THE UPLOADS NATIONAL INCIDENT DATASET

THE FIRST SIX MONTHS: 1ST JUNE TO 30TH NOVEMBER 2014

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EXECUTIVE SUMMARY

Aim

The aim of this report is to present a detailed overview of all the data contributed to the UPLOADS National Incident Dataset, to provide a holistic understanding of the incidents that occur during led outdoor activities in Australia. In addition, feedback will be sought from the sector on the presentation of the findings, to inform the on-going reporting of the National Incident Dataset.

Method

Organisations collected incident and participation data using the UPLOADS Software Tool and UPLOADS Lite for six months (June to November 2014). De-identified data were submitted to the research team on a three monthly basis. The data was merged and the qualitative data, describing the contributory factors involved in the incidents from each report, was coded using the UPLOADS Accident Analysis Method.

Result highlights

Twenty-five organisations from across Australia contributed data to the UPLOADS National Incident Dataset. These organisations were operating in the following states and territories: ACT (n = 1); NT (n = 1); New South Wales (n = 7); Queensland (n = 5), Victoria (n = 10); South Australia (n = 5); Tasmania (n =1); and Western Australia (n = 3).

Data collected

In total, 799 incidents were reported over the six month period. Of the reports involving adverse outcomes: 520 reported injuries; 196 reported illnesses; 20 reported social or psychological outcomes; 10 reported equipment damage; 1 reported a missing or overdue person; and 1 reported environmental damage (each report could be associated with more than one adverse outcome). In addition, there were 64 reports of near miss incidents.

Injury data

Across all activities, the mean injury-causing incident rate over the six month period was 3 per 1000 participants. This means that 3 injury-causing incidents were reported for every thousand participants involved in a led outdoor activity. The median severity was 1 (range 1 to 3) indicating that the majority of injuries required only localised care with short term effects.

Walking/running in the outdoors had the highest injury rate (12 incidents per 1000 participants) followed by campcraft (e.g. cooking, campfires, 10 incidents per 1000 participants) and snowsports (10 incidents per 1000 participants). Just under half of all activities had an injury rate of less than 1 per 1000 participants.

The majority of injured people were Activity Participants (n = 414), female (n = 344), with a median age of 15 years.

Less than half of the reported injuries had sufficient associated information to support further analysis with the UPLOADS Accident Analysis Method (n = 219). On average, two contributing factors were identified per injury-causing incident report.

Contributory factors were found at four lower levels of the UPLOADS Accident Analysis Framework (1. Equipment, environment and meteorological conditions, 2. Decisions and actions of leaders, participants and other actors at the scene, 3. Supervisory and management decisions and actions, and 4. Local area government, schools and parents, activity centre management, planning and budgeting). The most frequently identified contributory factors were: infrastructure and terrain; Activity Participant experience and competence; and Activity Participant mental and physical condition.

Illness data

Across all activities, the mean reported illness rate was 1.5 incidents per 1000 participants. This means that less than 2 incidents associated with an illness was reported for every thousand participants involved in a led outdoor activity. The median severity was 1 (range 0 to 3) indicating that the majority of illnesses required only localised care with short term effects.

Camping in tents had the highest illness rate (17 incidents per 1000 participants), followed by campcraft (e.g. cooking, campfires, 6 incidents per 1000 participants) and free time in the out-doors (2 incidents per 1000 participants). Just under half of all activities were not associated with any illnesses.

The majority of ill people were Activity Participants (n = 160), female (n = 143), with a me-dian age of 15 years.

Less than half of reported illnesses had sufficient associated information to be analysed (n = 63). On average, there were 2 contributing factors per illness incident report. Factors at the lower four levels of the UPLOADS Accident Analysis Framework were identified. The most frequently iden-tified factors were Activity Participant mental and physical condition, weather conditions and Activ-ity Participant experience and competence.

Near miss data

The overall number of reported near misses was very low in comparison to the reported in-juries. Across all activities, the mean near miss rate was 1.2 incidents per 1000 participants. This means that less than 2 near misses reportedly occurred for every thousand participants involved in a led outdoor activity. The median actual severity rating was 2 (range 0 to 6) indicating they had the potential to result in an outcome requiring ongoing care with short term effects.

Almost all near misses had sufficient information to be coded (n = 60). On average, 3 con-tributing factors were identified per report. Factors across the lower five levels of the UPLOADS Acci-dent Analysis Framework were identified. The most frequently identified factors were equipment, clothing and personal protective equipment, Activity Participant mental and physical condition, and Activity Participant communication and following instructions.

Conclusion

This report provides a watershed moment for the led outdoor activity sector in Australia, presenting the findings from an analysis of the first six months use of UPLOADS. It is concluded that UPLOADS provides the sector with a usable system to report and analyse participation and incidents,

and in turn that is possible for organisations to report usable data. Whilst there is work to do in order to enhance uptake of the system and indeed the quality of the data reported, it is clear that UPLOADS will be an important tool in the sectors' delivery of safe led outdoor activities. It is intended that the continued analysis and dissemination of the UPLOADS National Incident Dataset will contribute to Australian efforts to reduce incidents during led outdoor activities.

The UPLOADS Research Team

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Funders and Partner Organisations

CONTENTS

Introduction

For the past three years, the authors have been engaged in a major program of research that aims to tackle issues around injury causation and incident reporting data in the led outdoor activity sector in Australia. Known as UPLOADS, one of the major goals is to develop an incident reporting system that allows led outdoor activity providers in Australia to contribute incident data to a National Incident Dataset. The project is supported by an Australian Research Council Linkage grant and a range of stakeholders from the outdoor sector (see Funders and Partner Organisations section).

The project has involved the following stages: 1) development of an accident analysis method for analysing led outdoor activity incidents (Goode, Salmon, Lenne, & Finch, 2014; Salmon, Cornelissen, & Trotter, 2012; Salmon, Goode, Lenné, Finch, & Cassell, 2014; Salmon, Williamson, Lenne, Mitsopoulos-Rubens, & Rudin-Brown, 2010); 2) development of a prototype incident reporting system (Goode, Finch, Cassell, Lenne, & Salmon, 2014); 3) trial of the prototype incident reporting system; 4) reliability, validity and usability testing and refinement of the prototype (Grant et al., 2015; Taylor, Goode, Salmon, Lenne, & Finch, 2015; Taylor, Goode, Salmon., Lenne., & Finch., 2015); and 5) implementation of the final UPLOADS system in organisations across Australia from the 1st June 2014.

The accident analysis method was developed to ensure that contributing factors, and the relationships between them, are reliably identified from the qualitative data collected through the National Incident Dataset. The method is underpinned by a systems-theory model of accident causation (Rasmussen, 1997), and consists of taxonomy for coding the qualitative descriptions of incidents and a framework for representing the system of factors identified (see Fig. 1). This approach ensures that all epidemiological data reporting the rate and type of incidents is accompanied by detailed analyses of the contributing factors involved.

