



The UPLOADS National Incident Dataset

1st June 2016 to 31st May 2017

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THE UPLOADS NATIONAL INCIDENT DATASET: 1st June 2016 to 31st May 2017

The UPLOADS Project has been growing and evolving since inception 8 years ago, when industry stakeholders recognised a need to tackle issues around incident reporting and injury causation in the led outdoor activity (LOA) sector in Australia. The UPLOADS incident reporting form allows LOA providers to collect essential incident details which go beyond standard reports and the UPLOADS accident analysis method allows practitioners to apply systems thinking to analyse their incidents. Using a systems-theory model of accident causation (Rasmussen, 1997), the UPLOADS method provides a contributing factor classification scheme and a mapping framework. This method provides the tools necessary to identify the factors contributing to incidents in the led outdoors, as well as the systemic relationships between them. This approach ensures that all epidemiological data reporting the rate and type of incidents is accompanied by detailed analyses of the contributing factors involved.

The aim of this report is to present the findings from the UPLOADS National Incident Dataset for the period from the 1st of June 2016 to 31st May 2017. Thirteen (13) organisations from across Australia contributed incident and participation data using the UPLOADS Software Tool and UPLOADS Lite. Organisations operated in Victoria (n=5), Queensland (n=3), South Australia (n=2), Western Australia (n=1), New South Wales (n=1), and the Australian Capital Territory (n=1). In total, 509 incidents were reported over the 12-month period including: 340 injury-related incidents; 145 illness-related incidents; 23 near miss incidents; and 19 incidents involving social or psychological outcomes. Participation data was also provided by each organisation. This report presents the findings from analyses of the injury, illness, and near miss incidents.

Injury incidents

Injury profile

The average injury incidence rate for all activities was 2.2 per 1000 participants. This means that approximately two injury-related incidents were reported for every thousand people who participated in LOAs. The low injury-incidence rate has remained constant since the UPLOADS National Incident Dataset began collecting data in 2014, despite changes in the sample of organisations that have contributed data ([click here to see our earlier reports](#)).

The majority (84%) of the injured people were activity participants, with an average age of 15 years (range: 12 to 23 years). Of the reports that provided demographic details, there were approximately equal numbers of injured male and female activity participants (52% and 47%, respectively). The majority (79%) of injury incidents required only localised care (i.e., had a severity rating of 1; see Figure 1). Less than 5% of injured people required hospitalisation, and less than 10% required evacuation. The majority of these evacuations were undertaken by

vehicle 75.7% (n = 25). Other methods of evacuation included: walking out (15.2%) and by stretcher (9.1%). Only 2.4% of injured people required emergency services.

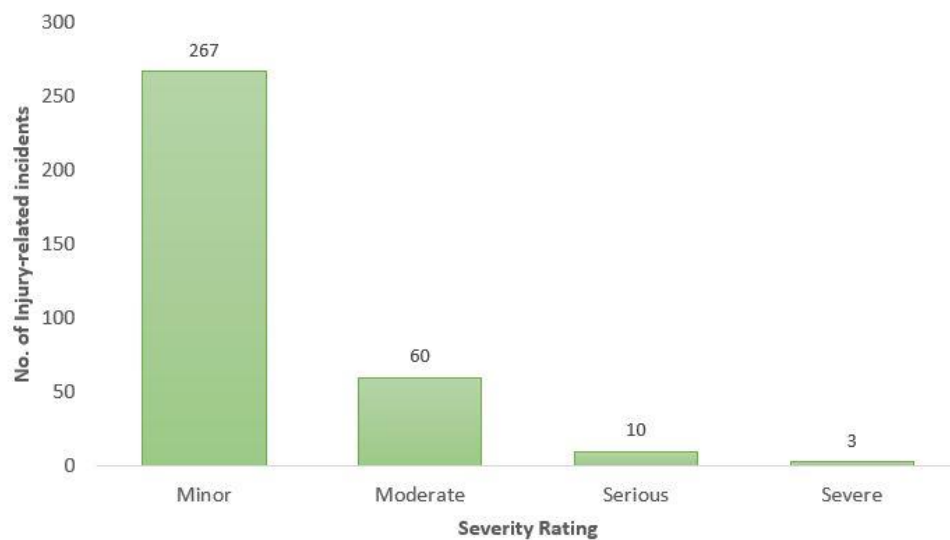


Figure 1. Injury incident severity ratings.

Wrists and hands were the most frequently injured body parts, reported in 25.3% of incident reports. Superficial injuries (e.g., cuts, abrasions, blisters) were the most frequent type of injury, reported in 45.6% of reports. Dislocations, strains and sprains were also frequently reported (20.3%), followed by open wounds (10.9%), and burns and corrosions (5.3%). This injury profile has remained relatively consistent across the last three years of UPLOADS incident analyses.

Activities

Almost half (47%) of the activities run by the organisations that contributed data had an injury incidence rate of less than 1 per 1000 participants. **Free-time outdoors** had the highest recorded number of injuries in the data set with 15.7 injury incidents per 1000 participants. As shown in Figure 2, residential **camp**s and **campcraft** (e.g., **cooking, camp fires**) were also amongst the activities with the highest injury incidence rates (7.4 and 6.2 incidents per 1000 participants, respectively).

