2016-2017 ANNUAL REPORT

UPLOADS

UNDERSTANDING AND PREVENTING LED OUTDOOR ACCIDENTS DATA SYSTEM

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Introduction

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 system that was developed allows LOA providers to collect essential incident details which go beyond standard reports. 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 LOAs, as well as the systemic relationships between them.

Through the analysis of this aggregate data, the UPLOADS National Incident Dataset can be used to identify sector-wide patterns and trends in the incidence rates and contributory factors of activities. Prior to the UPLOADS Project, this information was not available in the LOA sector in Australia. It is important to note that although the reports are analysed by the research team, all the contributing factors and relationships that are identified come directly from the deidentified incident reports provided by Australian LOA organisations. Therefore, the analyses of contributing factors presented in this report represent the issues that are considered important by those who reported the incidents.

The aim of this report is to present a detailed overview of the data collected during the third year of data collection for the National Incident Dataset (1st June 2016 – 31st May 2017).

Copies of the first and second annual reports can be found on our website at

www.uploadsproject.org

Together, the annual reports generated by the UPLOADS National Incident Dataset contribute to an improved understanding of the incidents that occur during LOAs in Australia. These findings can be used to support the development of data-driven, targetted incident prevention strategies.

In this report...

The following report is presented in three separate sections for illnesses, injuries, and near miss incidents.

OUTCOME	DEFINITION WITHIN UPLOADS
Incident	Any event that results in an adverse outcome or a near miss.
Adverse outcome	Any event resulting in a negative impact, including: missing/overdue people; equipment or environmental damage; injury; illness; fatality; or social or psychological impacts.
Near miss	Any serious 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.

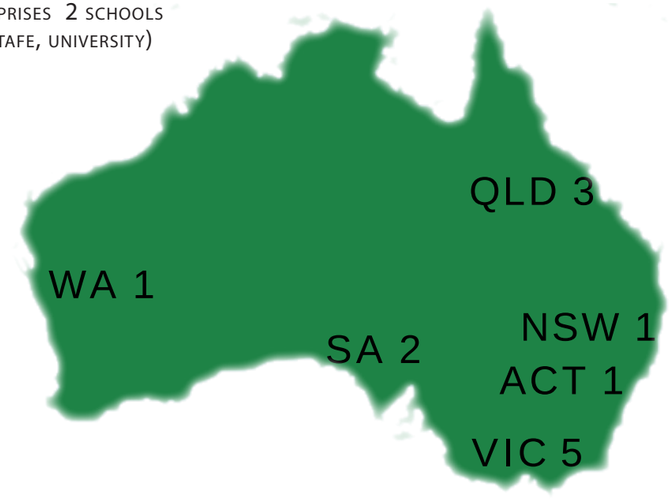
INCIDENT STATISTICS Each section of this report starts with an overview of the data collected for each outcome and a summary of the characteristics of the incidents. Incident rates for LOAs are calculated per 1000 participants ((number of incidents/number of participants) x 1000)) for each activity. As there are over 80 different types of activities captured in the UPLOADS data, activities are clustered into 20 broad categories which group activities with similar characteristics. For example, the category "walking/running outdoors" includes bush walking, orienteering and adventure races. The category 'river activities' includes canoing, rafting and kayaking. Other incident statistics presented in this report include incident severity ratings and demographic information.

SYSTEMS ANALYSIS Also included in each section of this report is the analysis of the contributing factors involved in each incident. The UPLOADS accident analysis method was used to classify the contributing factors and relationships that reporting practitioners identify in the incident report. These factors are then represented as AcciMaps, which show the network of contributing factors that were identified in the incident reports, and the relationships between them.

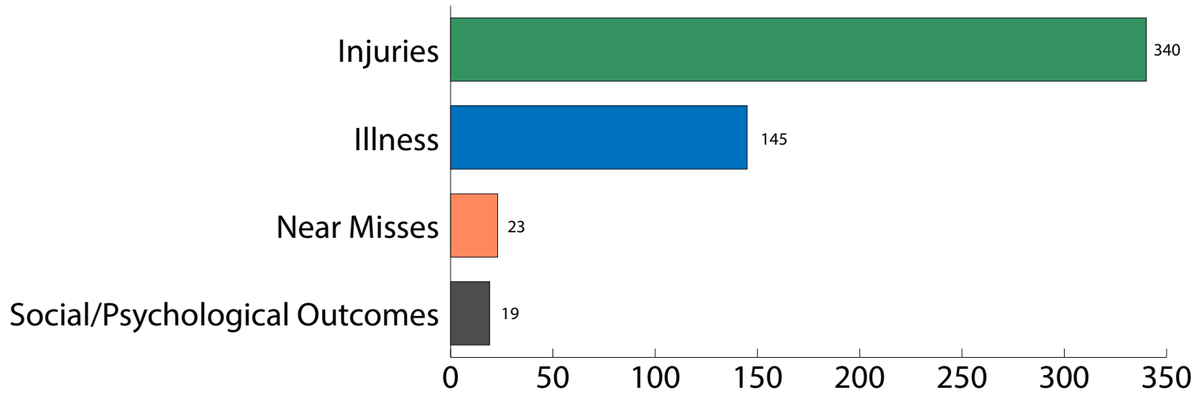
METHOD For a full description of the method used by the UPLOADS project for the collection of data for the National Incident Dataset, please refer to our website. Details regarding the design, recruitment, and data inclusion and analysis can also be found in our earlier annual reports.

13 ORGANISATIONS FROM ACROSS AUSTRALIA CONTRIBUTED DATA DURING THE 2016-2017 REPORTING PERIOD

6 CAMPS 4 COMMERCIAL ENTERPRISES 2 SCHOOLS
1 TRAINING ORGANISATION (E.G., TAFE, UNIVERSITY)



509 INCIDENTS WERE UPLOADED INTO THE NATIONAL INCIDENT DATASET



Injury incidents

340 INJURY INCIDENTS REPORTED IN THE UPLOADS NATIONAL INCIDENT DATASET

2.2 INJURY INCIDENTS WERE REPORTED PER 1000 PARTICIPANTS

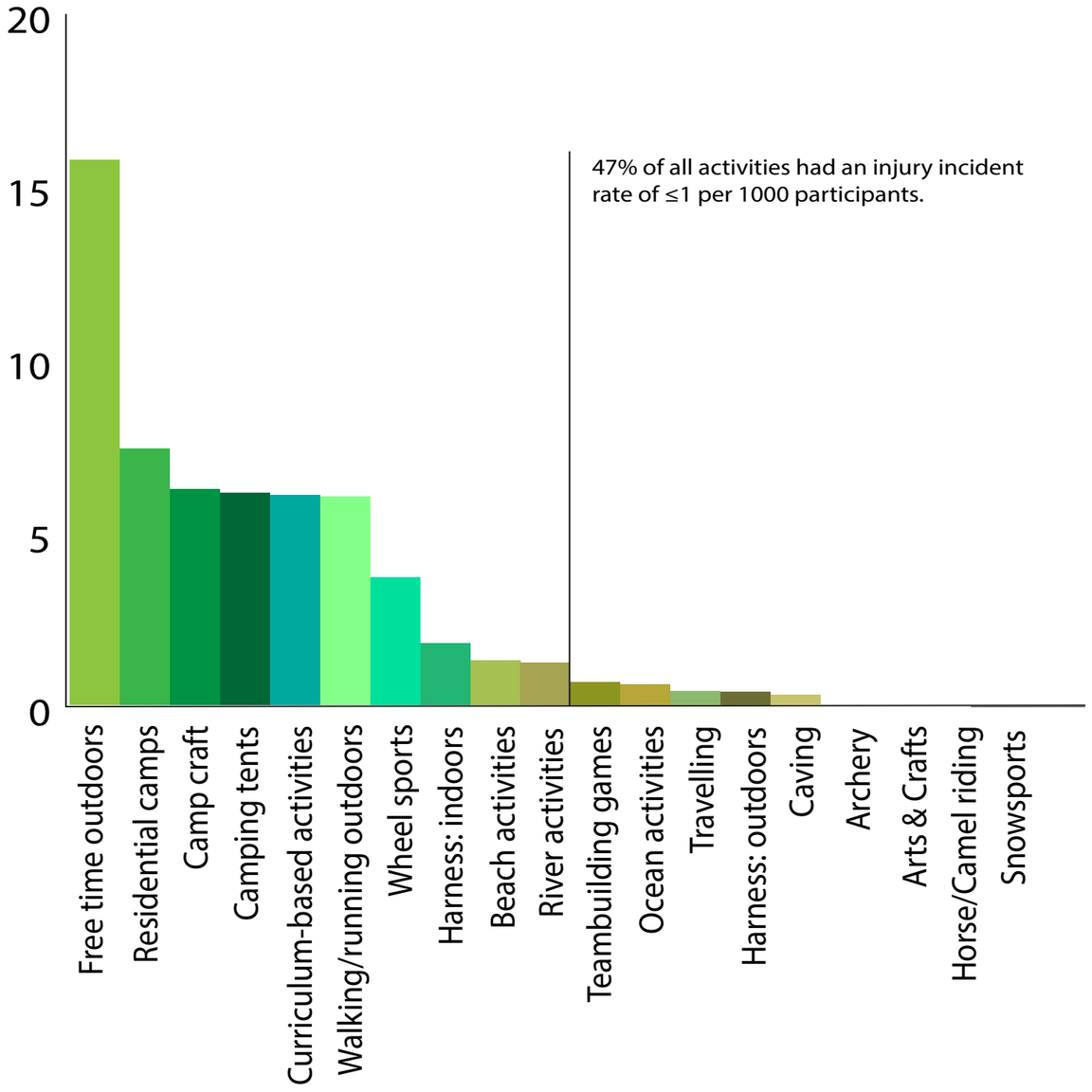
INJURIES IN THE WILD

In Australia, the rates of injury per 1000 participants in LOAs are substantially lower than some organised sports, such as cricket (242/1000), horse-riding (122/1000), and soccer (107/1000)[1].

[1]Finch, C. F., Cassell, E., & Stathakis, V. (1999). The epidemiology of sport and active recreation injury in the La Trobe Valley: Monash University Accident Research Centre.

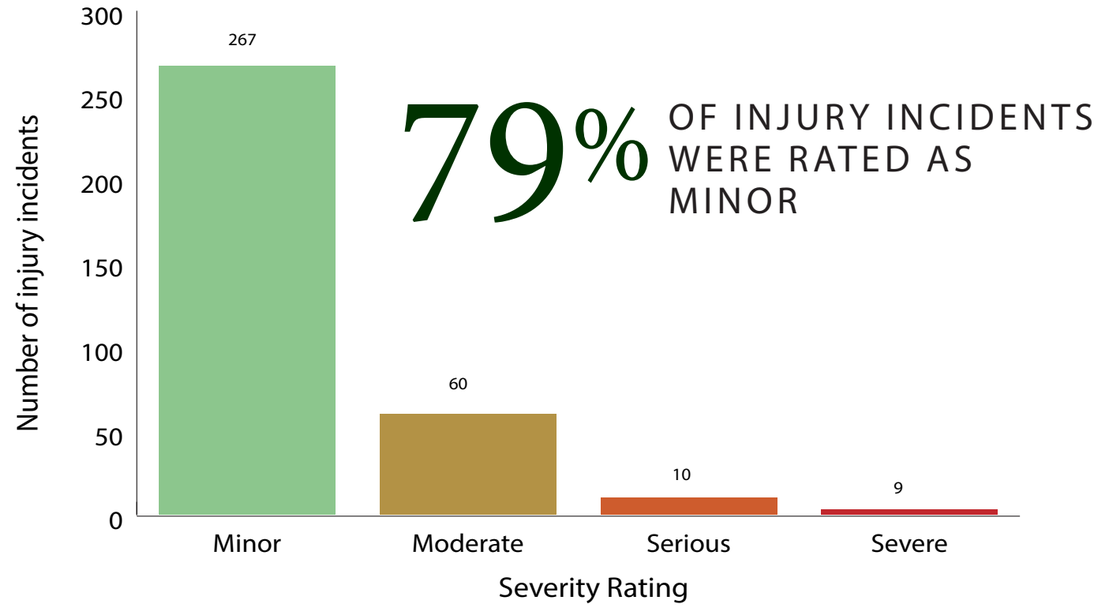
INJURY RATES BY ACTIVITY

Free-time in the outdoors had the highest recorded number of injuries in the data set with **15.7 incidents per 1000 participants.** Residential camps and campcraft (i.e., cooking, camp fires) were also amongst the activities with the highest incidence rates (7.4 and 6.2 incidents per 1000 participants, respectively).



47% of all activities had an injury incident rate of ≤1 per 1000 participants.

Reported injury rate per 1000 participants (No. injury incidents/No. of participants)



79% OF INJURY INCIDENTS WERE RATED AS MINOR

RATING	DEFINITION
No impact	Requires no treatment (near miss).
Minor	Requires localised care (non-evacuation) with short term effects.
Moderate	Requires ongoing care (localised or external; i.e., evacuation or not) with short to medium term effects.
Serious	Requires timely external care (evacuation) with medium to long term effects.
Severe	Requires urgent emergency assistance with long term effects.
Critical	Requires urgent emergency assistance with serious ongoing long term effects.
Fatality	Fatality.

