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INJURY AND SPATIAL EPIDEMIOLOGY OF SEVERE ADULT TRAUMA: IMPLICATIONS FOR PREVENTION

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Background Identifying who is injured within a geographic region, by what mechanism, is essential for injury prevention (IP). Our objective was to define the injury and spatial epidemiology of severe adult traumas to prioritise and target initiatives.

Methods Epidemiologic profiles were generated for severely injured (ISS>12) adult (≥ 18 years) patients treated at Lead Trauma Hospitals (LTH) in Southwestern Ontario, 2004–2009. Sub-analysis was undertaken by age groups (18–24; 25–64; 65+ years). Injury cases were mapped by patient residence and place of injury to examine spatial relationships.

Results LTHs resuscitated 2804 severely injured adults (15% young adult, 55% adult, 30% senior; 72% male). Patient residences were dispersed throughout SWO, with clusters in cities and lower-income areas. MVCs accounted for 61% and 46% of injuries among young adults and adults, respectively. Only 60% of injured-occupants wore a seatbelt; 24% of drivers had a BAC above the legal limit. MVCs were overly concentrated on high-density urban areas with highly mixed land uses. Alcohol was involved with nearly one-third of non-senior severe injury (48% of assaults; 34% of crashes). Falls were the leading injury mechanism for seniors (68%); 67% occurred at home. Only 6% of patients were injured at work, half involved falls. Mortality was 15%, with 42% fall-related deaths.

Conclusion Integrating injury epidemiology with geographic data on patients daily surroundings allowed for the identification of socio-spatial variations in injury patterns among vulnerable groups. This approach identified MVCs, falls and alcohol use as IP priorities to be targeted to the populations and regions of greatest need.