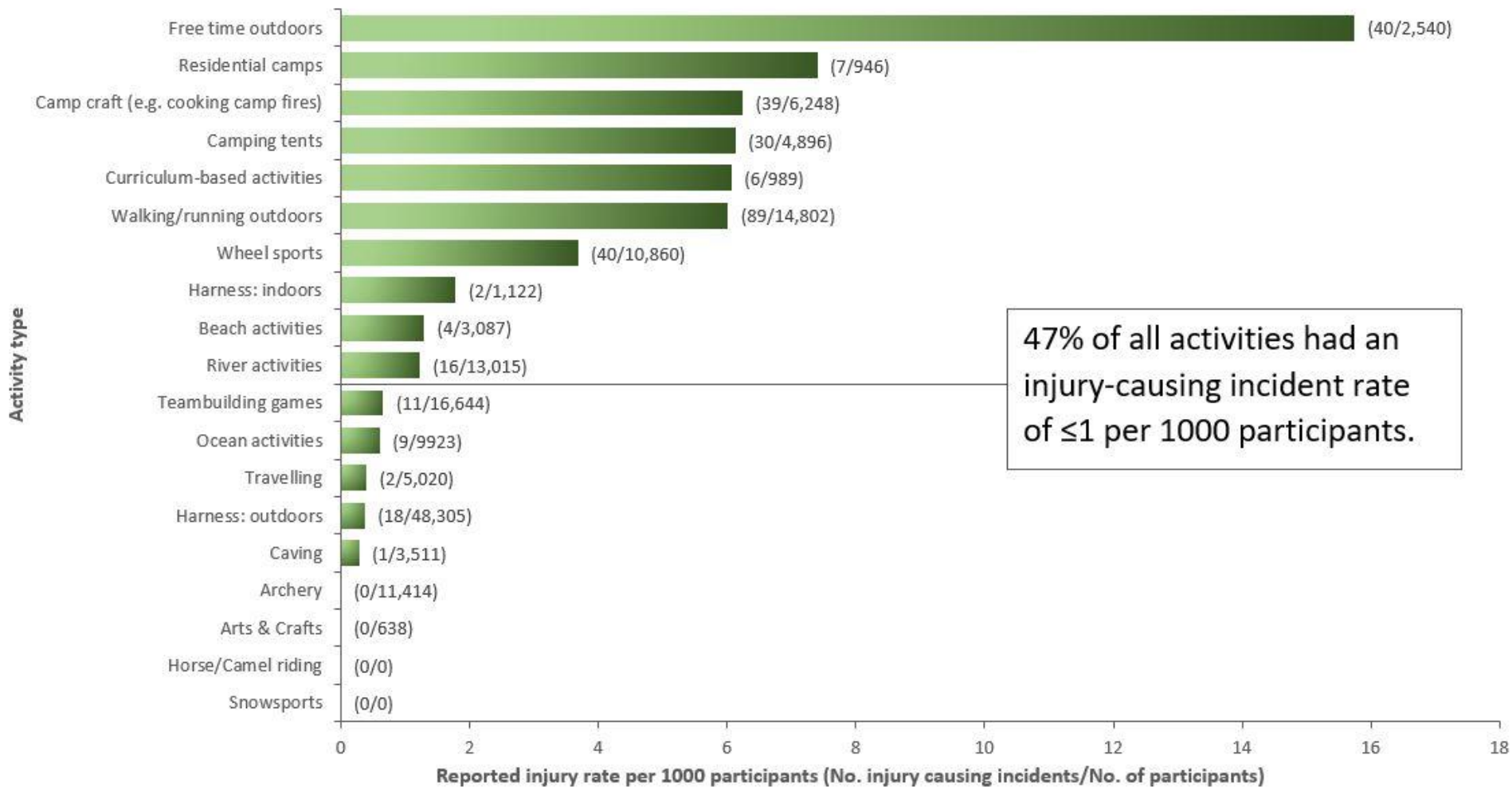


Figure 2. Injury incidence rate per 1000 participants by activity type (June 2016 – May 2017). Numbers in brackets represent the number of reported injury incidents and the number of reported participants associated with the activity, respectively. For example, free time outdoors had 40 injury incidents reported within the 2,540 participants that engaged in the activity within the reporting period.

Contributing factors

An average of two (2) contributing factors were identified per injury-related incident report (range: 0-6, n = 300). As shown in Figure 3, the most frequently identified contributing factors were *Equipment, clothing, & PPE* (29%); *Infrastructure & Terrain* (23%); and *Activity Participant Situation Awareness* (22%). Reporters also identified the interactions, or relationships, between these factors. The most frequently reported contributing factor relationships were between *Activity Equipment & Clothing* and *Infrastructure & Terrain* at the bottom level of the system, and *Activity Participant Situation Awareness* and *Experience & Competence* at the second level of the system (see Figure 3). No factors and relationships were reported at the top two levels of the UPLOADS framework (i.e., *Government Department Decisions* and *Regulatory Bodies & Associations*). These findings have remained consistent across the last three years of UPLOADS incident analyses.

Notably, there was an increase in the number of incident reports that had sufficient detail regarding contributing factors to injury incidents (up from 54% in 2014 to 99% in the current reporting period). This is an important finding that demonstrates that contributing organisations are becoming more confident in their ability to identify the contributing factors and relationships involved in incidents.

