# Improving our evidence base: linking Police and hospital data

**Wednesday 13 November, 2:20pm**

Motorcyclists are vulnerable road users and are over represented in trauma statistics. With this in mind, the NZ Transport Agency and the Midland Trauma System embarked on collaborative research to identify who is at risk of experiencing a motorcycle injury.

With a focus on the fifth pillar of the Safe System ‘post-crash care’ we joined the organisations’ complementary datasets, increasing the data available on post-crash care to help identify who is most at risk.

With data covering 2012-2016, we looked at six questions; (i) Is there under-reporting by Police of motorcycle crashes in our region? If so, (ii) what can trauma admissions data tell us about motorcyclists not counted in Police data? (iii) What were the acute care costs from on-road motorcycle crashes to Waikato DHB? (iv) Where did motorcyclists crash? (v) Are motorcyclists more likely to crash close to home? (vi) Using stories gathered from active riders can we better understand rider behaviour and risk taking?

With four research questions answered (to date), we have found;

* 56% of trauma records could be linked with Police records, resulting in under-reporting of motorcycle crashes of 18 per cent. Linkage rates for those with major injuries were double that for those with non-major trauma. Trauma records for riders aged 35+ years were significantly more likely to be linked with Police records while riders identifying as Maori, those injured in rural areas and those self-presenting to hospital were significantly less likely to be linked with Police records.
* 303 motorcyclists not recorded by Police had injuries severe enough to be admitted to hospital. Comparison of the two crash populations showed that those ‘recorded’ and ‘unrecorded’ by Police were different in terms of their demography but not when and where they tended to crash. For these riders, stays in hospital ranged from 1-39 days (average 4.7 days).
* For 616 on-road motorcyclists, the cost of acute care to Waikato DHB was $7.96 million. The major categories were; (i) non-collision transport accidents at a cost of $3.35m; (ii) collision with car, pickup or van cost $1.86m and; (iii) collisions with a fixed or stationary object costing $1.37m. Applying the ‘Social Cost of Road Crashes’ methodology shows that acute hospital care costs contribute only a small fraction of the total societal cost of motorcycle crashes.
* Linking the GPS coordinates of 385 on-road motorcycle crashes (collected by Police) with trauma data we found two rider groups of interest. Firstly, younger riders (<40 years) injured during the working week in urban areas. These crashes tended to be geographically closer to the hospital arrival facility and had lower proportions sustaining major injuries. The second group are more likely to be older (40-69 years), male and riding in the weekends in more rural locations (further from hospital arrival facility) in areas with a 100km/hr speed limit.

Linking complementary administrative data is of interest from a policy perspective. Information about motorcyclists admitted to hospital, but not recorded by Police does not currently contribute to the policy evidence base. We see that this type of collaborative research could lead to a better evidence base for policy development and funding prioritisation, targeted interventions in communities at risk and ultimately to injury prevention. The richness provided by data linkage provides the ability to differentiate crash information by demography, place of injury, cause and mechanism of injury, injury severity (etc.) by vehicle type. For these reasons we recommend further collaborative research with a wider scope of inquiry, but with focused areas of mutual interest and tightly aligned research questions.

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Kaye is a Principal Advisor in the Safety, Health and Environment Group at the New Zealand Transport Agency. Previously she was the Agency’s Hamilton Highway Manager responsible for building, maintaining and operating 2,500km of highways within the Waikato and Bay of Plenty region. Before joining the Transport Agency, Kaye held engineering and management positions with three Local Authorities, giving her a unique perspective on the challenges facing road controlling authorities. Kaye sits on the University of Auckland Civil and Environmental Engineering Advisory Board and the Board of Engineering NZ. She is a member of the Institute of Public Works Engineering Australasia (IPWEA), the NZ Institute of Directors and is a Fellow of Engineering NZ.

Dr Janet Amey, Waikato DHB



Janet is the Epidemiologist at Research Manager at the Midland Trauma System, based at Waikato Hospital. She has spent most of the last twenty years in the health sector in research, policy and project management roles, including at the Ministry of Health, Statistics New Zealand and more recently in primary care. Janet is particularly interested in evidence-driven decision making, health services research, injury epidemiology and injury prevention. Outside of work, Janet is fast learning to argue like a lawyer (with teenagers).