INJURIES IN THE WILD

The injury incidence rate and the severity of the injuries that occur during Australian LOAs has remained relatively stable since the UPLOADS Project began collecting data in 2014.

2.4% OF INJURY INCIDENTS REQUIRED EMERGENCY SERVICES

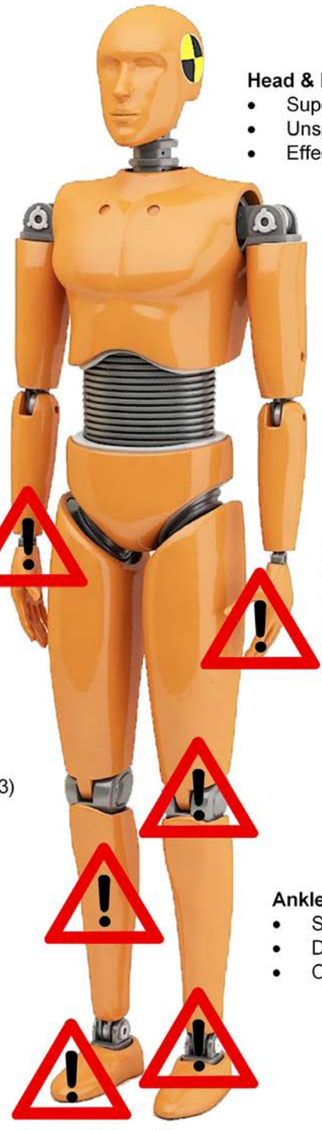
4.4% OF INJURED PEOPLE REQUIRED HOSPITALISATION

9.7% OF INJURED PEOPLE REQUIRED EVACUATION

The majority of the evacuations that were required for injuries were undertaken by vehicle 75.7%. In 15.2% of evacuations the injured persons were walked out, and in 9.1% of cases a stretcher was required.

TYPES AND BODY LOCATIONS OF REPORTED INJURIES

The figure below presents the three most frequently reported injury types for each body region. The body regions that were injured most frequently are indicated by red triangles.



Head & Neck 11% (n = 38)
- Superficial injury (15)
- Unspecified injury (10)
- Effects of foreign body entering through natural orifice (4)

Shoulder & Arm 6.4% (n = 22)
- Superficial injury (13)
- Dislocation, sprain and strain (4)

Chest & Abdomen 3.2% (n = 12)
- Superficial injury (4)
- Injury to muscle, fascia or tendon (3)

Hip & Thigh 6.5% (n = 22)
- Superficial injury (14)
- Dislocation, sprain and strain (4)

Wrist & Hand 25.3% (n = 86)
- Superficial injury (30)
- Open wound (22)
- Burns and corrosions (16)

Knee & Lower leg 23.4% (n = 57)
- Superficial injury (31)
- Dislocation, sprain and strain (13)
- Open wound (6)

Ankle & Foot 23.2% (n = 79)
- Superficial injury (38)
- Dislocation, sprain and strain (33)
- Open wound (4)

Multiple body regions 2.4% (n = 8)

Unspecified part of trunk, limb or body region 2.9% (n = 10)

DEMOGRAPHICS

The majority of the people injured were activity participants (84.4%), with an average age of 15 years.

♂ 52% ♀ 47%

GROUP PROFILE

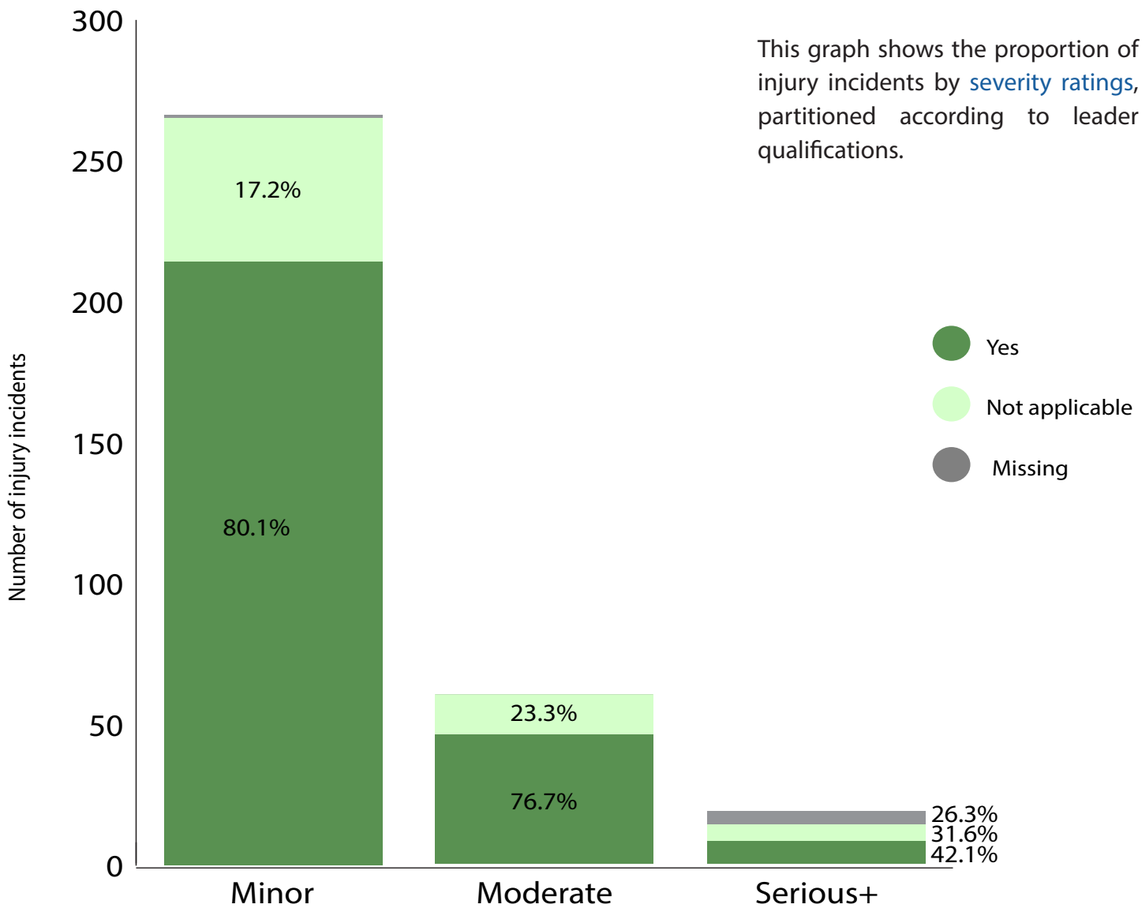
The average number of participants involved in activities associated with injury incidents was 15. There was a ratio of 2 activity leaders for every 15 participants in these activities.

QUALIFICATIONS

In 79% of incidents, the activity leader was reported to have relevant qualifications. In 21% of incidents qualifications were reported to be "not applicable" and predominantly involved:

- free time activities (42%)
- campcraft (15%)
- walking/running outdoors (10%)

This graph shows the proportion of injury incidents by severity ratings, partitioned according to leader qualifications.



Proportions of incidents in severity rating categories partitioned by whether the leader was reported to have relevant qualifications

SYSTEMS ANALYSIS OF INJURIES IN THE LED OUTDOORS

649 FACTORS CONTRIBUTING TO INJURY INCIDENTS WERE IDENTIFIED BY REPORTERS

2 CONTRIBUTING FACTORS IDENTIFIED ON AVERAGE PER INJURY REPORT

The contributing factors that were identified by reporters were in the lower four levels of the UPLOADS Accident Analysis Scheme (see table below). The relationships between these factors, and the frequencies with which they were reported, are presented in the AcciMap on the following page.

GOVERNMENT DEPARTMENT DECISIONS & ACTIONS	*There were no factors reported at these levels of the system*
REGULATORY BODIES & ASSOCIATIONS	
LOCAL AREA GOV'T, SCHOOLS, PARENTS/CARERS, & HIGHER-LEVEL MANAGEMENT	**Higher Level Management** • Activity / program design (.9%) **Parents/ Carers** • Communication (1.2%)
SUPERVISORY & MANAGEMENT DECISIONS & ACTIONS	**Supervisor / Field Manager** • Activity / program design (2.6%)
DECISIONS & ACTIONS OF ACTIVITY LEADERS, PARTICIPANTS, & OTHER ACTORS AT THE SCENE	**Activity Participant** • Mental & physical condition (22.1%) • Situation awareness (21.5%) • Experience & competence (20.3%) • Judgement & decision making (9.7%) • Compliance with procedure (5.6%) • Planning & preparation (5.0%) • Communication & following instructions (3.8%) **Activity Leader** • Supervision & leadership (3.2%) • Communication & instruction (2.9%) • Situation awareness (1.5%) • Planning & preparation (1.2%) • Judgement & decision making (.6%) • Mental & physical condition (.6%) **Group Factors** • Group dynamics (1.5%) • Group composition (1.5%) • Time pressure (.3%) **Other actors at the scene** • Situation awareness (.9%)
EQUIPMENT, ENVIRONMENT, & METEOROLOGICAL CONDITIONS	**Activity Equipment & Resources** • Equipment, clothing, & personal protective equipment (28.8%) • Documentation (1.5%) • Food & drink (.9%) **Activity Environment** • Infrastructure & terrain (22.6%) • Animal & insect hazards (9.1%) • Trees & vegetation (8.2%) • Weather conditions (4.7%) • Water conditions (3.8%)

Government Department Decisions and Actions

Regulatory Bodies and Associations

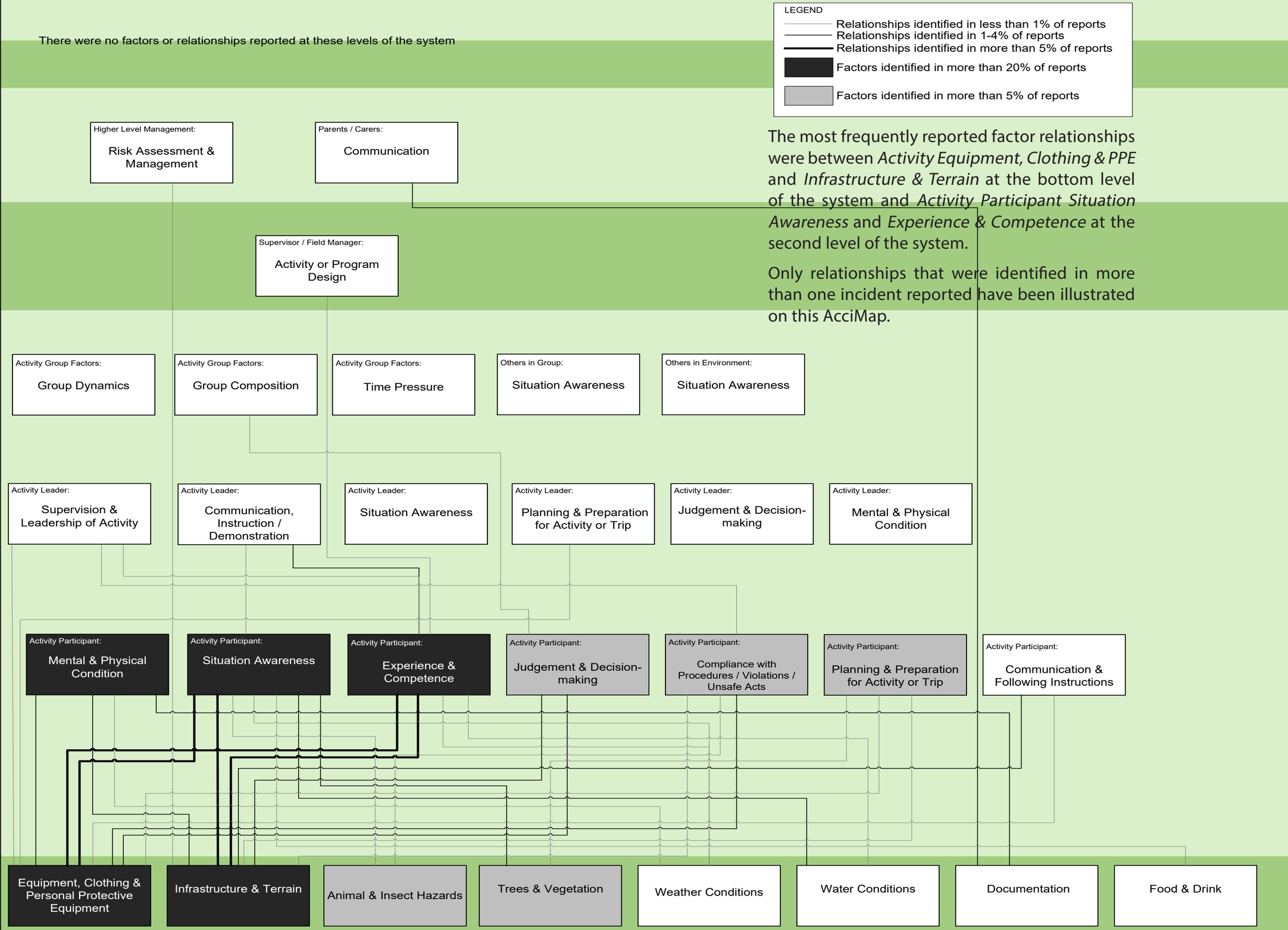
There were no factors or relationships reported at these levels of the system