This reports presents an analysis of the first six months of data collected via UPLOADS (1st June – 30th November 2014). The aim is to present a detailed overview of all the data collected, to provide a holistic understanding of the incidents that occur during led outdoor activities in Australia.

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In addition, feedback will be sought from the sector on the presentation of the findings, to inform the ongoing reporting of the National Incident Dataset.

Method

Design

Self-nominated personnel from participating organisations used the incident reporting system to collect data for six months (June to December 2014). The University of the Sunshine Coast Human Ethics Committee approved the study.

Recruitment

Organisations were invited to participate via peak body and professional membership association newsletters. Interested organisations were asked to invite a senior staff member in a safety-related role to participate in the study. This person, thereafter referred to as the 'system administrator', was responsible for undertaking training in the system (described below), collecting and entering all data, and providing training to other staff within their organisations on reporting incidents. Thirty-five organisations had signed up to participate for the 1st June – 30th November period.

Data collection

Two incident reporting and learning systems were developed to meet the needs of the diverse Australian outdoor education and recreation sector: the UPLOADS Software tool and UPLOADS Lite. The mandatory information captured by both systems is the same.

The UPLOADS Software Tool allows organisations to: 1) systematically track their incident and participation data; 2) analyse their own incidents using a systems analysis framework; 3) generate automatic reports on the data they collect; and 4) contribute de-identified data (i.e. names removed) to the National Incident Dataset. The software tool is installed on a computer within the organisation and the data is not directly accessible by the research team.

UPLOADS Lite was designed for organisations who only want to contribute data to the National Incident Dataset. An online survey tool allows organisations to contribute completely anonymous incident reports. Organisations are also able to save the data they enter for their own records. Participation data is submitted at three monthly intervals using a spreadsheet.

Incident data

Organisations were instructed to record both near misses and incidents associated with adverse outcomes. Definitions of incident, adverse outcomes, and near miss are presented in Table 1.

Table 1: Definitions provided for incident, adverse outcome and near miss

Term	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 because of chance or because it is intercepted. 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.

Incidents are rated in terms of their actual severity (e.g. the actual outcome of the event) and potential severity (e.g. the worst possible outcome, given the scenario), using the incident severity scale as shown in Table 2. So the data contained in the National Incident Dataset is not biased towards more serious events, organisations were instructed to report any:

- Adverse Outcome with an Actual Severity of 1 or greater; and
- Near Miss with a Potential Severity of 2 or greater.

Table 2: Incident Severity Scale

	Severity Rating	Definition for Actual Severity Ratings	Definition for Potential Severity Ratings
0	No impact	Requires no treatment.	An incident where the potential outcome has a negligible consequence.
1	Minor	Requires localised care (non-evacuation) with short term effects.	An incident where the potential outcome to risks has a low consequence.
2	Moderate	Requires ongoing care (localised or external, i.e. evacuation or not) with short to medium term effects.	An incident where the potential outcome to risks can cause moderate injuries or illnesses.
3	Serious	Requires timely external care (evacuation) with medium to long term effects.	An incident where the potential outcome to risks encountered is such that it may cause major irreversible damage or threaten life.
4	Severe	Requires urgent emergency assistance with long term effects.	An incident where the potential outcome to risks encountered is certain death.
5	Critical	Requires urgent emergency assistance with serious ongoing long term effects.	NA
6	Unsurvivable	Fatality.	NA

The UPLOADS software tool captures the incident-related information described in Table 3.

Table 3: Information captured concerning incidents by UPLOADS

1. Incident characteristics
Was the reporter present at the incident?
Date/Time
State/Territory
Type of incident (adverse outcome/near miss)
Actual severity rating
Potential severity rating
Activity associated with the incident
Number of people involved in activity (participants, activity leaders, supervisors, volunteers)
Did the activity leader have relevant qualifications?
2. Adverse outcomes (if applicable)
2.1. Outcomes involving injuries, illnesses or social/psychological damage
Person affected
Experience in activity associated with the incident
Was the incident fatal?
Injury type
Injury location
Illness
Social/psychological impacts
Treatment at the scene of the incident
Evacuation method
Was emergency services called?
2.2 Outcomes involving missing or overdue people
Were clients or staff missing or overdue?
Were Emergency Services contacted/engaged in search?
2.3 Outcomes involving equipment loss/damage
Was equipment lost/damaged?
2.4 Outcomes involving environmental damage
Was there environmental damage?
3. Description
Describe the incident in detail, include: who was involved, what happened, when it happened, where it happened and any equipment involved.
Describe any relevant events leading up to incident
4. Contributing factors and relationships
Reporter: explain in detail what you think caused the incident, including any relationships between causes, include suggestions, comments and recommendations.
Manager: explain in detail what you think caused the incident, including any relationships between causes, include suggestions, comments and recommendations.

Participation data

Organisations recorded the total number of participants and participation days for each activity conducted during a calendar month. A participation day was defined as a day on which a participant was exposed to the activity (Dickson, 2012).

Data analysis

The de-identified incident data from all organisations was merged into a central database. The actual severity scores for all adverse outcomes were verified against the incident description, and re-coded as required. Descriptive analyses were performed to calculate frequencies for each variable.

Two researchers from the University of the Sunshine Coast used the UPLOADS accident analysis method to code the qualitative data provided in each report. This involved identifying contributing factors and relationships from each report, and using the taxonomy in Figure 1 to classify them. Each researcher checked the other's coding and the few disagreements were resolved through discussion. Frequency counts of the number of incidents associated with each factor and relationship were then calculated. The factors and relationships were then represented on the framework for injuries, illnesses and near misses incident reports.

Participation data was merged into a single excel file. It included details on 76 different activities. Activities were grouped into 20 categories. For example, the category "walking/running outdoors" included bushwalking, orienteering and adventure races. The category "river activities" included canoeing, rafting and kayaking (see Appendix A for a full list of activities). In this report, the total number of participants was summed for each activity to provide a denominator for incident rate calculations. Participation days were not included in the analysis, as the initial check of the data revealed that some values were outside the range of possible values (e.g. indicating that data had been entered incorrectly). Incident rates were calculated per 1000 participants ((number of incidents/number of participants) x 1000)) for each activity. The rate was then averaged across all activities to provide an estimate of the overall rate.