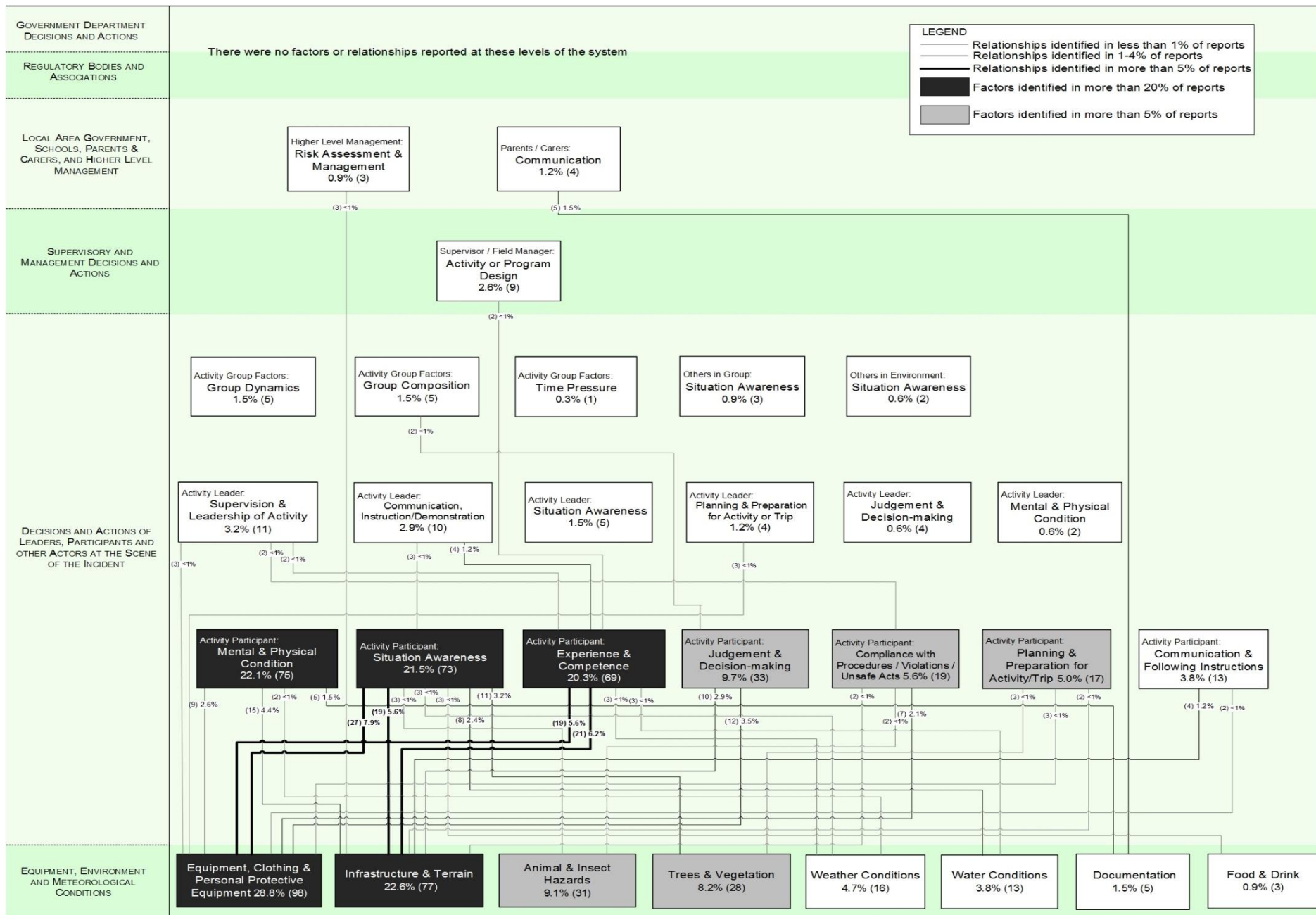


Figure 3. Factors and relationships identified as contributors to injury incidents (n = 300).

Illness incidents

Illness profile

The average reported illness incidence rate across all activities was 0.9 per 1000 participants. This rate is slightly higher compared to the previous reports ([click here to see our earlier reports](#)) but still considered low. Activity participants with an average age of 15 (range 12-16 years old), were involved in most (91%) of the incidents associated with illness. The majority (73%) of illness incidents required only localised care (i.e., had a severity rating of 1; see Figure 4), however 22% of ill people required evacuation. Of the people evacuated for illness incidents, 75% were evacuated by vehicle. Two ill people required emergency services, both for asthma-related conditions (severity ratings of 1 and 2). Abdominal problems were the most frequently reported illness type (17%), followed by heat-related illness (13%), and non-specific fevers (8%).

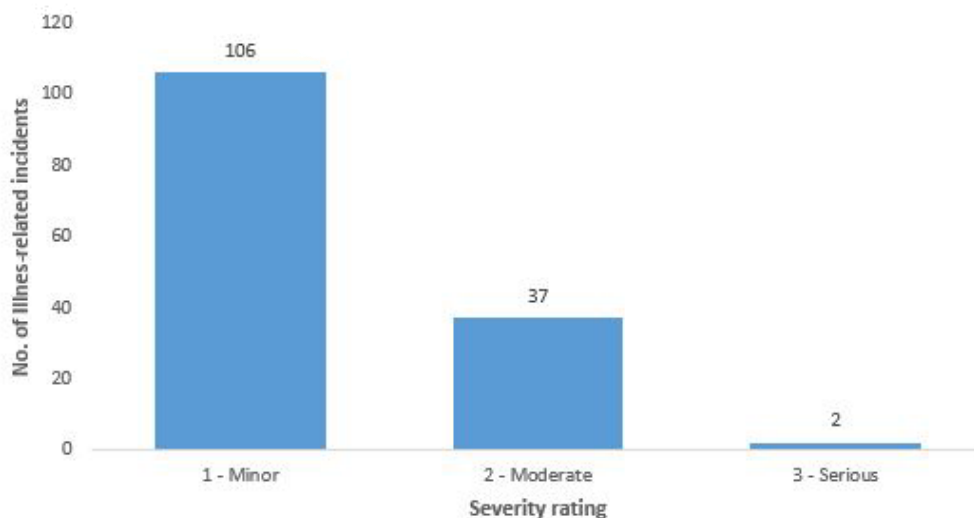


Figure 4. Illness incident severity ratings.