Local Area Government, Schools, Parents & Carers, and Higher Level Management

Supervisory and Management Decisions and Actions

Decisions and Actions of Leaders, Participants and other Actors at the Scene of the Incident

Equipment, Environment and Meteorological Conditions

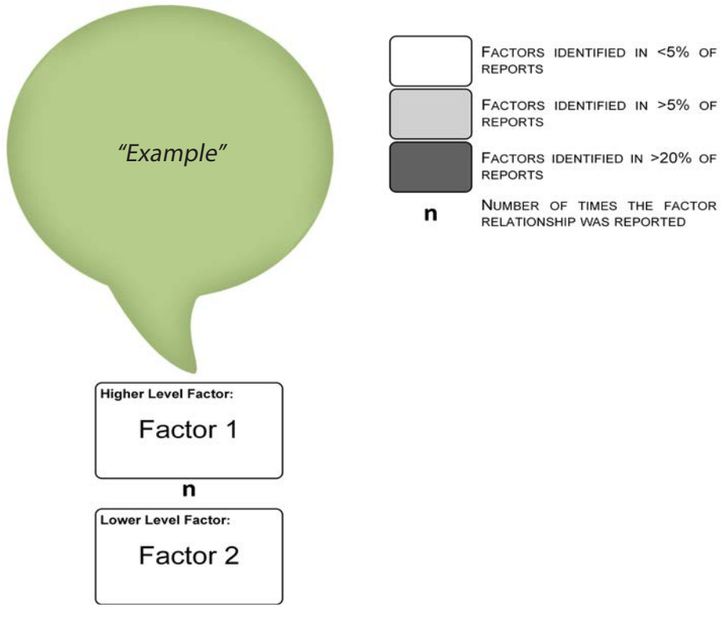


The most frequently reported factor relationships were between *Activity Equipment, Clothing & PPE* and *Infrastructure & Terrain* at the bottom level of the system and *Activity Participant Situation Awareness* and *Experience & Competence* at the second level of the system.

Only relationships that were identified in more than one incident reported have been illustrated on this AcciMap.

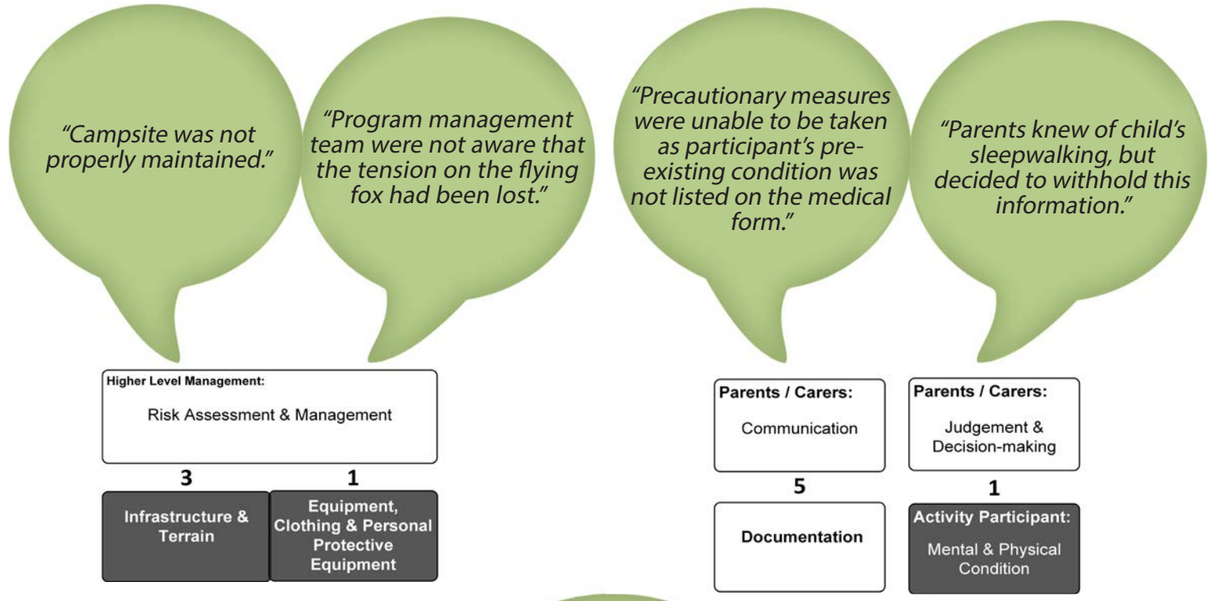
300 RELATIONSHIPS WERE IDENTIFIED BETWEEN INJURY CONTRIBUTING FACTORS

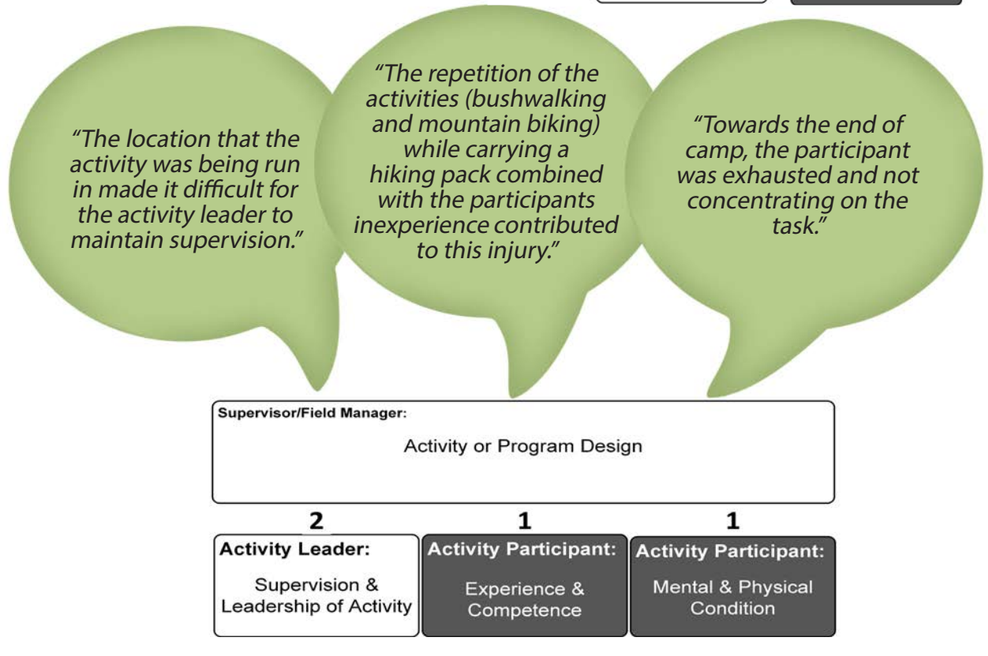
Relationships refer to the interactions between contributory factors. In the following figures, the most frequently identified factor relationships are presented. Relationships that were most frequently identified by reporters are highlighted in red text.



LOCAL AREA GOVERNMENT, SCHOOLS, PARENTS & CARERS, AND HIGHER LEVEL MANAGEMENT

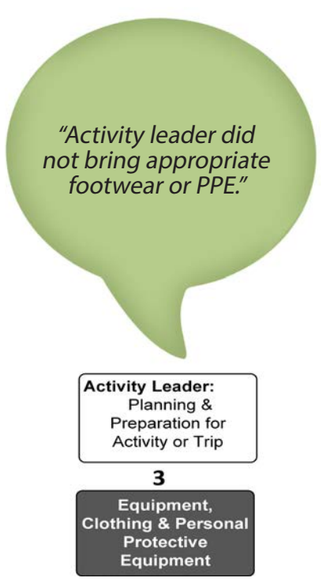
There were 17 factors reported at *Local Area Government, Schools, Parents & Carers, and Higher Level Management* levels of the LOA system framework. Fourteen (14) relationships were identified between these factors and lower level factors.

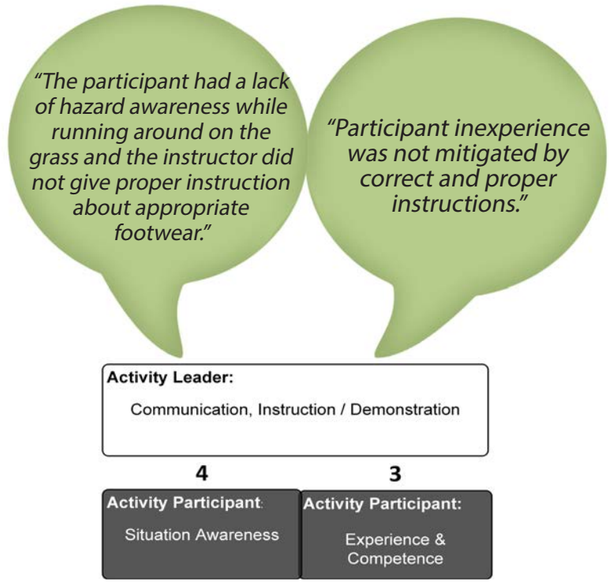


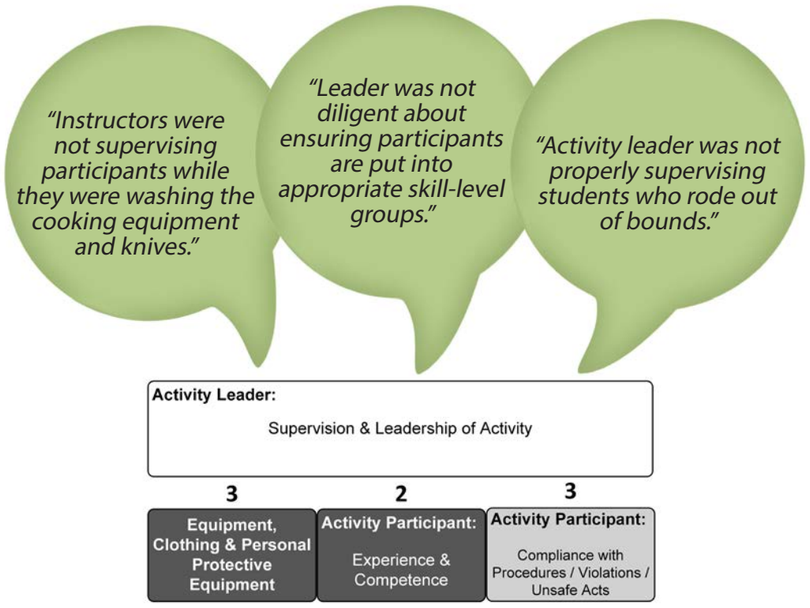


ACTIVITY LEADERS

In 34 incident reports, contributing factors related to the decsions and actions of *Activity Leaders* were identified by reporters. Thirty-two (32) relationships were identified between these factors and lower level factors.