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Government departments

State and Federal Government
- Communication
- Funding and budgets
- Infrastructure and land management
- Policies and legislation
- Other

Regulatory bodies and associations

Regulatory bodies and Associations
- Accreditation/licensing
- Auditing
- Communication
- Curriculum of outdoor education/recreation qualifications
- Funding and budgets
- Interactions with government
- Standards and code of practice
- Other

Activity centre management planning and budgeting, local area government, parents and schools

Higher-level Management
- Communication
- Financial constraints
- Judgement and decision-making
- Organisational culture
- Policies and procedures for activities and emergencies
- Risk assessment and management
- Staffing and recruitment
- Supervision of staff (e.g. Activity Leaders, Field Managers)
- Supervision/oversight of activities and programs
- Training and evaluation of staff (e.g. Activity Leaders, Field Managers)
- Other

Local Area Government
- Auditing
- Communication
- Funding and budgets
- Legal responsibility for safety within the council area
- Policies and procedures
- Other

Schools
- Communication
- Dropping off/picking up participants
- Judgement and decision-making
- Legal responsibility for safety of staff and students
- Planning and preparation for activity/trip
- Policies and procedures
- Teacher/student ratio
- Other

Parents/carers
- Communication
- Dropping off/picking up participants
- Judgement and decision-making
- Legal responsibility for safety of child
- Planning and preparation for activity/trip
- Other

Supervisory and management decisions and actions

Supervisors/Field Manager
- Activity or Program design
- Communication
- Compliance with procedures, violations & unsafe acts
- Experience, qualifications, competence
- Judgement and decision-making
- Mental and physical condition
- Planning & preparation for activity
- Supervision of activity leaders and other staff
- Supervision/oversight of programs/activities
- Other

Decisions and actions of leaders, participants and other actors at the scene of the incident

Activity Leader
- Communication, instruction & demonstration
- Compliance with procedures, violations & unsafe acts
- Experience, qualifications, competence
- Judgement and decision-making
- Mental and physical condition
- Planning & preparation for activity/trip
- Situation awareness
- Supervision/leadership of activity
- Other

Activity Participant
- Communication & following instructions
- Compliance with procedures, violations & unsafe acts
- Experience & competence
- Judgement and decision-making
- Mental and physical condition
- Planning & preparation for activity/trip
- Situation awareness
- Other

Other People in Activity Group (not actively participating)
- Communication & following instructions
- Compliance with procedures, violations & unsafe acts
- Experience, qualifications, competence
- Judgement and decision-making
- Mental and physical condition
- Planning & preparation for activity/trip
- Situation awareness
- Supervision of activity
- Other

Activity Group Factors
- Communication within group
- Group composition
- Group dynamics
- Group size
- Late arrival of group
- Teamwork
- Time pressure
- Other

Other People in Activity Environment (not in Activity Group)
- Communication
- Compliance with procedures, violations & unsafe acts
- Experience, qualifications, competence
- Judgement and decision-making
- Mental and physical condition
- Planning & preparation
- Situation awareness
- Other

Equipment, environment and meteorological conditions

Activity Equipment and Resources
- Documentation
- Equipment, clothing and Personal Protective Equipment
- Food & drink
- Medication (for those involved in the activity)
- Other

Activity Environment
- Animal & insect hazards
- Infrastructure & terrain
- Trees and vegetation
- Water conditions
- Weather conditions
- Other

Figure 1: UPLOADS Accident Analysis Method, with framework and taxonomy, which was used to code the qualitative data provided in each incident report

Results

Level of participation in the trial

In total, 25 out of 30 organisations who signed up to participate contributed data during the six month period (25 in the first quarter and 23 in the second). The remaining 10 organisations did not respond to reminders to send their data. This represents a response rate of 71% and 66%, respectively, across the first and second quarter.

Sample of organisations contributing data

Twenty-five organisations from across Australia contributed data. These organisations were operating in the following states and territories: ACT (n = 1); NT (n = 1); New South Wales (n = 7); Queensland (n = 5); Victoria (n = 10); South Australia (n = 5); Tasmania (n =1); and Western Australia (n = 3). Four organisations identified as schools, and 7 organisations identified as registered training organisations (e.g. TAFE, University). Nine organisations identified as not-for-profits, and 10 identified as commercial enterprises.

Figure 2 and Figure 3 show the relative size of the organisations involved in the trial. As Figure 2 shows, there was a large spread of organisations were represented in terms of the number of operating sites, ranging from organisations that operated from a single site (n = 9), through to organisations that operated from more than 10 sites (n = 6). Figure 3 should be interpreted with caution, as there were many missing responses to the questions relating to the number of full time, part time, contracted, casual and volunteer staff. This is likely because respondents were instructed not to respond if they were uncertain. However, the responses illustrate there were at least 7 organisations with less than 5 full time staff, and at least 2 with more than 100 staff.
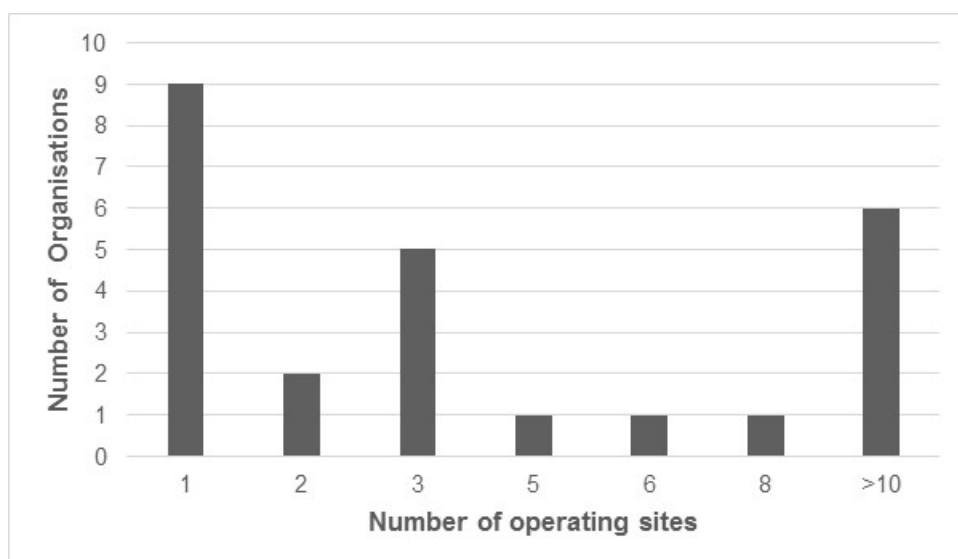
Figure 2: Size of organisations contributing data: number of operating sites
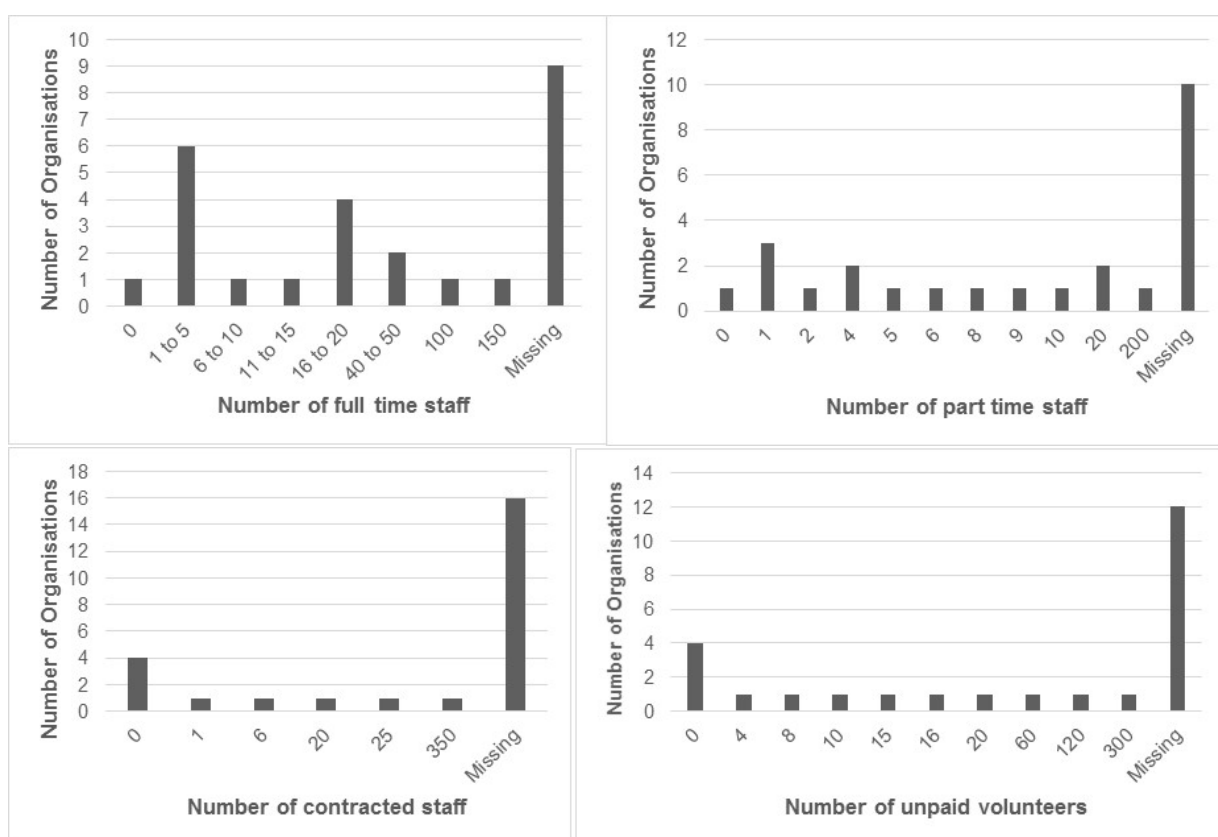
Figure 3: Size of organisations contributing data: number of full time, part time, contracted and unpaid volunteers in each organisation who contributed data during the six month trial. System administrators were asked not to respond if they were uncertain.