Activities

Camping in tents had the highest illness incidence rate (7.4 incidents per 1000 participants), followed by **residential camps** (4.2 incidents per 1000 participants) and **walking/running in the outdoors** (1.9 incidents per 1000 participants; see Figure 5). These findings are consistent across the previous UPLOADS reports. Indeed, **camping in tents** has had the highest number of reported illnesses since the UPLOADS National Incident Dataset began collecting data in 2014. The types of illness associated with camping in tents included heat-related illness and hay fever and allergies.

Contributing factors

An average of one (1) contributing factor was identified per illness incident report (range: 0-5, n = 88). As shown in Figure 6, the most frequently identified factors were: *Activity Participant Mental & Physical Condition* (63%), *Weather Conditions* (15%), and *Food & Drink* (14%). These factors related to poorly documented existing conditions, and factors associated with dehydration (e.g., participant situation awareness, weather conditions; see Figure 6).

There was a decrease in the percentage of illness incident reports in which reporters identified contributing factors (from 92% in the previous reporting period down to 86%). Despite this decrease, when compared against the earlier UPLOADS National Incident Dataset reports, strong consistencies were evident in the types of illnesses occurring in the led outdoors, as well as the factors contributing to them. For example, the interactions between an activity participant's experience in hot weather and their awareness of the increased need to consume water; or the interactions between parent communication, documentation, and an activity participant's pre-existing conditions have been present in the UPLOADS National Incident Dataset since 2014. This consistency suggests that there is some pervasiveness to the interactions that lead to illness in the led outdoors.

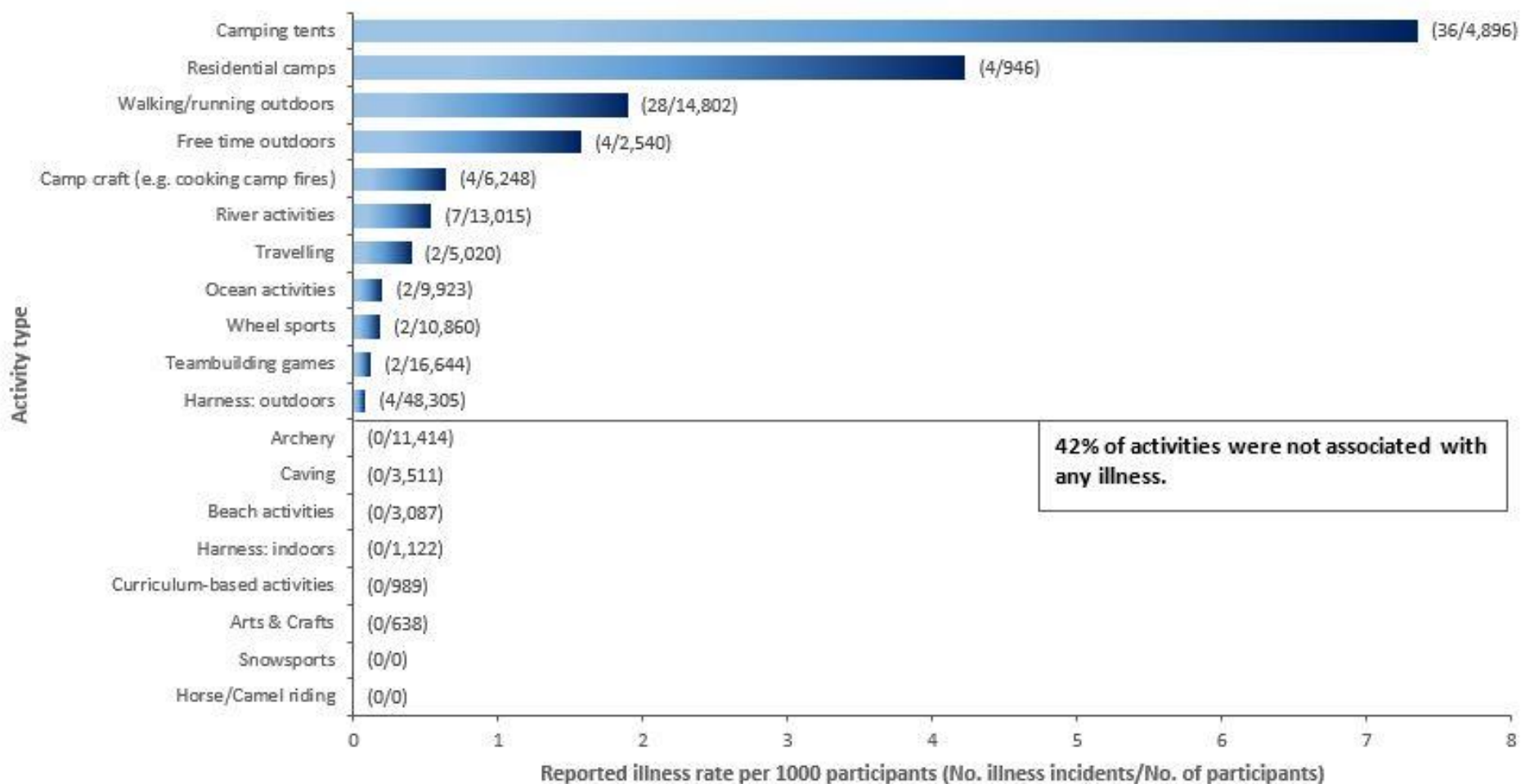


Figure 5. Illness incidence rate per 1000 participants by activity type (June 2016 – May 2017). Numbers in brackets represent the number of reported illness incidents and the number of reported participants associated with the activity, respectively. For example, camping in tents had 36 illness incidents reported within the 4,896 participants that engaged in the activity within the reporting period.