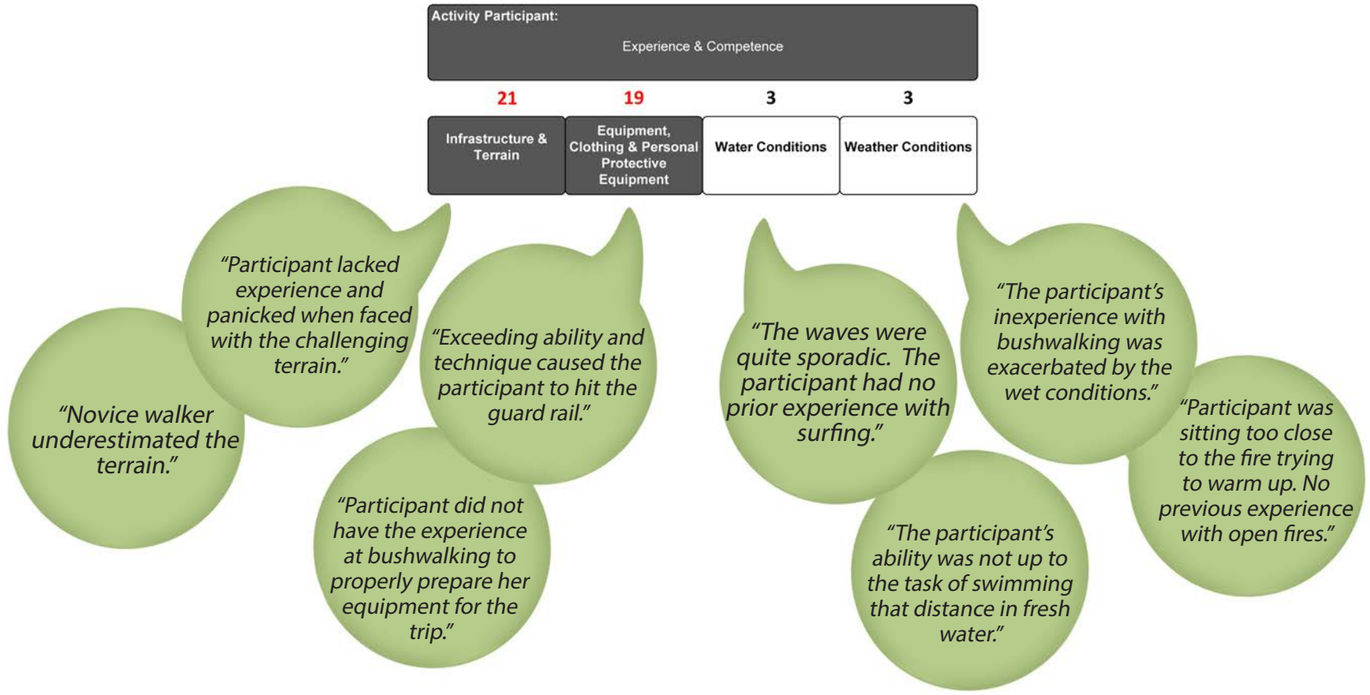


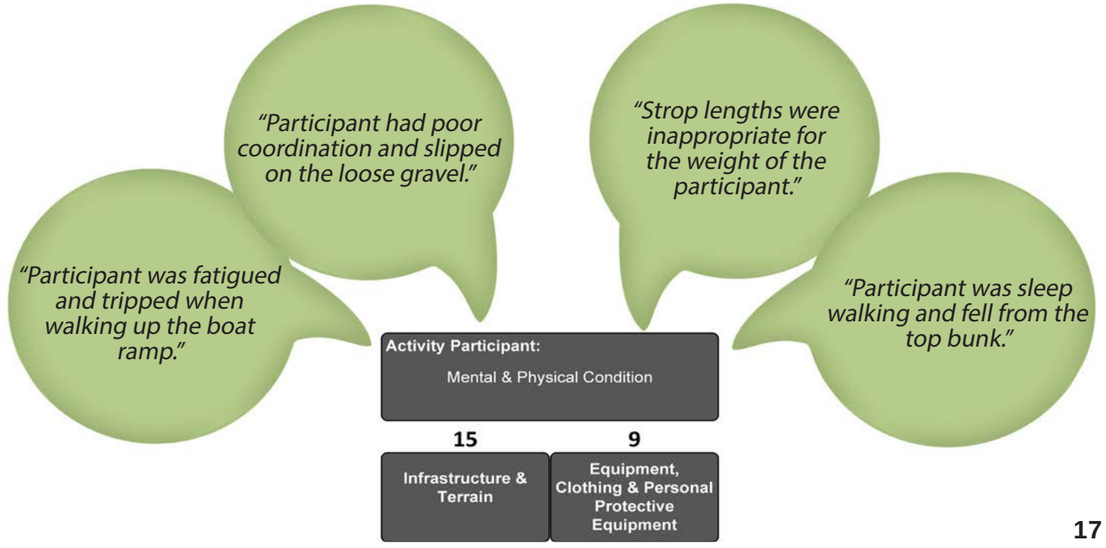


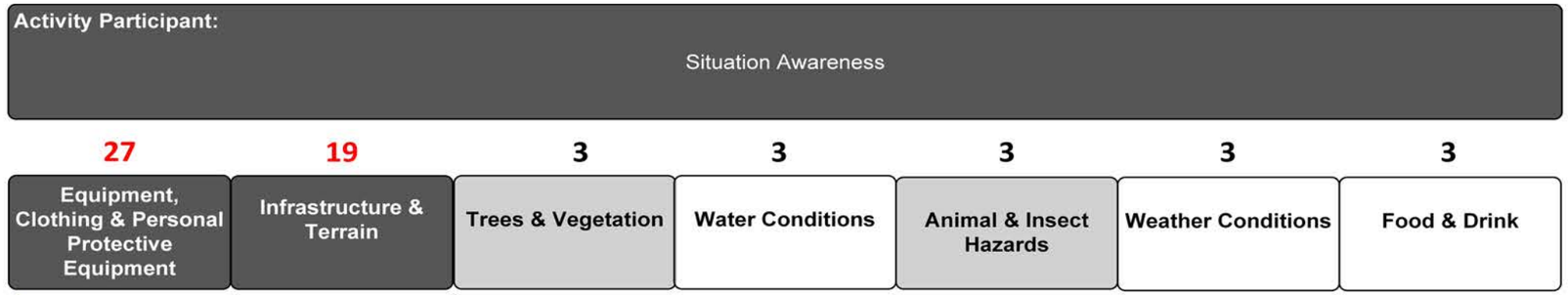


ACTIVITY PARTICIPANTS

Contributing factors related to the decsions and actions of *Activity Participants* were identified in 299 incident reports. Between these factors and lower level factors, there were 236 factor relationships identified.







"The sharp knives in use were not being given suitable attention by the participant."

"The participant wasn't watching where they were going and ran into a pump."

"Participant stumbled on a log and fell heavily onto their wrist."

"The participant was turning their back to the waves and so was unaware of where their fellow surfers were."

"Participant was not paying attention to their surroundings and sat in a jumping jack ant nest."

"Fainting caused by low fluid intake in hot weather showed a lack of awareness by participant."

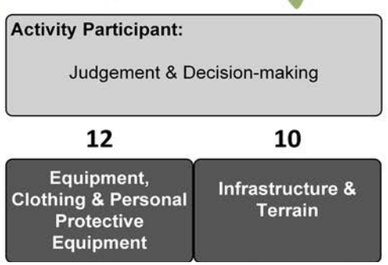
"The participant cut themselves when opening a tin can of sweet corn for lunch."

"Participant decided to leap through the spider web (superman style) and landed on his shoulder."

"Poor decision making to remove hot pan in unsafe manner."

"Participant decided to ride away from the group and onto loose gravel."

"The participant was running backwards in the sand being silly."

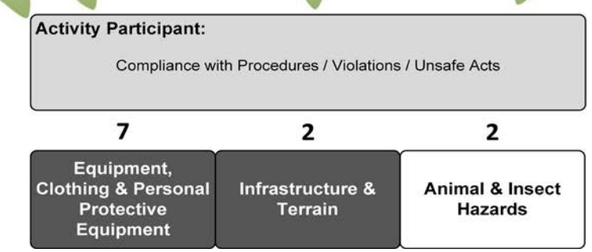


"Despite being told to get off the trampoline, the participant attempted a back flip and kneed himself in the nose."

"Participant used her hands instead of the safety tools that were instructed causing a burn."

"Participant disregarded instructions to stick to paths and not go through gardens or roped off areas."

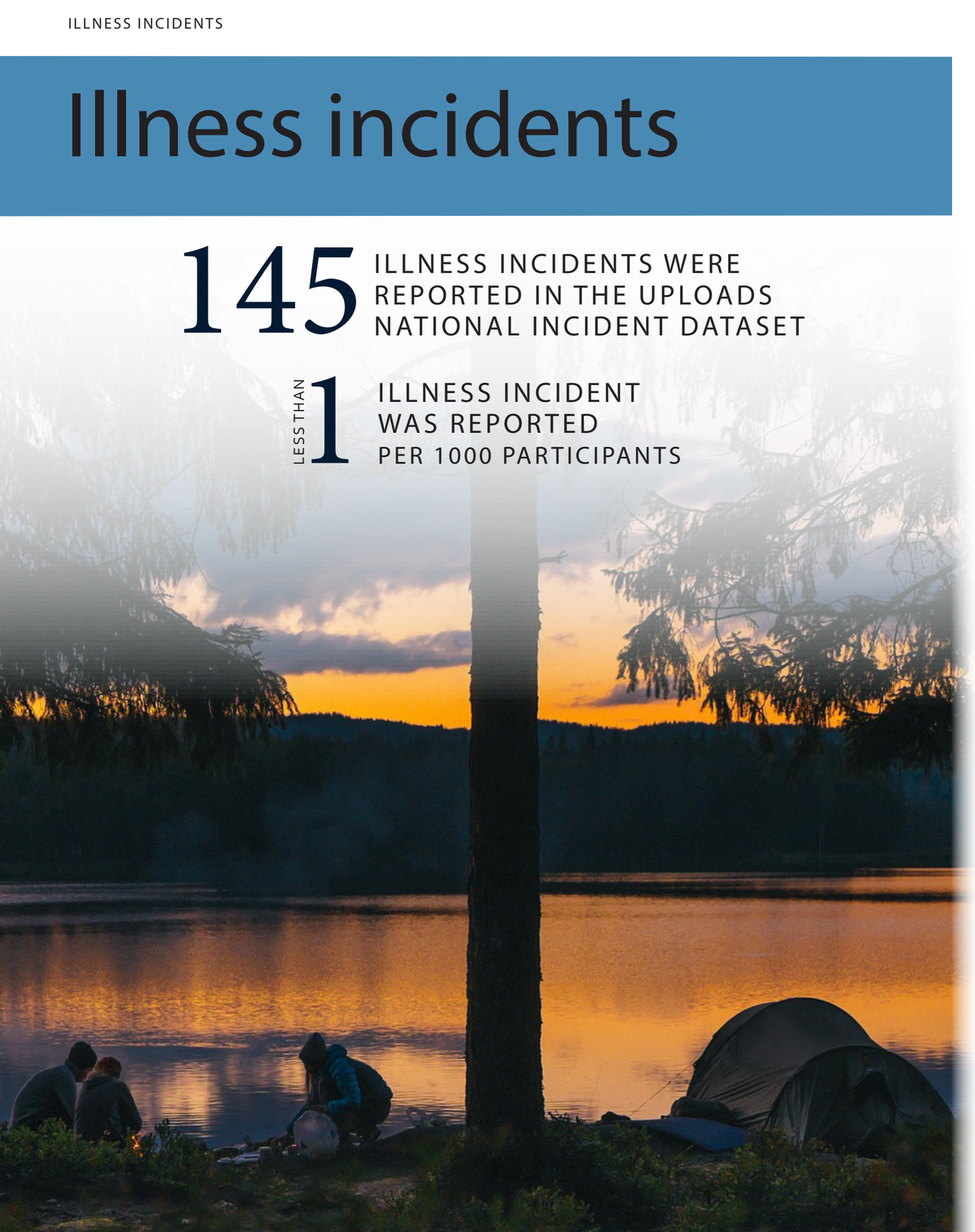
"Ants got into the tent causing several insect bites. Participants did not zip up the tent as instructed."



