

## Concurrent B: Transport, Distraction and Fatigue

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### CELL PHONE USE AND TRAFFIC CRASH RESPONSIBILITY: A CULPABILITY ANALYSIS OF COLLISION-INVOLVED DRIVERS

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**Background** Cell phone use while driving is illegal in many jurisdictions. Restrictions are supported by studies showing: (i) increasing

cell phone use by motorists, (ii) an increased proportion of crashes where cell phones are implicated, and (iii) experimental studies demonstrating that cell phone use negatively affects overall driving performance. Few studies have evaluated the collision risk associated with cell phone use in real driving conditions.

**Objectives** The current study aims to compare culpability in drivers who crashed with versus without cell phone use.

**Method** Culpability studies approximate case-control studies and overcome difficulties with constructing control groups (ie, crash free drivers). The Canadian Culpability Scale (CCS) determines crash culpability from police reports in British Columbia. We use the CCS to determine culpability in 312 crashes (2005–2008) where police report cell phone use and in 936 propensity matched (driver and crash characteristics) crashes without cell phone use. Statistical analysis involved conditional logistic regression methods, with additional analyses to adjust for confounders.

**Results** A comparison of crashes with versus without cell phones revealed a crude OR of 2.03 (95% CI 1.44 to 2.86). Subgroup analysis demonstrated a consistent association regardless of crash severity.

**Significance** Crash culpability was found to be strongly associated with driver cell phone use, nearly doubling the odds of a culpable crash compared to drivers who did not use a cell phone. These findings lend support to existing policies directed at restricting the use of cell phones and other devices while driving.