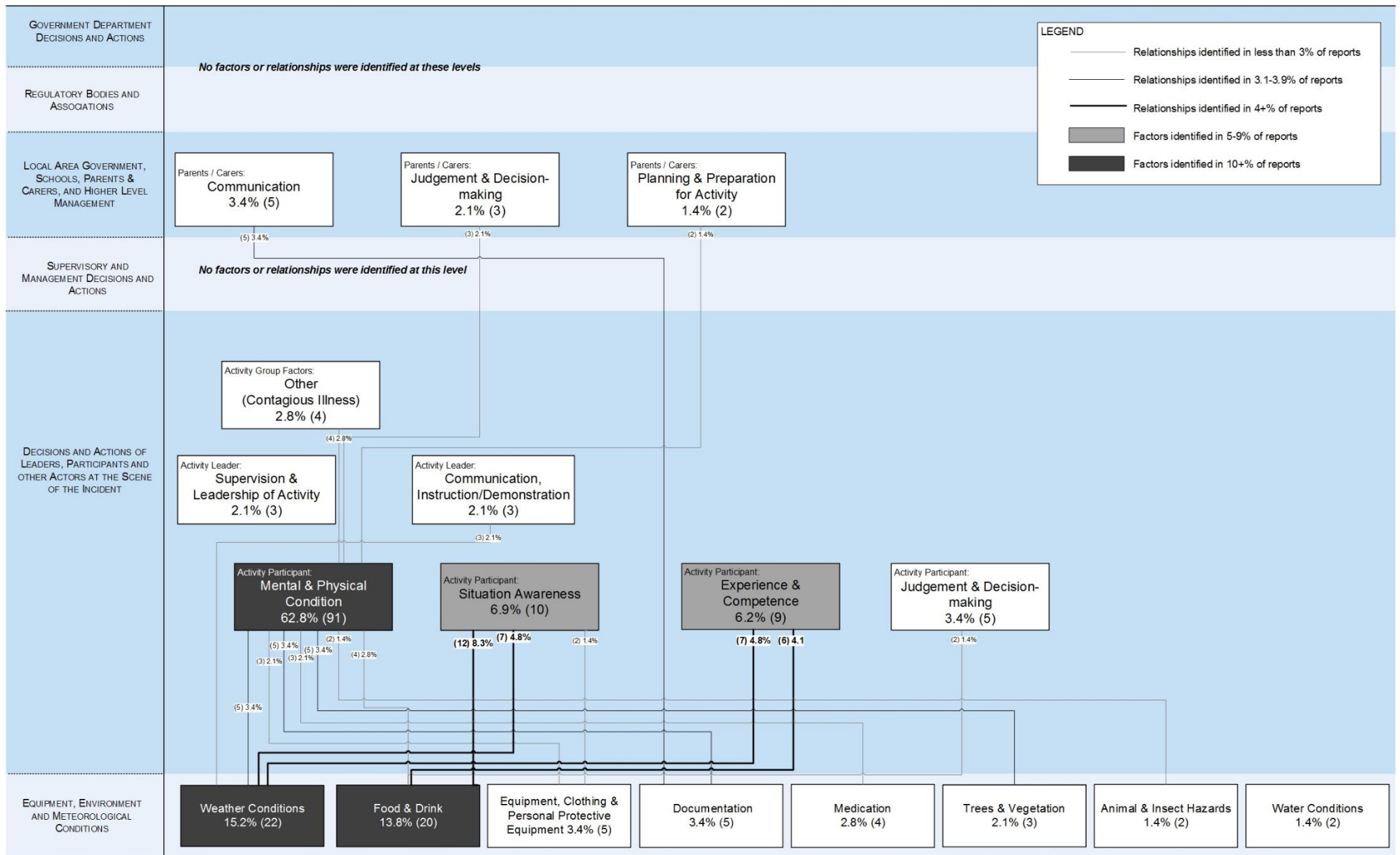


Figure 6. Factors and relationships identified as contributors to illness related incidents (n = 88).

Near miss incidents

Near miss profile

Within the UPLOADS Project, a near miss is defined as a serious error or mishap that has the potential to cause an adverse event but fails to do so. For example, during a rock climbing activity an instructor notices that a participant's carabineer was not locked. If the student had fallen, this may have led to a serious injury. All near miss incidents must be rated as "no impact" in severity; they are then rated in terms of their potential severity.

The average near miss incidence rate for all activities was 0.1 incidents per 1000 participants. The majority of people involved in near miss incidents were activity participants (82.6%, n = 19). Insufficient data was reported for the calculation of sex and average age.

The average potential severity rating for near miss incidents was 4 (range: 1 to 6, n = 23; see Figure 7). This rating indicates that had there been no intervention in these near miss incidents, urgent emergency assistance and timely evacuation would have been required. Further, almost two thirds (61%) of all near miss incidents had a potential severity rating of 3 or above, indicating serious to unsurvivable incidents (i.e., incidents where the potential outcome can involve major irreversible damage, threatened life, or fatality).