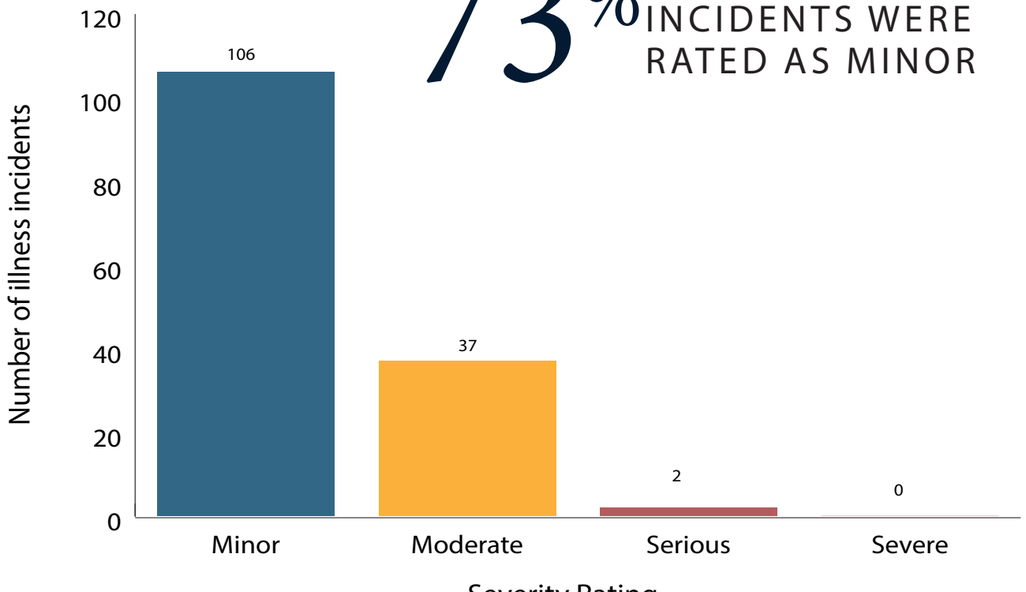
Illness incidents

145 ILLNESS INCIDENTS WERE REPORTED IN THE UPLOADS NATIONAL INCIDENT DATASET

LESS THAN **1** ILLNESS INCIDENT WAS REPORTED PER 1000 PARTICIPANTS



73% PERCENT OF ILLNESS INCIDENTS WERE RATED AS MINOR



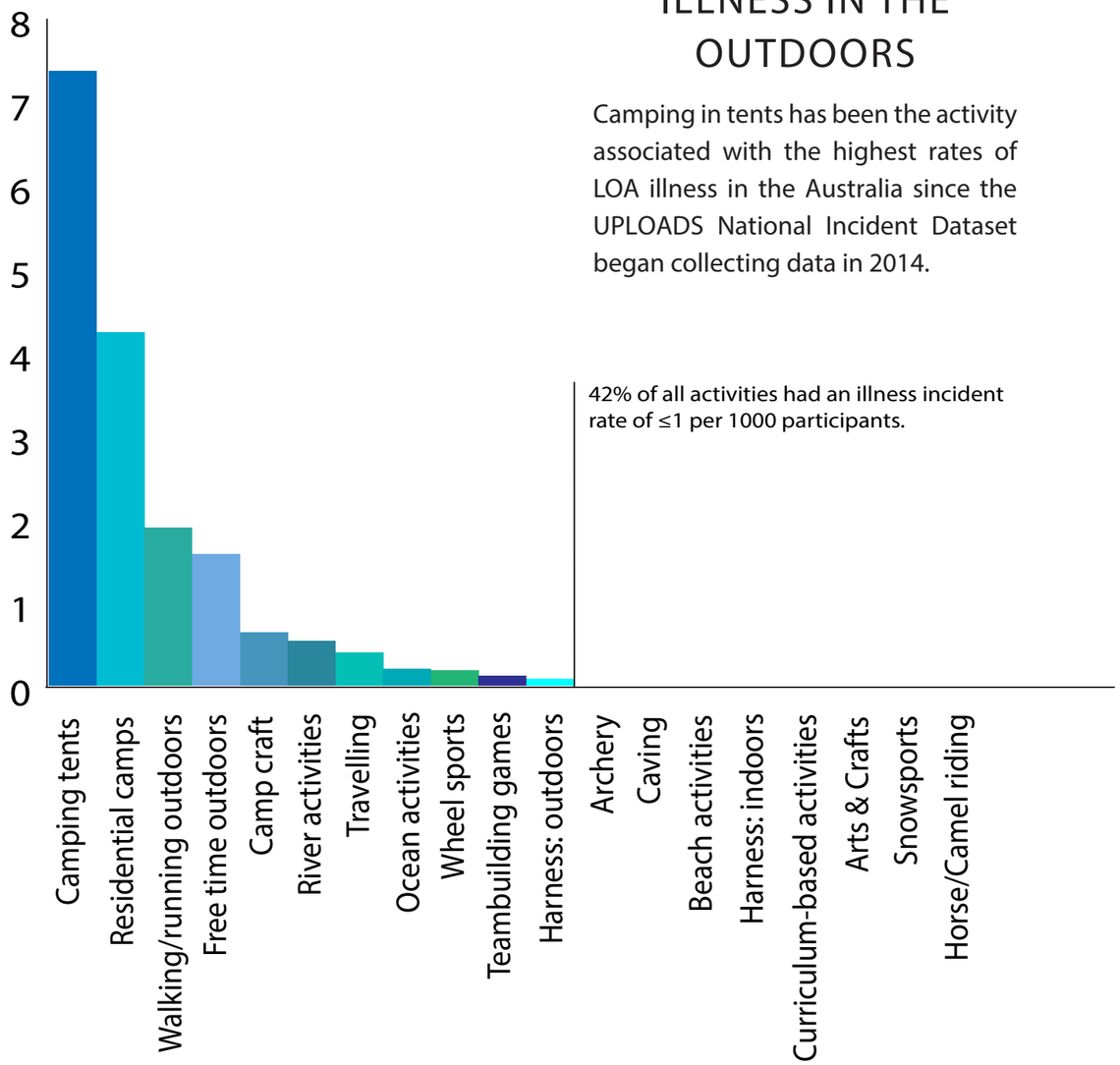
22% OF ILL PEOPLE REQUIRED EVACUATION

2 ILLNESS INCIDENTS REQUIRED EMERGENCY SERVICES

The majority of ill people were evacuated by vehicle (16.6%, average severity = 2, range: 1-3) or walked out (4.8%, all with a severity rating of 2). Only 1.4% of ill people required emergency services, all for asthma-related conditions (severity ratings of 1 and 2) and 2.1% of ill people required hospitalisation following evacuation (average severity = 3).

ILLNESS RATES BY ACTIVITY

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).



Reported illness incident rate per 1000 participants (No. illness incidents/No. of participants)

ILLNESS IN THE OUTDOORS

Camping in tents has been the activity associated with the highest rates of LOA illness in the Australia since the UPLOADS National Incident Dataset began collecting data in 2014.

ILLNESS TYPE

17.2% ABDOMINAL PROBLEMS
13.1% HEAT-RELATED ILLNESS
7.6% NON-SPECIFIC FEVER
6.9% ALLERGIC REACTION
6.9% DIARRHEA
6.2% ASTHMA
6.2% MENSTRUAL

DEMOGRAPHICS

The majority (91%) of ill people were identified as activity participants. The average age of ill activity participants was 15 years.

♂ 46.2% ♀ 42.4%

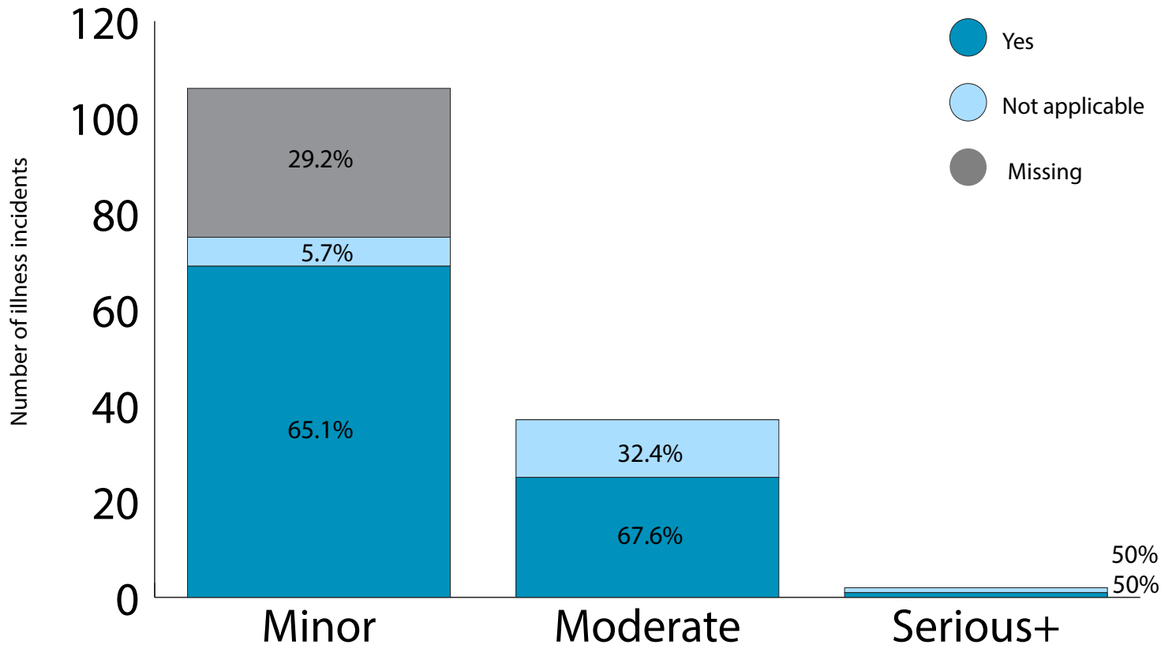
GROUP PROFILE

The average number of participants involved in activities associated with illnesses was 12. The average number of activity leaders was 1. There was an average ratio of 1 activity leader for every 12 participants in these activities.

QUALIFICATIONS

In 65.5% of incidents, the activity leader was reported to have relevant qualifications and in 8.6% of incidents qualifications were reported to be "not applicable".

The graph below shows the proportion of illness incidents by severity ratings, partitioned according to leader qualifications.



Proportions of incidents in severity rating categories partitioned by whether the leader was reported to have relevant qualifications

SYSTEMS ANALYSIS OF ILLNESS IN THE LED OUTDOORS

204 CONTRIBUTING FACTORS TO ILLNESS INCIDENTS WERE IDENTIFIED BY REPORTERS

1 CONTRIBUTING FACTOR WAS IDENTIFIED ON AVERAGE PER ILLNESS REPORT

The contributing factors that were identified by reporters were at three of the lower four levels of the UPLOADS Accident Analysis Scheme (see table below). The relationships between these factors, and the frequencies with which they were reported, are presented in the AcciMap on the following page.

GOVERNMENT DEPARTMENT DECISIONS & ACTIONS	*There were no factors reported at these levels of the system*		
REGULATORY BODIES & ASSOCIATIONS			
LOCAL AREA GOV'T, SCHOOLS, PARENTS/CARERS, & HIGHER-LEVEL MANAGEMENT	**Parents/ Carers** • Communication (3.4%)	**Parents/ Carers** • Judgement & Decision Making (2.1%)	**Parents/ Carers** • Planning & preparation (1.4%)
SUPERVISORY & MANAGEMENT DECISIONS & ACTIONS	*There were no factors reported at this level of the system*		
DECISIONS & ACTIONS OF ACTIVITY LEADERS, PARTICIPANTS, & OTHER ACTORS AT THE SCENE	**Activity Participant** • Mental & physical condition (62.8%) • Situation awareness (6.9%) • Experience & competence (6.2%) • Judgement & decision making (3.4%)	**Activity Leader** • Supervision & leadership (2.1%) • Communication & instruction (2.1%)	**Group Factors** • Other – Contagious illness (2.8%)
EQUIPMENT, ENVIRONMENT, & METEOROLOGICAL CONDITIONS	**Activity Equipment & Resources** • Food & drink (13.8%) • Equipment, clothing, & personal protective equipment (3.4%) • Documentation (3.4%)	**Activity Environment** • Weather conditions (15.2%) • Medication (2.8%) • Trees & vegetation (2.1%) • Animal & insect hazards (1.4%) • Water conditions (1.4%)	

GOVERNMENT DEPARTMENT DECISIONS AND ACTIONS

REGULATORY BODIES AND ASSOCIATIONS

LOCAL AREA GOVERNMENT, SCHOOLS, PARENTS & CARERS, AND HIGHER LEVEL MANAGEMENT

SUPERVISORY AND MANAGEMENT DECISIONS AND ACTIONS

DECISIONS AND ACTIONS OF LEADERS, PARTICIPANTS AND OTHER ACTORS AT THE SCENE OF THE INCIDENT

EQUIPMENT, ENVIRONMENT AND METEOROLOGICAL CONDITIONS

No factors or relationships were identified at these levels

Parents / Carers: Communication

Parents / Carers: Judgement & Decision-making

Parents / Carers: Planning & Preparation for Activity

No factors or relationships were identified at this level

Activity Group Factors: Other (Contagious Illness)

Activity Leader: Supervision & Leadership of Activity

Activity Leader: Communication, Instruction / Demonstration

Activity Participant: Mental & Physical Condition

Activity Participant: Situation Awareness

Activity Participant: Experience & Competence

Activity Participant: Judgement & Decision-making

Weather Conditions

Food & Drink

Equipment, Clothing & Personal Protective Equipment

Documentation

Medication

Trees & Vegetation

Animal & Insect Hazards

Water Conditions

LEGEND

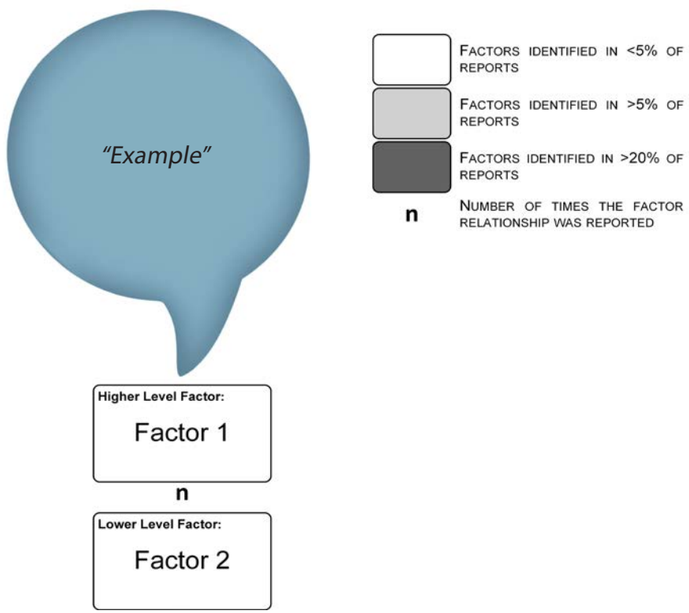
- Relationships identified in less than 3% of reports
- Relationships identified in 3.1-3.9% of reports
- Relationships identified in 4+% of reports
- Factors identified in 5-9% of reports
- Factors identified in 10+% of reports

The most frequently reported factor relationships were between *Activity Participant Situation Awareness* and *Experience & Competence* and *Weather Conditions* and *Food & Drink.*

Only relationships that were identified in more than one incident reported have been illustrated on this AcciMap.