System administrators demographics

The majority of system administrators were male (19 male, 6 female), with a median of 16 years' experience in the outdoor sector (range 4 to 28 years). All but one held a management role within their organisation, and 21 led activities as part of their current role.

Overview of data collected

In total, 799 incidents were reported over the six month period. The number of reports associated with each type of incident outcome (e.g. near miss, injury, illness etc.) is presented in Figure 2.

Due to the low number of reports, incidents associated with social or psychological outcomes (n = 20), equipment damage (n = 10), missing or overdue people (n = 1) and environmental damage (n = 1) were excluded from further analysis.
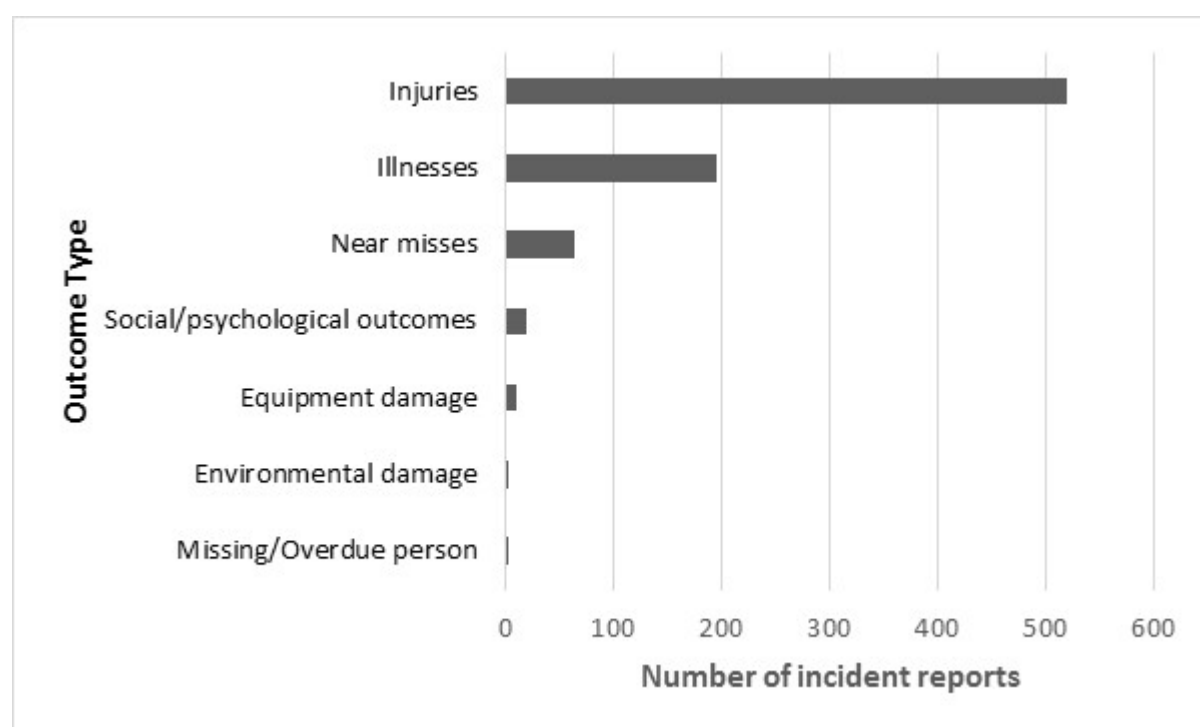
Figure 4: Number of reports associated with each type of incident outcome

Overview of injury-causing incidents

In total, 520 injury-causing incidents were reported over the six month period. Across all activities, the average reported injury rate was 3 per 1000 participants. This means that approximately

