana's rapidly growing economy has brought infrastructure advances including roadway development, more vehicles, and an escalating road traffic fatality rate. We tested the hypothesis that the association between annual gross domestic product (GDP) increases and road traffic fatality increases was causal. Zambia, which neighbours Botswana but has not experienced rapid growth, was used for comparison.

**Methods** Annual time series of social and economic indicators and road traffic fatalities in Botswana and Zambia for 1981–2008 from World Bank and World Health Organization data were analysed using vector autoregressive and Granger causality tests.

**Results** Botswana dramatically outpaced Zambia between 1981 and 2008 in economic indicators including GDP per capita (9% vs –1% mean annual change) and GINI per capita