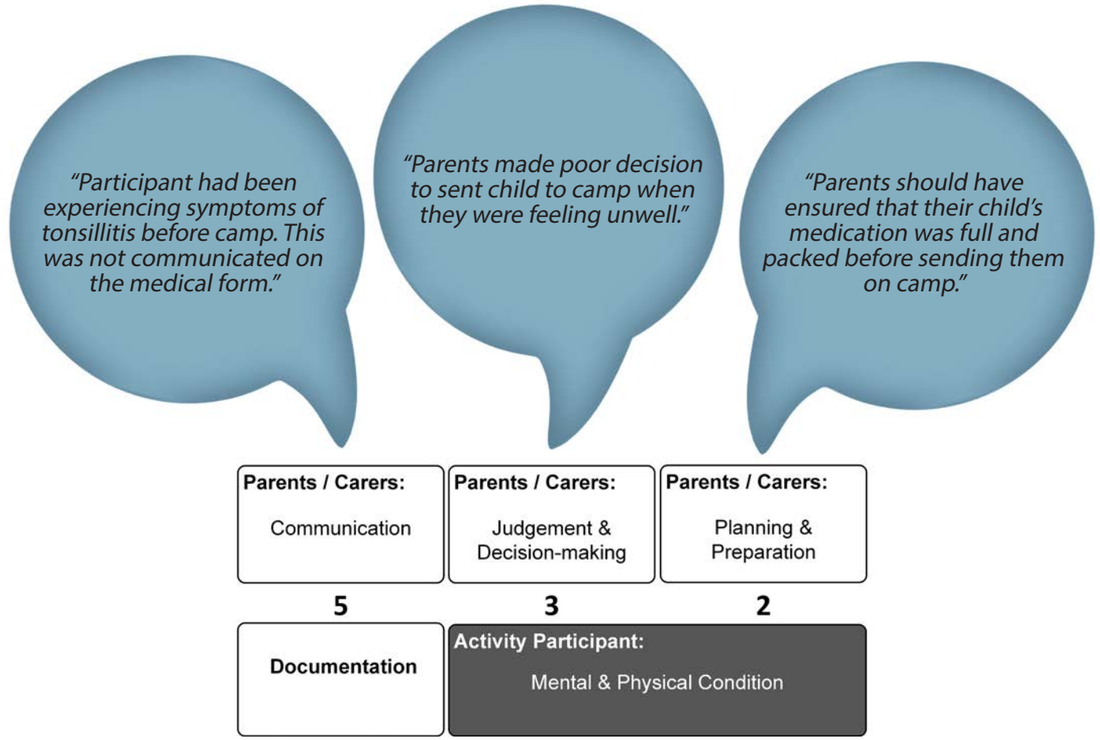
88 RELATIONSHIPS WERE IDENTIFIED BETWEEN ILLNESS CONTRIBUTING FACTORS

In the following figures, the most frequently identified relationships are presented. Relationships that were most frequently identified by reporters are highlighted in red text.



LOCAL AREA GOVERNMENT, SCHOOLS, PARENTS & CARERS, AND HIGHER LEVEL MANAGEMENT

Contributing factors at the *Local Area Government, Schools, Parents & Carers, and Higher Level Management* levels of the LOA system framework were identified in 10 incident reports. The same number (10) of relationships were identified between these factors and lower level factors.



ILLNESS IN THE OUTDOORS

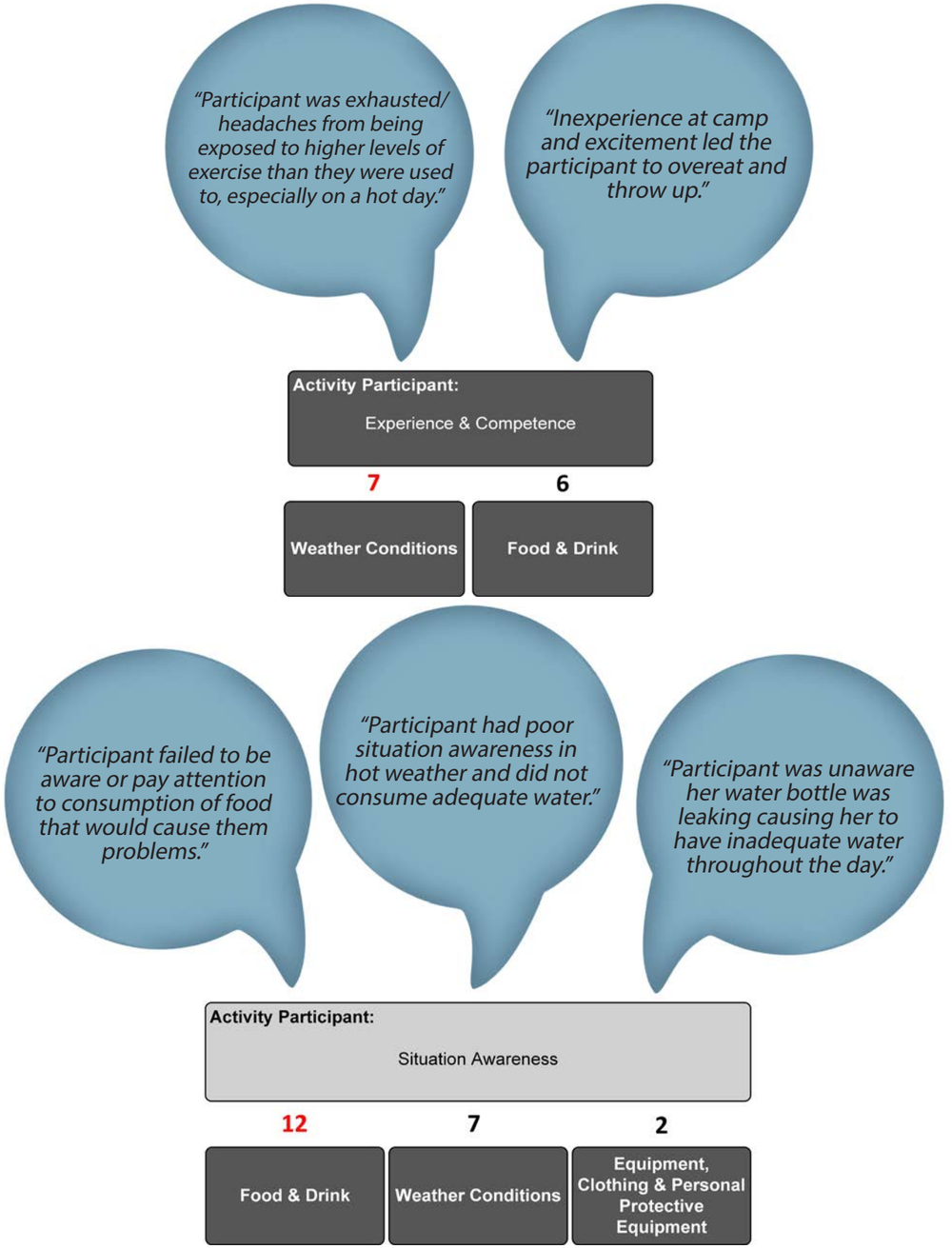
The factors and relationships identified in the bottom two levels of the LOA system describe the flow of events leading up to and during an incident, including the decisions and actions made by leaders, participants, and other members of the activity group. These levels of the system are referred to as the 'sharp end'.

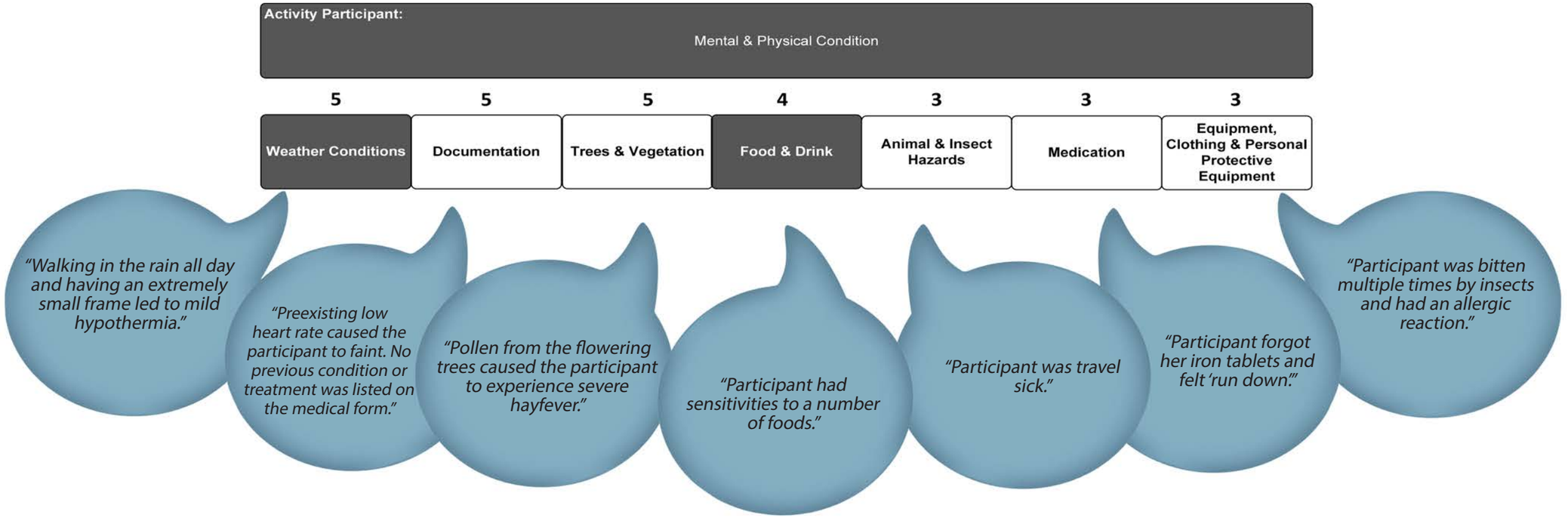
ACTIVITY LEADERS

Contributing factors related to the decsions and actions of *Activity Leaders* were identified in 7 incident reports. Six (6) relationships were identified between these factors and lower level factors.

ACTIVITY PARTICIPANTS

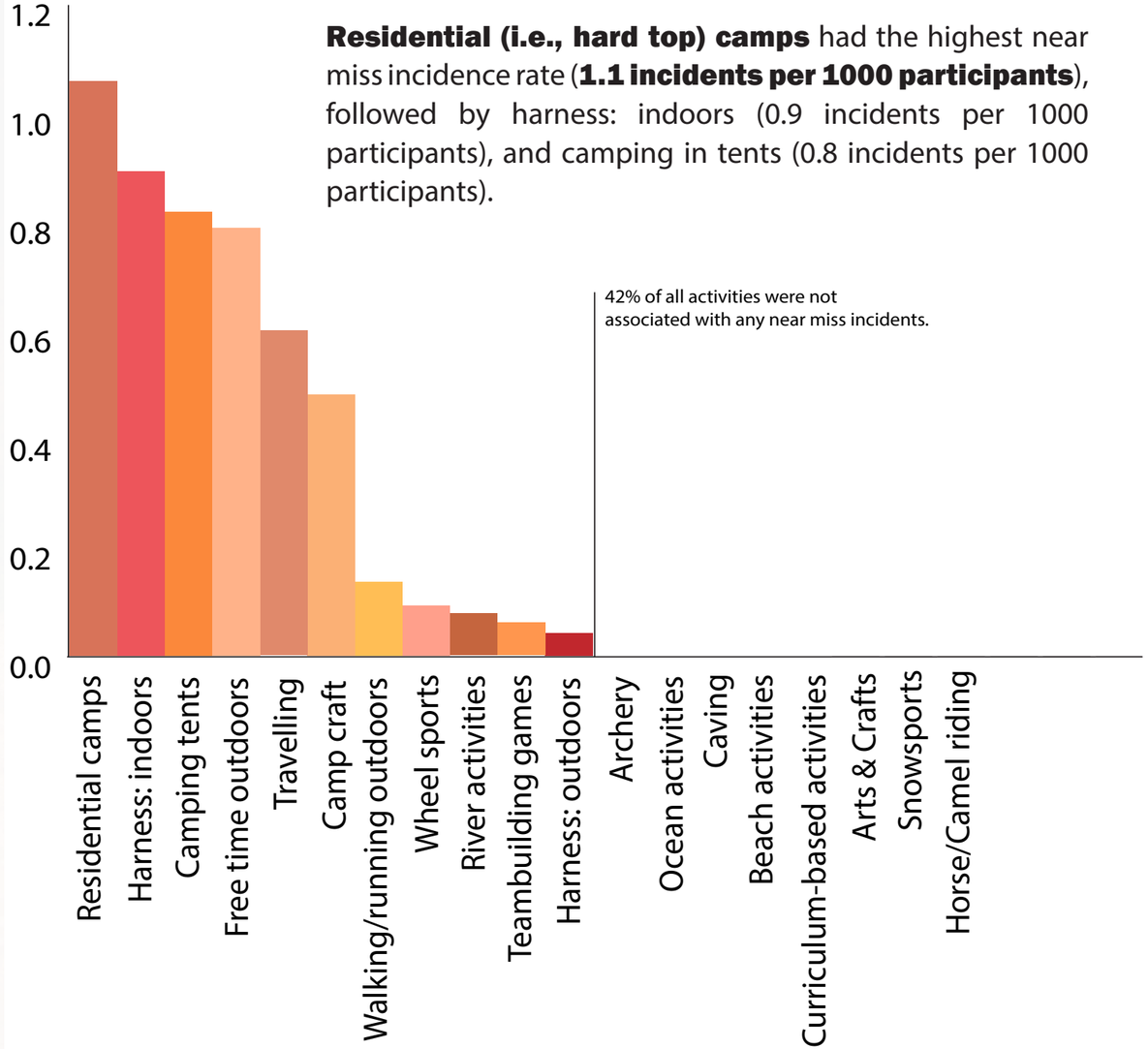
In 117 incident reports, contributing factors related to the decsions and actions of *Activity Participants* were identified by reporters. Between these factors and lower level factors, there were 70 factor relationships identified.