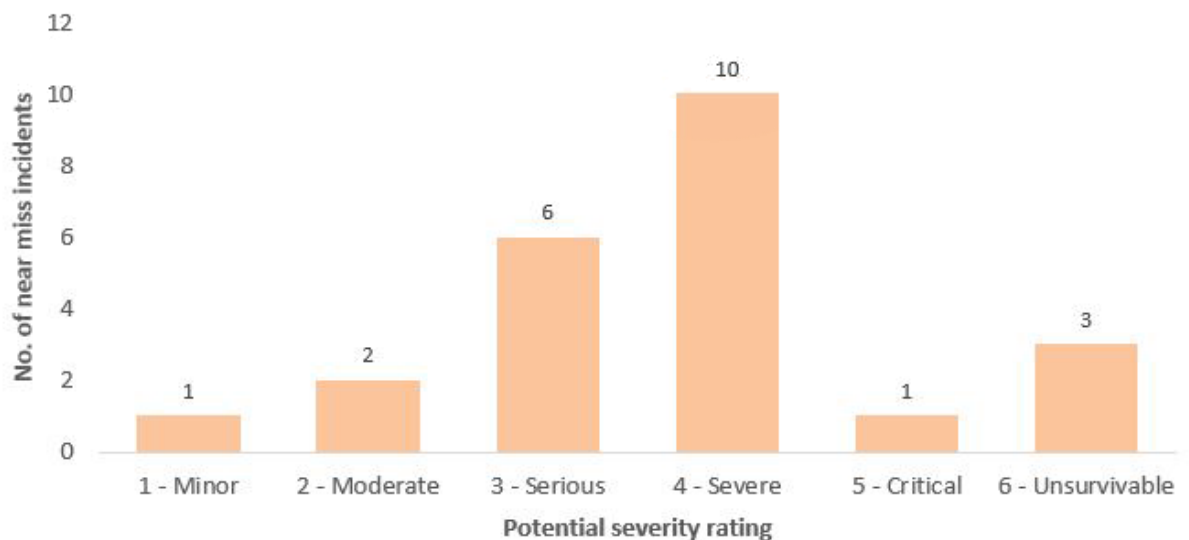


Figure 7. Near miss incident severity ratings.

Although this is consistent with the earlier UPLOADS National Incident Dataset reports, a high level of underreporting is suspected. Further development is required in this specific category to increase awareness, understanding and ultimately, reporting of near miss incidents

Activities

Residential (i.e., hard top) camps had the highest near miss incidence rate (1.1 incidents per 1000 participants), however **camping in tents** had the highest number of near miss incidents (n = 4). Figure 8 presents the near miss incidents rates by all led outdoor activities.

Contributing factors

Almost all near miss reports (96%) had sufficient detail to support further analysis with the UPLOADS Accident Analysis Method. An average of two (2) contributing factors were identified per near miss report (range: 0-6, n = 23). The most frequently identified contributing factors were *Activity Leader Communication & Demonstration* (21.7%), *Participant Judgement & Decision-making* (21.7%), and *Equipment, Clothing & PPE* (34.8%). Contributing factor relationships were identified across four of the six levels of the framework (see Figure 9).

