and agriculture were enrolled in the survey. Weighting by business size within sector was applied.

**Results** Annually, about 16.7% of workers reported experiencing a serious harm incident at work in the last 12 months. The serious harm incidents were statistically higher in workers who disagreed and strongly disagreed that ‘their boss encourages workers to speak up if they fell something is unsafe’ (Odds ratio (OR) = 2.4, 95% Confidence Interval (CI) (1.9 - 2.6)), ‘their boss encourages workers to come up with ideas for how to make them safer’ (OR=1.5, 95% CI (1.3–1.8)), and ‘When their boss makes decisions about workplace health and safety, workers are always told how their views have been considered’ (OR=1.7, 95% CI (1.4–2.0)). Regression model indicated that decreased serious harm incident and increased workers’ engagement were greatly affected by worker’s age.

**Conclusion** Work-related incidents were strongly associated with positive workers’ health and safety practice and perception. Younger workers were more likely to experience both higher serious harm incidents and being less involved in H&S at work.

**Learning Outcomes** The study provides evidence on the importance of workers’ involvement, especially younger workers in improving H&S at work.

### 6F.002 INVESTIGATION OR LEARNING REVIEW?

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As safety practitioners we often struggle with how to interpret and apply safety research into our environments, how to truly engage our workers, and how to positively influence our safety culture.

This session shows how shifting focus from safety culture to developing a learning culture may provide a better pathway.

We show how realigning our investigation processes to Learning Reviews is moving us away from assumptions of human error and blame and is developing a new language and shared understanding toward a safety differently approach.

Since people create safety, we show how we engage the front line to identify what works and what doesn’t, using focus groups and influence mapping as a guide to the creation of cultural interventions.

### 6F.003 PREVENTION IS NOT ENOUGH

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A strong prevention bias in safety thinking doesn’t offer a robust understanding of the complexity of high consequence events. Despite the best risk assessments, procedures, and people, we simply cannot prevent all incidents. We must instead balance prevention efforts with capacity to respond and recover when things go badly. But how do we promote this concept within our operations?

This session offers a model we are using as a simple visual framework to stimulate dialogue and promote learning, shared understanding and safety differently language. The model is an adaptation of the bow-tie as a propeller. It includes preventive, operational and recovery elements placed in a dynamic mode, represented by turning blades – within a margin of manoeuvre sphere.

On one side of the bow-tie, prevention efforts deter threats, while on the other side capacity to respond to events reduces impact. The centre represents operational activity and an event moment. This is also the moment when workers recognize anomaly and make sense of the information, learn in the moment, and innovate a change to the system.

The bow-tie is depicted inside a sphere of influence representing margin of manoeuvre. Positive influences create outward force, maintaining a buoyant sphere. Negative influences put pressure on the system, reduce its size, robustness and even collapse it. An unbalanced bow-tie can also collapse the system.

When we conceptually shift from bow-tie to propeller, the model becomes dynamic, demonstrating how learning creates a feedback loop to improve the entire system including preventive, operational and response/recovery components.

### 7A – Child – Road, March 25, 2021

### 7A.001 ADOLESCENT’S PERCEPTION OF ROAD RISK ON THEIR ROUTES TO SCHOOL IN MAKWANPUR, NEPAL; A QUALITATIVE STUDY

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**Background** Busy and poor road infrastructure along routes to school poses high risk of traffic injury for children. Every child’s safe and healthy journey to/from school is fundamental to achieving Sustainable Development Goal 3.6. However, there is little evidence reporting children’s views about their school travel from developing countries. This study aims to understand children’s perceptions of injury risks on their journey to school in Nepal.

**Methods** We used Photo-Elicitation Interview (PEI) methods to collect data from 14 children (12–16 years) who walk to school along the East-West Highway in Makawanpur, Nepal. The children used a camera to record parts of their journey, which they perceived as dangerous. Photographs were used as prompts during an interview afterwards. Interviews were audio-recorded, transcribed, translated and analysed thematically using NVivo.

**Results** Several themes were identified, categorised under environmental and behavioural factors. The children were...
scared to walk on narrow roadsides because of speeding vehicles. They also found crossing the road dangerous because of the lack of designated pedestrian crossings and disregard shown by drivers. Poor visibility caused by random roadside parking and trees also increased the sense of road danger.

**Conclusion** Children expressed multiple concerns which made the journey difficult and dangerous. Some of these issues could be addressed through improved road infrastructure, whilst others would require a change in driver’s behaviour.

**Learning Outcomes** Children’s views are often ignored in issues pertaining to their health and well-being. PEI is an engaging method that encourages children to express concerns about their safety.

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**7A.002 THE EFFECTIVENESS OF BOOSTER SEAT USE IN MOTOR VEHICLE COLLISIONS**

Tona Pitt, Andrew Howard, Tate HubkaRao, Brent Hagel*.

**Background** Alberta remains the only province in Canada without booster seat legislation. This presents an opportunity to study the effectiveness of booster seats in real-world settings. To date, results of booster seat effectiveness compared with seat-belt-only use has demonstrated mixed findings.

**Methods** We used Alberta police collision report data from 2010-2016. The study population includes all motor vehicle collisions involving at least one 4-8-year-old. Using a case-control study design, children who were reported by police to be injured (cases) were compared with those uninjured (controls) for booster seat use. Logistic regression was used to estimate the association between booster seat use and injury.

**Results** There were 12,922 children involved in a collision, resulting in 673 child injuries. There were 793 children in the front seat excluded from analysis. Unadjusted analyses indicate that compared with booster seat users, there were greater odds of injury for seat-belt users (OR=1.21; 95% CI: 1.02–1.44) and those not using any restraints (OR=8.16; 95% CI: 4.66–14.31). When stratifying by impact and collision types, front-end vehicle-on-vehicle collisions demonstrated greater odds of injury for seat-belt wearers relative to those in booster seats (OR=1.51 95% CI: 1.10–2.08).

**Conclusion** Crude analyses indicate a protective effect of booster seats compared with seat-belts, depending on the type of collision and impact location.

**Learning Outcomes** These regionally-specific injury data may help inform policy on the use of booster seats. Stratification by collision impact location may be necessary to inform analyses on booster seat effectiveness.