Activity Participant:
Mental & Physical Condition
5
Weather Conditions
5
Documentation
5
Trees & Vegetation
4
Food & Drink
3
Animal & Insect Hazards
3
Medication
3
Equipment, Clothing & Personal Protective Equipment
"Walking in the rain all day and having an extremely small frame led to mild hypothermia."
"Preexisting low heart rate caused the participant to faint. No previous condition or treatment was listed on the medical form."
"Pollen from the flowering trees caused the participant to experience severe hayfever."
"Participant had sensitivities to a number of foods."
"Participant was travel sick."
"Participant forgot her iron tablets and felt 'run down.'"
"Participant was bitten multiple times by insects and had an allergic reaction."

Near miss incidents

23 NEAR MISS INCIDENTS WERE RECORDED IN THE UPLOADS NATIONAL INCIDENT DATASET

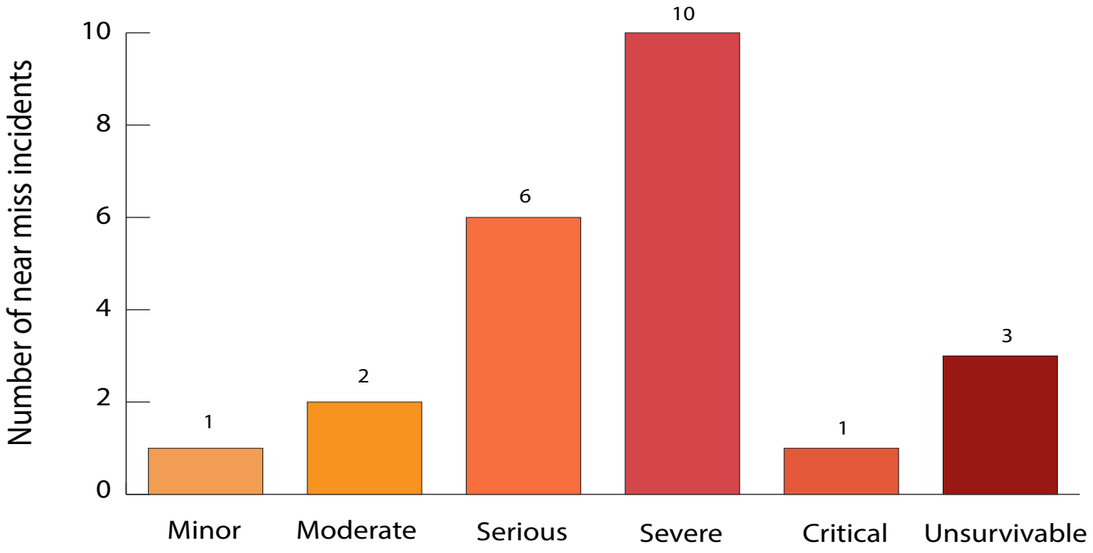


Reported near miss incident rate per 1000 participants (No. near miss incidents/No. of participants)

Residential (i.e., hard top) camps had the highest near miss incidence rate (**1.1 incidents per 1000 participants**), followed by harness: indoors (0.9 incidents per 1000 participants), and camping in tents (0.8 incidents per 1000 participants).

NEAR MISS INCIDENT SEVERITY

61% OF NEAR MISS INCIDENTS HAD A SERIOUS TO FATAL POTENTIAL SEVERITY



Near miss incidents are rated in terms of potential severity, and refer to any serious mishap that has the potential to cause an adverse event but fails to do so because of chance or because it is intercepted.

THE NATURE OF NEAR MISS

The importance of reporting and analysing near miss incidents in the LOA sector is emphasised by the consistent finding that the majority of these types of incidents are reported to be potentially serious or fatal.

DEMOGRAPHICS

The majority of people involved in near miss incidents were identified as activity participants (82.6%). Insufficient data was reported for the calculation of sex and average age.

GROUP PROFILE

The average number of participants involved in activities associated with near miss incidents was 14. Respectively, the average number of activity leaders and supervisors was 2 and 1. There was an activity ratio of 1 activity leader for every 7 participants when near miss incidents occurred.

QUALIFICATIONS

In majority of the near miss incidents (82.6%), the activity leader was reported to have relevant qualifications. In four incidents leader qualifications were reported as "not applicable".

The graph below shows the proportion of near miss incidents by potential severity ratings, partitioned according to leader qualifications.

- activities (42%)
- campcraft (15%)
- walking/running outdoors (10%)

Proportions of near miss incidents in potential severity rating categories partitioned by whether the leader was reported to have relevant qualifications

SYSTEMS ANALYSIS OF NEAR MISS INCIDENTS IN THE LED OUTDOORS

53 CONTRIBUTING FACTORS TO NEAR MISS INCIDENTS WERE IDENTIFIED BY REPORTERS

2 CONTRIBUTING FACTORS WERE IDENTIFIED ON AVERAGE PER NEAR MISS REPORT

Near miss incident reporters identified contributing factors at four of the five levels of the UPLOADS Accident Analysis Scheme (see table below). The relationships between these factors, and the frequencies with which they were reported, are presented in the AcciMap on the following page.

GOVERNMENT DEPARTMENT DECISIONS & ACTIONS	There were no factors reported at this level of the system		
REGULATORY BODIES & ASSOCIATIONS	**Regulatory Bodies** • Auditing (4.3%)		
LOCAL AREA GOVERNMENT, SCHOOLS, PARENTS/CARERS, & HIGHER-LEVEL MANAGEMENT	**Higher Level Management** • Risk assessment & management (4.3%)		
SUPERVISORY & MANAGEMENT DECISIONS & ACTIONS	**Supervisor / Field Manager** • Activity program and/or design (8.7%)		
DECISIONS & ACTIONS OF ACTIVITY LEADERS, PARTICIPANTS, & OTHER ACTORS AT THE SCENE	**Activity Participant** • Judgement & decision making (21.7%) • Mental & physical condition (17.4%) • Compliance with procedure (17.4%) • Experience & competence (13.0%) • Situation awareness (8.7%) • Communication & following instructions (8.7%) • Planning & preparation (4.3%)	**Activity Leader** • Communication & instruction (21.7%) • Compliance with procedures (8.7%) • Judgement & decision making (8.7%) • Planning & preparation (4.3%) • Situation awareness (4.3%)	**Group Factors** • Group dynamics (4.3%) • Group composition (4.3%)
EQUIPMENT, ENVIRONMENT, & METEOROLOGICAL CONDITIONS	**Activity Equipment & Resources** • Equipment, clothing, & personal protective equipment (34.8%)	**Activity Environment** • Animal & insect hazards (13.0%) • Infrastructure & terrain (8.7%) • Trees & vegetation (4.3%) • Water conditions (4.3%)	

THE NATURE OF NEAR MISS

Analysing near miss reports offers a unique opportunity to learn from incidents before they eventuate into serious events. The factors that underpin these incidents are comparable to the contributory factors identified in adverse incidents.

GOVERNMENT DEPARTMENT DECISIONS AND ACTIONS

REGULATORY BODIES AND ASSOCIATIONS

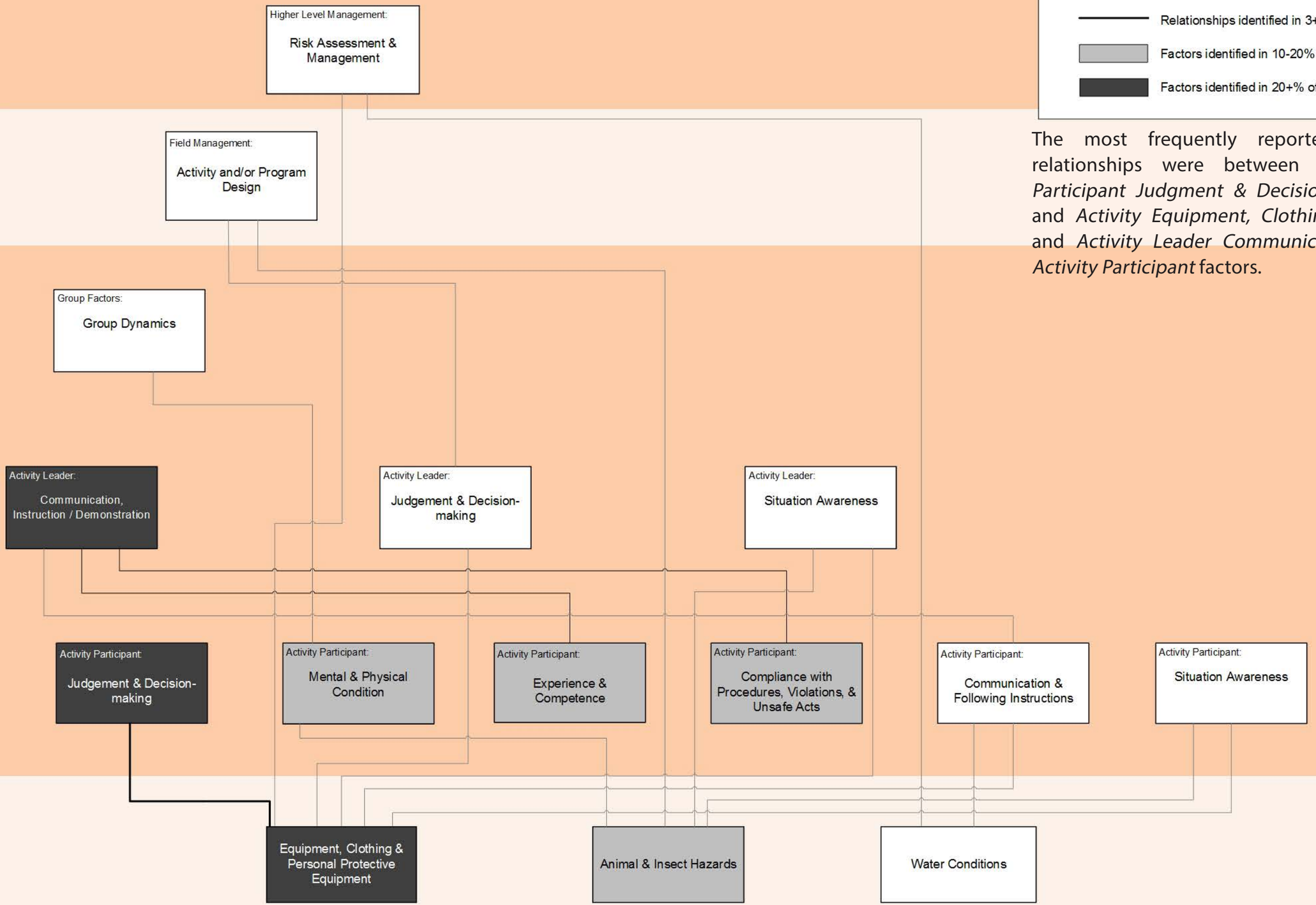
LOCAL AREA GOVERNMENT, SCHOOLS, PARENTS & CARERS, AND HIGHER LEVEL MANAGEMENT

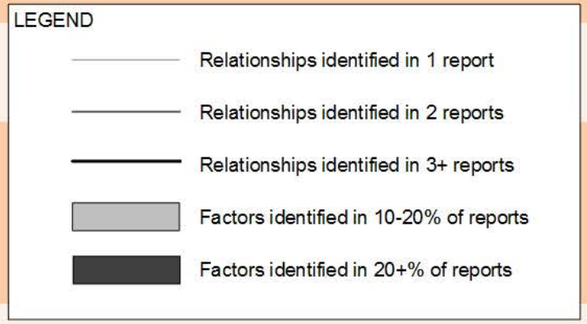
SUPERVISORY AND MANAGEMENT DECISIONS AND ACTIONS

DECISIONS AND ACTIONS OF LEADERS, PARTICIPANTS AND OTHER ACTORS AT THE SCENE OF THE INCIDENT

EQUIPMENT, ENVIRONMENT AND METEOROLOGICAL CONDITIONS

No factors or relationships were identified at these levels

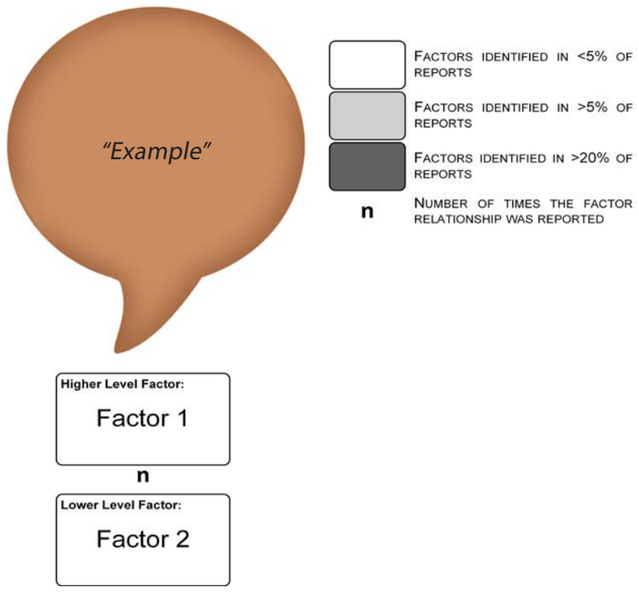




The most frequently reported factor relationships were between *Activity Participant Judgment & Decision Making* and *Activity Equipment, Clothing & PPE,* and *Activity Leader Communication* and *Activity Participant* factors.