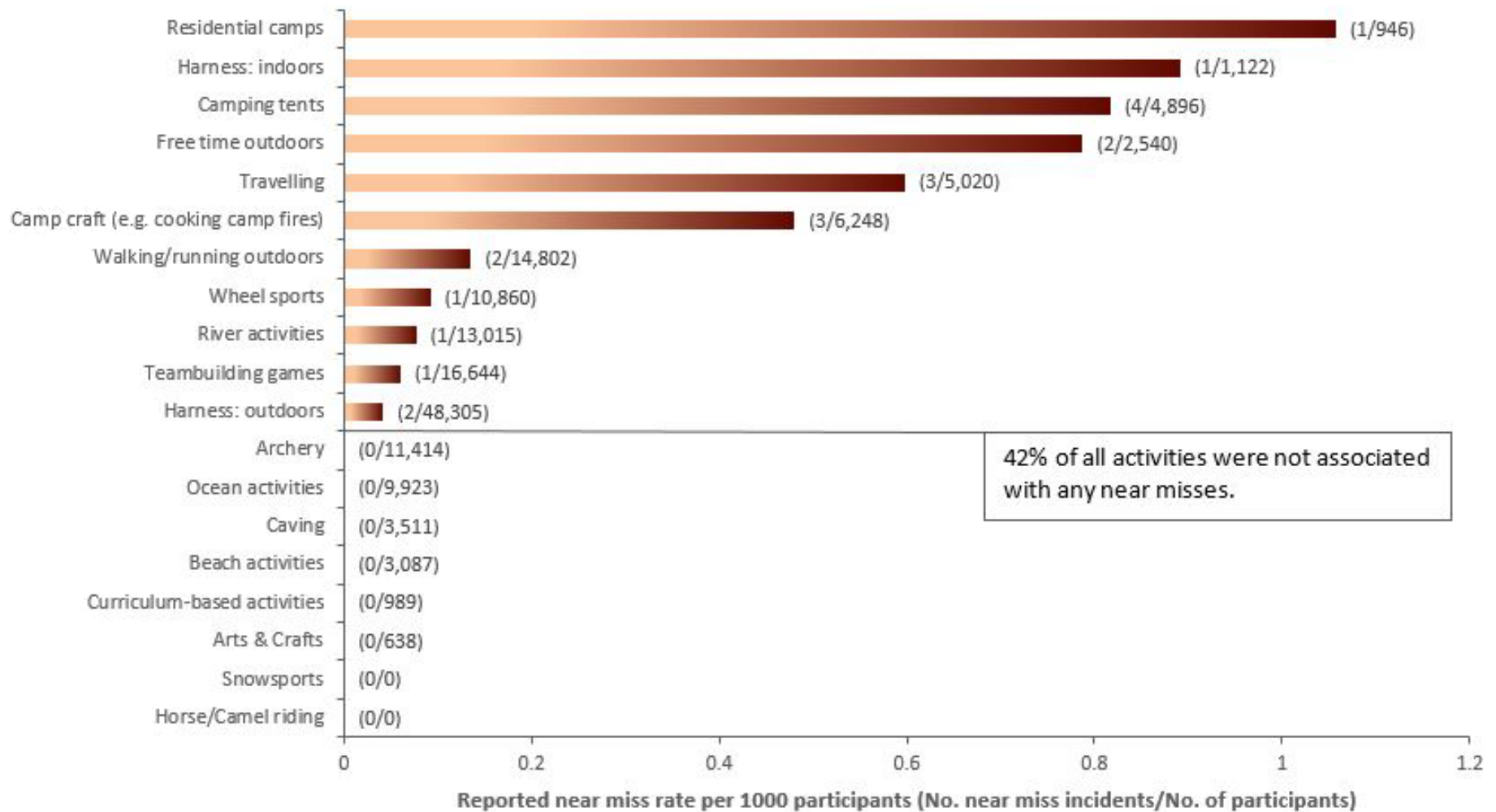


Figure 8. Near miss incidence rate per 1000 participants by activity type (June 2016 – May 2017). Numbers in brackets represent the number of reported near miss incidents and the number of reported participants associated with the activity, respectively. For example, residential camps had 1 near miss incident reported within the 946 participants that engaged in the activity within the reporting period.

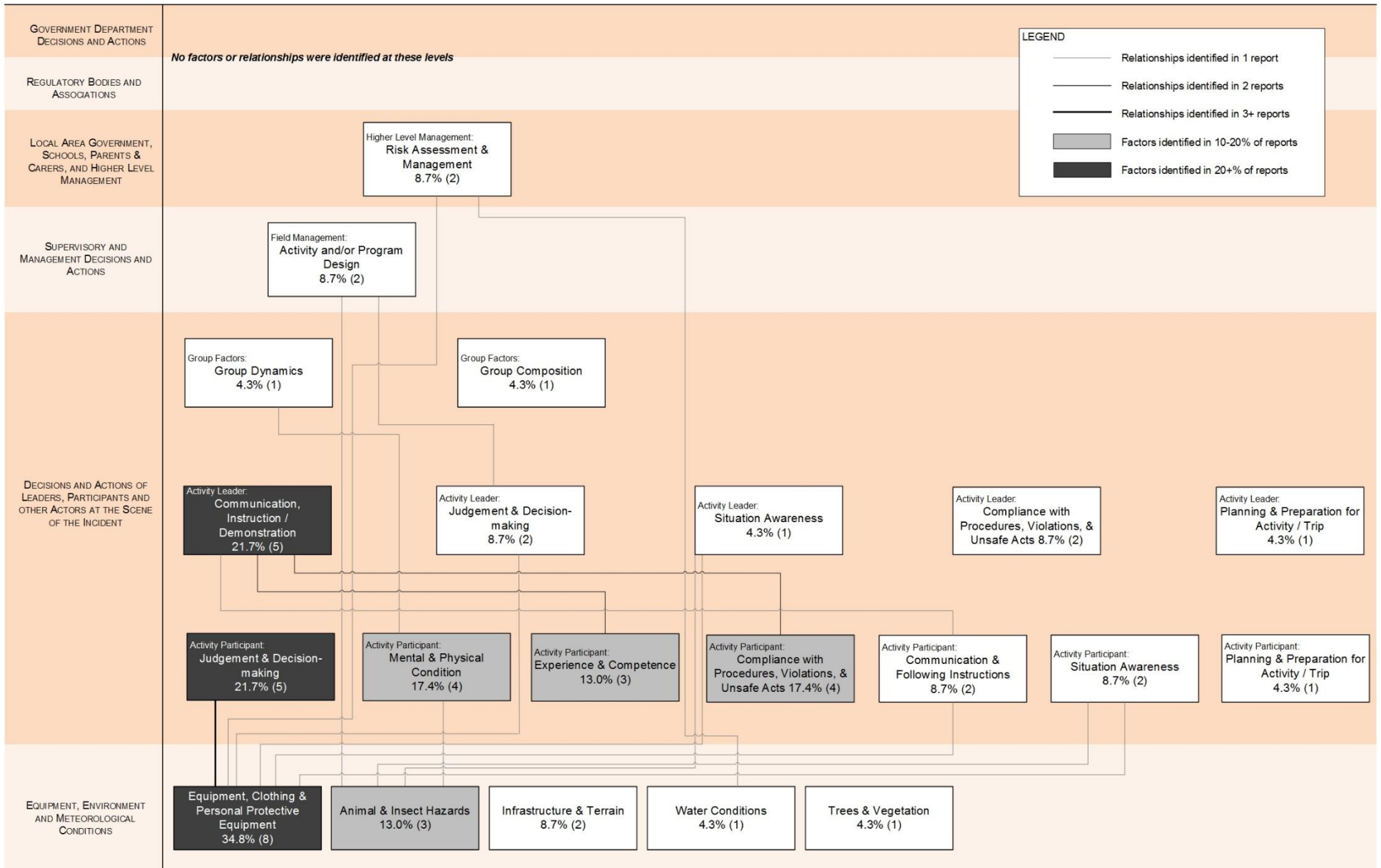


Figure 9. Factors and relationships identified as contributors to near miss incidents (n=23).