3 injury-causing incidents were reported for every thousand participants involved in a led outdoor activity. Figure 3 presents a summary of the injury-causing incident rate per 1000 participants by activity type. Injury-causing incidents not related to an activity or program are excluded from the figure below (n = 22). Walking/running in the outdoors had the highest injury-causing incident rate (12 incidents per 1000 participants) followed by campcraft (e.g. cooking, campfires, 10 incidents per 1000 participants) and snowsports (10 incidents per 1000 participants). Notably, just under half of all activities recorded had an injury-causing incident rate of less than 1 per 1000 participants.
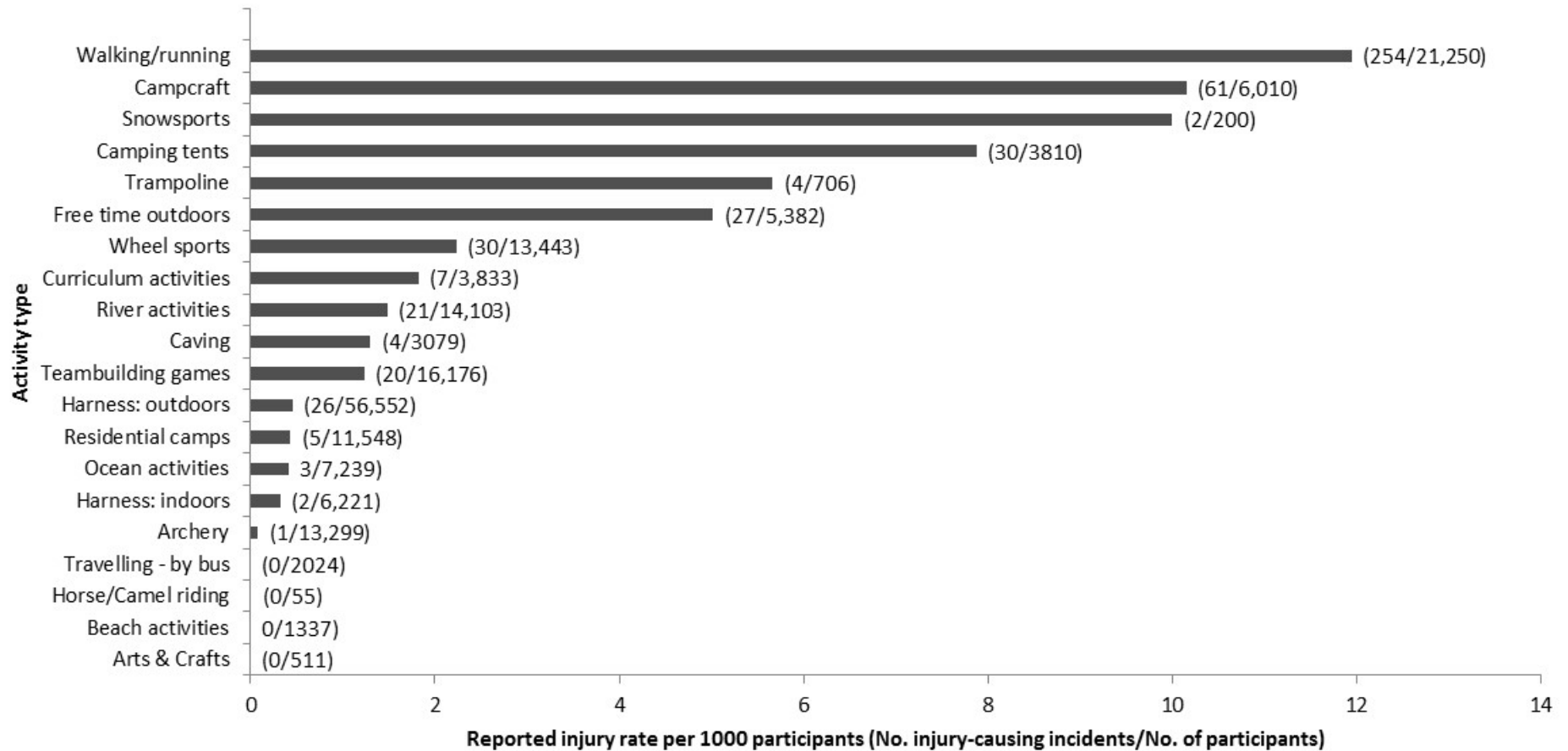
Figure 5: Injury-causing incident rate per 1000 participants by activity type. Numbers in brackets represent the number of reported injury-causing incidents and the number of reported participants associated with the activity, respectively.

Actual severity ratings for injury-causing incidents

Figure 6 shows a histogram of actual severity scores for injury-causing incidents. The median severity was 1 (range 1 to 3) indicating that the majority of injuries required only localised care with short term effects.
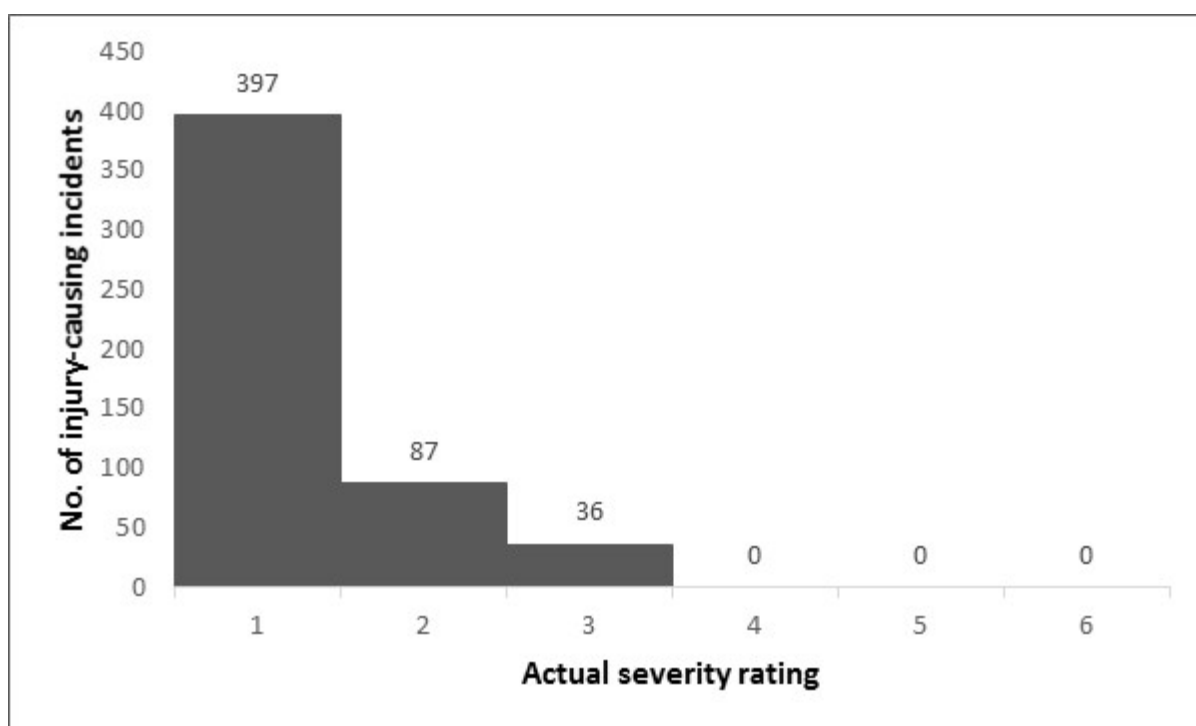
Figure 6: Actual severity ratings for injury-causing incidents

These ratings are supported by the findings regarding evacuation, hospitalisation and emergency services. Only 57 injury-causing incidents were reported as requiring evacuation (Walked out = 23; Vehicle = 29; Stretcher = 3; Boat = 1; Helicopter = 1), 19 required hospitalisation, and 8 required Emergency Services.