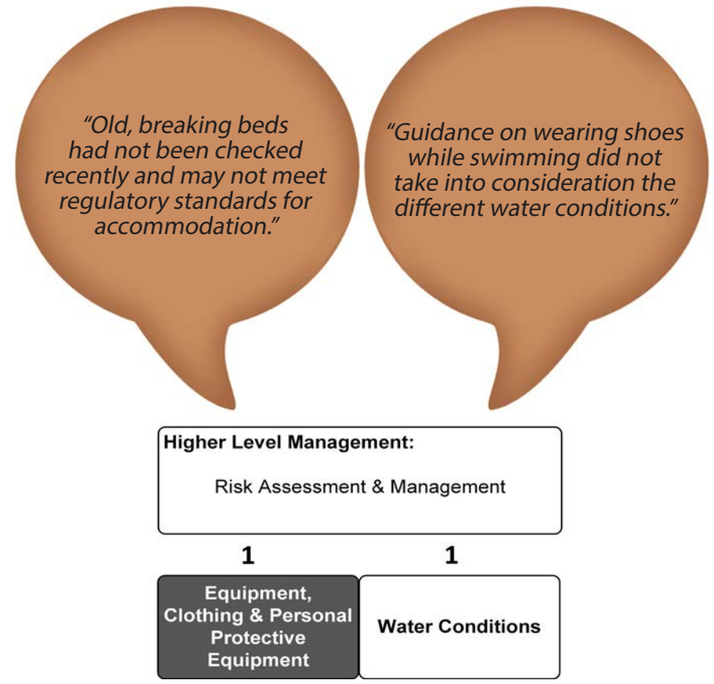
23 RELATIONSHIPS WERE IDENTIFIED BETWEEN NEAR MISS-RELATED CONTRIBUTING FACTORS

In the following figures, the most frequently identified relationships are presented. Relationships that were most frequently identified by reporters are highlighted in red text.



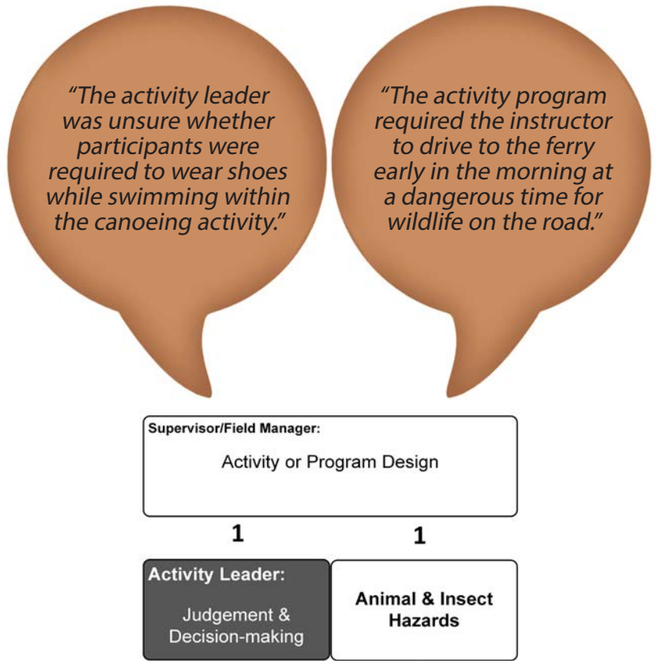
LOCAL AREA GOVERNMENT, SCHOOLS, PARENTS & CARERS, AND HIGHER LEVEL MANAGEMENT

Risk Assessment and Management was identified in two reports as a contributing factor. Two (2) relationships were identified between this factor and lower levels of the system.



SUPERVISORY AND MANAGEMENT DECISIONS AND ACTIONS

Contributing factors at the *Supervisory & Management Decision* level were identified in 2 incident reports. Two (2) relationships were identified between these factors and lower levels of the UPLOADS framework.

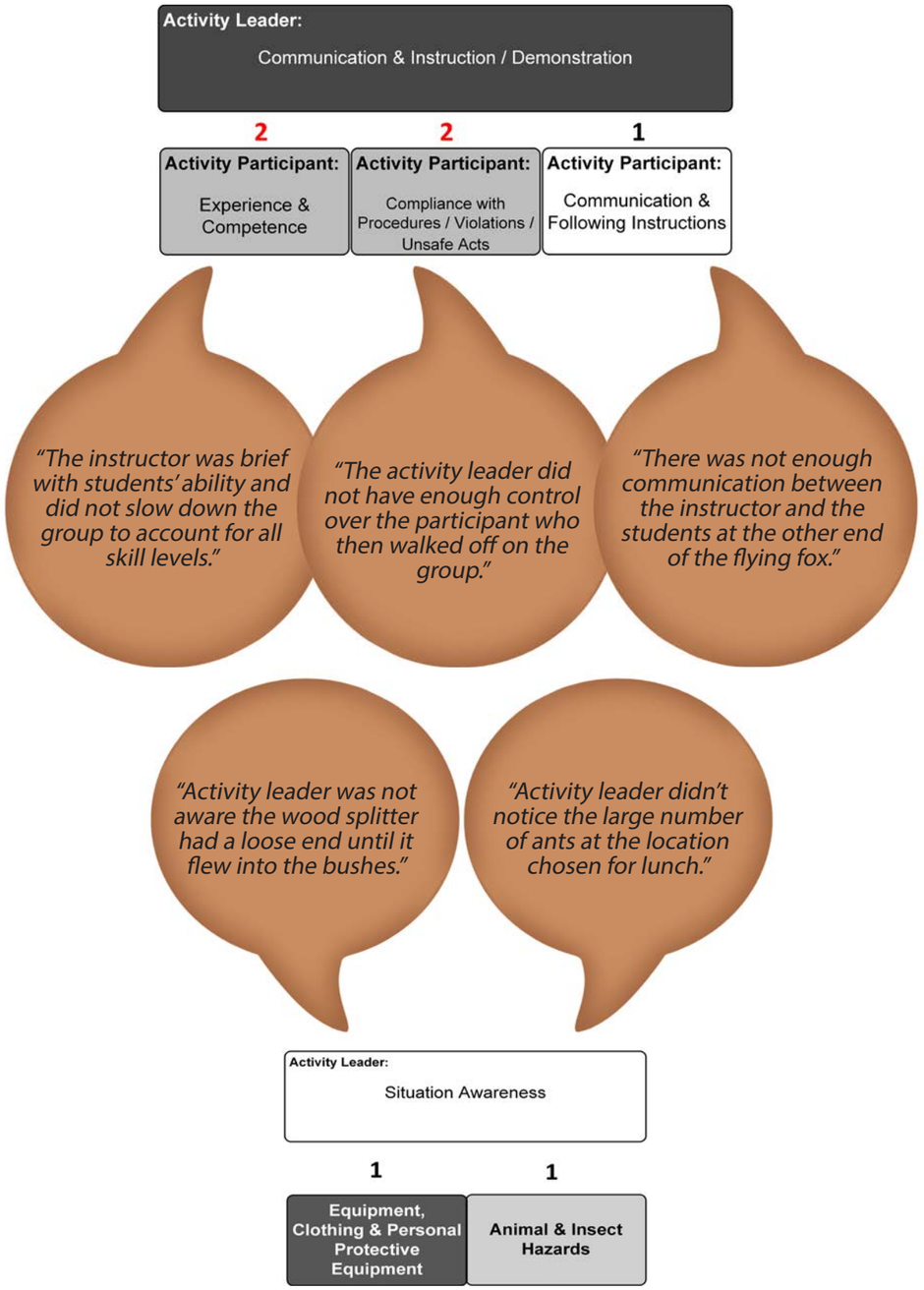


ACTIVITY GROUP FACTORS

In 2 reports, contributing factors at the *Activity Group Factor* level of the system were identified. One relationship was identified between *Activity Group Composition* and *Participant Mental & Physical Condition.*

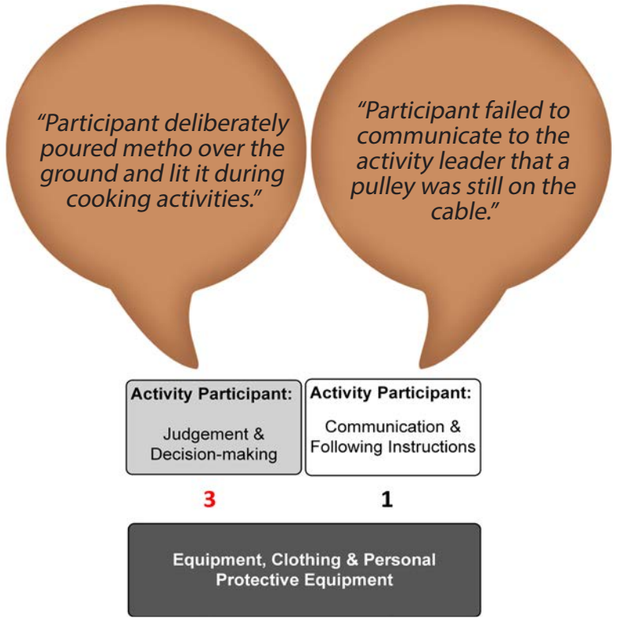
ACTIVITY LEADERS

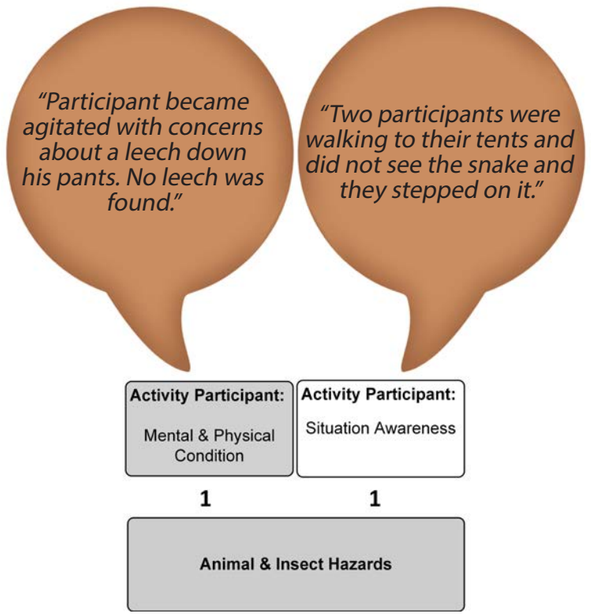
Eleven (11) incident reports identified contributing factors from the *Activity Leader* level of the UPLOADS framework. Eight (8) relationships were identified between these factors and lower level factors.



ACTIVITY PARTICIPANTS

Twenty-one (21) reports identified contributing factors at the *Activity Participant* level of the framework. Between these factors and lower level factors, there were 6 factor relationships identified.





Learning with UPLOADS

There are a number of important lessons pertaining to incident causation in Australian LOAs that can be drawn from the analysis of the UPLOADS National Incident Dataset.

INCIDENCE RATES

The incidence rate for injuries, illnesses and near misses is considered very low (2.2, 0.9, and 1.1 per 1000 participants respectively). 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. These incidence rates have also remained relatively stable over the three years in which UPLOADS has been in operation.

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 (Clacy et al., 2016; van Mulken et al., 2015).

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).

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.

The most frequently identified contributing factors were *Activity Participant Mental & Physical Condition*, *Activity Participant Situation Awareness, Activity 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 organisations risk assessment and management processes, communications between schools, parents and activity providers, and activity or program design.

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 their *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*.

Examining these 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 instructors, participants, equipment and the activity environment in isolation.

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 contributingorganisations 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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