Key insights

The aim of this report was to present the findings from the UPLOADS National Incident Dataset for the period from the 1st of June 2016 to 31st May 2017. Injury, illness and near miss data provided by 13 organisations was analysed using the UPLOADS accident analysis method. Taken together, there are several insights pertaining to incident causation in Australian LOAs that have important implications for safety, safety management, and incident reporting and learning.

Incident rates

The incidence rates for injuries, illnesses and near misses is considered very low (2.2, 0.9, and 1.1 per 1000 participants respectively). This is encouraging, and suggests that the organisations who provided data are effectively managing the risk of incidents during LOA. When compared to other sports such as cricket (242 injuries per 1000 participants), horse-riding (122/1000), soccer (107/1000) and netball (51/1000; Finch, Cassell, & Stathakis, 1999), the injury rate for LOAs is relatively low. Finally, the injury, illness and near miss rates have remained relatively stable over the three years in which UPLOADS has been in operation. While these findings are encouraging, and indicate that the risk of injury or illness during LOAs in Australia is low, caution is urged when interpreting them due to potential underreporting. Further, the sample of organisations contributing data to UPLOADS remains small and these organisations may place a significant emphasis on safety (hence their ongoing contributions to UPLOADS). A key requirement moving forward is the recruitment of a wider sample of organisations so that the low incidence rates can be further verified.

The analysis of the National Incident Dataset also shows which activities have the greater incidence of injuries, illnesses and near miss incidents. For injury incidents, free-time outdoors, residential camps and campcraft (i.e. cooking and camp fires) had the highest recorded number of injuries (15.7, 7.4, and 6.2 incidents per 1000 participants, respectively). Camping in tents had the highest illness-related incidence rate (7.4 incidents per 1000 participants), followed by residential camps (4.2 incidents per 1000 participants) and walking/running in the outdoors (1.9 incidents per 1000 participants). Notably, these findings are again consistent across the previous UPLOADS dataset analyses (van Mulken et al., 2015; Clacy et al., 2016). The consistency of the incident rates for these activities suggests that further attention should be given to safety management during these types of activities, which are less overtly risky (compared to harness or water based activities, for example). It is recommended that organisations and the sector review the current risk management practices in place for these activities.

Contributory factors

Perhaps the most important contribution of the National Incident Dataset is the collection of information regarding the systemic factors that contribute to injury, illness and near miss incidents during LOAs. Across all incident types, a range of systemic contributory factors were identified. The most frequently identified contributing factors were *Activity Participant Mental & Physical Condition*, *Activity Participant Situation Awareness*, *Equipment, Clothing, & PPE*, and *Infrastructure & Terrain*. Whilst these are important, the key to preventing future adverse events lies in understanding why actions made sense at the time. Accordingly, various other contributory factors were identified including risk assessment and management processes; communications between schools, parents and activity providers; and activity or program design. However, the number of contributory factors identified in each incident remains low, with an average of 2 factors identified per incident report. This is less than expected when compared to other LOA analyses (e.g., Salmon et al., 2014), and highlights a need to improve the level of detail provided by reporters.

The relationships identified between the contributory factors reported in the National Incident Dataset also offer detailed insight into LOA incidents. The most frequently reported contributing factor relationships were between *Activity Equipment, Clothing, & PPE* and *Infrastructure & Terrain*, and *Activity Participant Situation Awareness* and *Experience & Competence*. Relationships were also found between higher and lower level factors, as seen between *Parent & Carer Communication* and *Documentation*; *Higher Level Management Risk Assessment & Management* and *Infrastructure & Terrain*; and *Activity & Program Design* and *Activity Participant Experience & Competence*. LOA organisations should consider these relationships when designing incident prevention strategies. For example, better tailoring program design to participants' mental and physical condition, and their competence and experience with LOAs, may offer one approach to minimising risk.

Examining the networks of contributing factors and their relationships reveals the prominent contributing factors from across the LOA system, from the immediate environment to the influence of the parents and carers of activity participants. By considering the complexities of safety in the Australian LOA sector, future incident prevention strategies may better focus on the broad network of contributing factors driving adverse events, as opposed to focusing on the issues associated with leaders, participants, equipment and the activity environment in isolation. In particular, LOA organisations should consider how their current programs, policies, procedures and processes may be influencing the behaviour of leaders and participants during LOAs. To identify the needs of participants and ensure appropriate planning and

preparation for the trip, LOA organisations should consider how they can better support communication with parents and carers prior to the activity.

Conclusion

The findings once again demonstrate that injury, illness and near miss incidents represent systems issues in that they are underpinned by a network of contributory factors that reside across the overall LOA system. A range of contributory factors and relationships were identified across the incidents reported in the National Incident Dataset. There remains work to do to ensure that the full range of contributory factors are being reported; however, the contributing organisations should be commended for the rich dataset that they have provided.

Afterword

We would like to acknowledge the sector's critical role in producing the UPLOADS National Incident Dataset. This dataset represents a huge contribution of time and effort from the organisations involved, both in terms of data collection and maintaining the quality of the reports. We would like to thank those organisations and our funding partners. We would also like to urge others to contribute data in future. The future of UPLOADS is dependent upon the provision of data from participating organisations across Australia. Whilst we acknowledge that practitioners are working under significant pressures and time constraints, we urge the sector to continue contributing data. Without data, it is not possible to generate meaningful analyses or for the UPLOADS National Incident Dataset to survive. The UPLOADS team are currently working towards developing a new reporting system which will reduce the administrative burden of contributing data.

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