Injury type and location

Figure 7 shows the type of injuries sustained according to body location and number of people injured. In addition to those shown on the diagram, 2 people sustained injuries to multiple body regions and 15 people sustained injuries to unspecified body regions.

Head (n = 43)
- Other and unspecified (16)
- Burns and corrosions (2)
- Effects of foreign body entering through natural orifice (3)
- Injury to muscle, fascia and tendon (2)
- Open wound (3)
- Superficial injury e.g. abrasion, blister, insect bite (17)

Shoulder and upper arm (n = 12)
- Dislocation, sprain and strain (10)
- Injury to muscle, fascia and tendon (1)
- Superficial injury e.g. abrasion, blister, insect bite (1)

Neck (n = 1)
- Superficial injury e.g. abrasion, blister, insect bite (1)

Chest/Thorax (n = 1)
- Dislocation, sprain and strain (1)

Elbow and forearm (n = 14)
- Superficial e.g. abrasion, blister, insect bite (7)
- Dislocations, sprains and strains (4)
- Fracture (2)
- Open wound (2)
- Burns and corrosions (1)

Abdomen, lower back, lumbar spine and pelvis (n = 25)
- Superficial e.g. abrasion, blister, insect bite (11)
- Dislocation, sprain and strain (7)
- Injury to muscle, fascia and tendon (2)
- Injury to nerves or spinal cord (2)
- Other and unspecified (2)

Wrist and hand (n = 91)
- Burns and corrosions (12)
- Crushing (1)
- Dislocations, sprains and strains (5)
- Fractures (1)
- Injury to muscle, fascia and tendon (1)
- Open wound (3)
- Other and unspecified (1)
- Superficial injury e.g. abrasion, blister, insect bite (67)

Hip and thigh (n = 23)
- Burns and corrosions (2)
- Dislocation, sprain and strain (1)
- Open wound (1)
- Superficial injury e.g. abrasion, blister, insect bite (19)

Knee and lower leg (n = 74)
- Burns and corrosions (10)
- Dislocation, sprain and strain (8)
- Injury to muscle, fascia and tendon (6)
- Injury to nerves or spinal cord (1)
- Open wound (4)
- Superficial injury e.g. abrasion, blister, insect bite (41)
- Other and unspecified (4)

Ankle and foot (n = 198)
- Superficial e.g. abrasion, blister, insect bite (140)
- Dislocations, sprains and strains (46)
- Fracture (3)
- Crushing (2)
- Injury to muscle, fascia and tendon (2)
- Open wound (2)
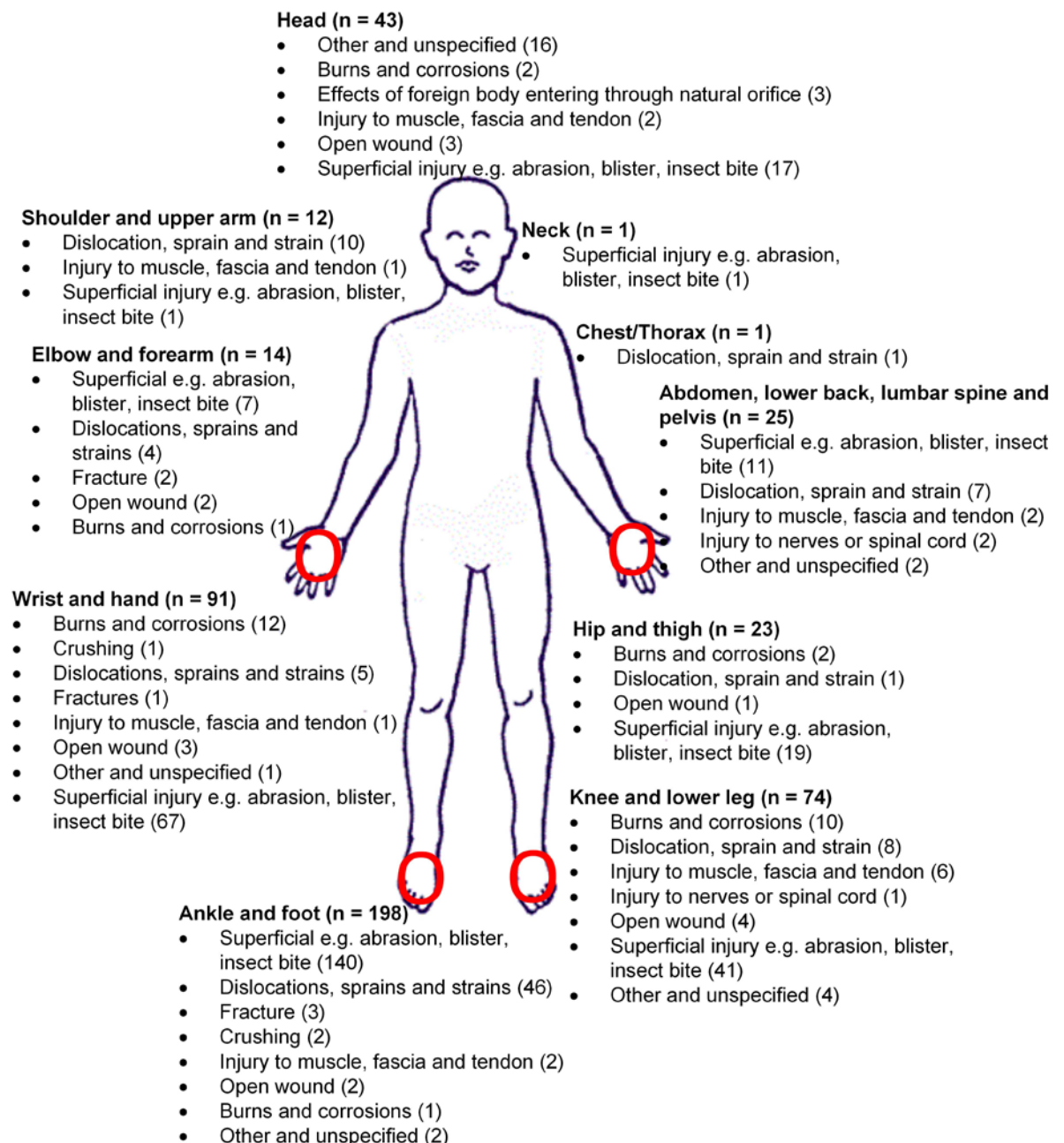- Burns and corrosions (1)
- Other and unspecified (2)

Figure 7: Type of injuries sustained according to body location. Most frequently injured locations are highlighted by a red circle.

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Demographic information for injured people

The reports included details on 505 injured people (there were missing details on the person injured for 15 reports); Figure 8 shows the number of people injured by role.
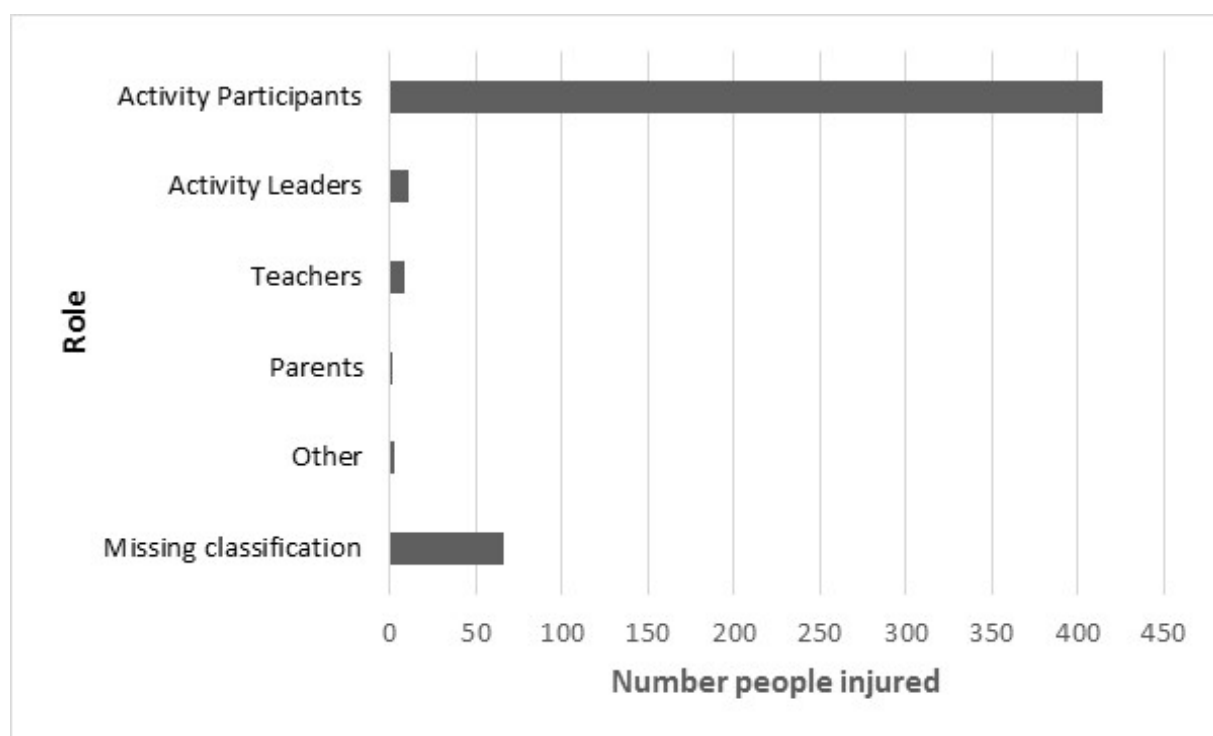

Figure 8: Number of people injured by role

The majority of injured Activity Participants were female (344 female, 70 male), with a median age of 15 years (range 1 to 81; 1 missing classification) and the majority had some prior experience in the activity (n = 295; extensive prior experience = 1; no prior experience = 38; unknown = 79).

The other roles were evenly split in terms of gender (female = 14, male = 11) with a median age of 27 (range 20 to 67; 1 missing classification), with a range of prior experience in the activity (extensive = 11; some = 8; none = 1; unknown = 4; missing = 1).

Weather for injury-causing incidents

Weather at the time of the incident was rated on a 4-point scale across three dimensions (Rain, Temperature and Wind). The majority of injury-causing incidents occurred when it was fine

("1" = 417, "2" = 45, "3" = 32, "4" = 9, missing = 17), reasonably warm ("1" = 11, "2" = 364, "3" = 98, "4" = 6, missing = 41), and calm ("1" = 352, "2" = 103, "3" = 13, "4" = 3, missing = 49).

Goals for injury-causing incidents

The majority of injury-causing incidents were missing details regarding the goals associated with the activity (n = 440 missing classification). No further analysis was undertaken.

Profile of activity group for injury-causing incidents

The median number of participants involved in activities associated with the injury-causing incidents was 17 (range 1 to 145, n = 504 incidents), the median number of Activity Leaders was 2 (range 1 to 5, n = 444 incidents), Supervisors (e.g. teachers) was 1 (range 1 to 12, n = 403 incidents) and volunteers (e.g. parents) was 1 (range 1 to 4, n = 22 incidents).

In 87% of incidents, the Activity Leader was reported to have relevant qualifications (n = 453). In 1.7% of incidents, the Activity Leader was reported to not have had relevant qualifications (n = 9). In 10% of incidents qualifications were reported to be "not applicable" (n = 52) and 1.2% were missing classification (n = 6). Figure 9 shows the number of injury-causing incidents by actual severity ratings, partitioned according to leader qualifications. There is no clear relationship between the severity ratings and the presence or absence of leader qualifications. However, the cases where leader qualifications were reported to be "not applicable" are potentially cause for concern, as this accounted for a disproportionate number of incidents rated as "3" within the sample (n = 14). The majority of the incidents where leader qualifications were reported to be "not applicable" involved free time outdoors (n = 15), followed by team building games (n = 9), incidents not involving an activity or program (n = 5) and walking/running in the outdoors (n = 5). It is unclear why some of these activities were deemed not to require a leader with appropriate qualifications.
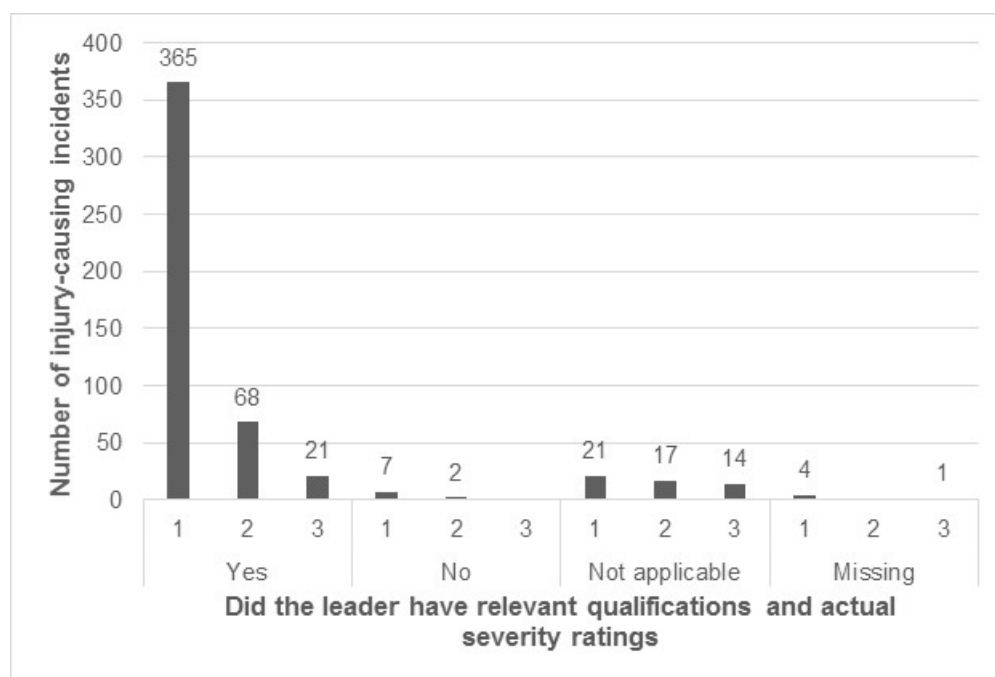
Figure 9: The number of injury-causing incidents by actual severity rating, partitioned according to responses to the question "Did the leader have relevant qualifications"

Contributing factors for injury-causing incidents

In total, 219 injury-causing incidents had sufficient detail in the associated reports that could be coded using the UPLOADS Accident Analysis Framework. On average, 2 contributing factors were identified in the reports for these injury-causing incidents. Factors at the lower four levels of the UPLOADS Accident Analysis Framework were identified (1. Equipment, environment and meteoro-logical conditions, 2. Decisions and actions of leaders, participants and other actors at the scene, 3. Supervisory and management decisions and actions, and 4. Local area government, schools and par-ents, Activity centre management, planning and budgeting).

A summary of the contributory factors and relationships identified is presented in Figure 10. Within Figure 10 the boxes represent contributory factors and include a frequency count (i.e. the number of times they were identified in the 219 incident reports) and a percentage of all incidents value (i.e. the proportion of incidents that they were identified as a contributory factor in). The boxes shaded grey represent contributory factors that were identified in more than one report. The

lines linking the boxes represent a relationship between the contributory factors identified in the incident reports along with the frequency with which the relationship was identified and the percentage of the 219 incidents in which it was identified. The bold lines represent relationships that were identified in one or more report.

The intention is to enable the reader to follow causal pathways through the diagram, allowing an understanding of the networks of contributory factors underpinning led outdoor activity incidents. However, the Accimap can be read either top down or bottom up or alternatively specific contributory factors of interest can be identified and related factors traced through the diagram. For example, starting from the top it is possible to identify 'Higher level management: training and evaluation of staff' as a contributory factor that was involved in 3 incidents (or 1.4% of the coded incidents).

Following the relationships, one can then identify that a relationship was identified with 'Activity leader: Compliance with procedures, violations & unsafe acts' in 1 incident (or 0.5% of the coded incidents), and that 'Activity leader: Compliance with procedures, violations & unsafe acts' was identified as a contributory factor in 5 incidents (or 2.3% of the coded incidents). Alternatively, it is possible to identify a contributory factor of interest and then use the diagram to identify all of the contributory factors related to it. For example, 'Activity equipment and resources: clothing & personal protective equipment was identified as a contributory factor in 42 incidents (or 19.2% of the coded incidents). Following the lines from this contributory factor enables identification of the many related contributory factors, one of which in this case is 'Activity leader supervision & leadership of activity', which was identified as a related contributory factor in 2 incidents (or 0.9% of the coded incidents). In turn, it is then possible to explore what contributory factors were related to 'Activity leader supervision & leadership of activity' and so on.

Government department decisions and actions

No reports identified factors at this level that contributed to the injury-causing incidents reported.

Regulatory bodies and associations

No reports identified factors at this level which contributed to the injury-causing incidents reported.

Local area government, schools, parents, activity centre management planning and budgeting.

Ten reports identified factors at this level that contributed to the injury-causing incidents reported. Table 4 shows the contributing factors underpinning each category represented at this level of the Accimap.

Table 4: Contributing factors underpinning each category represented on the Accimap at the "Local area government, schools, parents, activity centre management planning and budgeting" level.

Category and contributing factors	N
Local Area Government: Legal responsibility for safety within the council area	
Trip hazards on camp ground	1
Parents & Carers: Communication	
Parents not providing information about pre-existing conditions on consent form	2
Higher Level Management: Supervision, oversight of activities and programs	
Inadequate supervision of activities for certain age groups	1
Higher Level Management: Supervision of staff	
Inadequate supervision of staff supervising children with special needs	1
Higher Level Management: Risk Assessment and management	
Inadequate risk assessment of activity equipment	1
Higher Level Management: Policies and procedures for activities and emergencies	
Inadequate policies/procedures for extreme temperatures	1
Higher Level Management: Training and evaluation of staff	
Inadequate training of activity leaders (assembling equipment, training participants)	3

A number of relationships were identified between management decisions and actions and the conduct of activities, which are show in Table 5.

Table 5: The influence of management decisions and actions on the conduct of the activity

Factor 1	Factor 2	Examples	N
Activity or Program design	*Equipment, clothing and Personal Protective Equipment*	Program design did not take into account impact of change in cooking equipment on participants	1
Risk assessment and management	*Equipment, clothing and Personal Protective Equipment*	Hazards associated with equipment not picked up in risk assessment	1

Supervisory and management decisions and actions

Eighteen reports identified factors at this level which contributed to injury-causing incidents.

Table 6 shows the contributing factors underpinning each theme in the reports as represented in

each level on the Accimap.

Table 6: Contributing factors underpinning each category represented on the Accimap at the "Supervisory and management decisions and actions" level.

Category and contributing factors	N
Supervisors/Field Manager: Supervision of activity leaders and other staff	
Field Managers did not ensure activity leaders knew their duties	1
Field Manager rostered injured activity leader	1
Supervisors/Field Manager: Activity or Program Design	
Activity designed with inadequate knowledge of terrain	1
Activity inappropriate participant age	3
Activity inappropriate for participants level of experience	2
Activity inappropriate for wet weather	2
Activity inappropriate for time of day	5
Inadequate research of activity	1
The infrastructure was inappropriate for the design of the activity	2
Dangerous sequence of activities	1

Decisions and actions of leaders, participants, and other actors at the scene of the incident.

One hundred and seventy-nine reports identified factors at this level which contributed to

injury-causing incidents.

Activity Participants

Table 7 shows examples of the contributing factors underpinning the Activity Participant cat-

egories. A number of factors were also identified which impacted on the behaviour, decisions and

actions of the Activity Participants, which are show in Table 8.

Table 7: Contributing factors underpinning the "Activity Participant" categories

Contributing factor and examples	N
Activity Participant: Other	
Carelessness	7
Activity Participant: Situation Awareness	
Lack of understanding/incorrect use of equipment	2
Lack of pain when injured	1
Lack of awareness around cooking implements	1
Lack of awareness of surroundings	26
Lack of general awareness	5
Poor understanding of potential hazards (e.g. hot marshmallow)	4
Planning and Preparation for Activity/Trip	
Insufficient clothing for conditions (e.g. no shoes or new shoes)	8
Mental and Physical Condition	
Age	1
Inadequate swimming ability	1
Arrives with sickness (e.g. mental health, history of nose bleeds)	8
Physically challenging environment	2
Symptoms related to pre-existing conditions (e.g. knee injury, wrist injury)	24
Mentally challenging environment (e.g. loud environment)	1
Menstruation	1
Inadequate fitness level	5
Fatigue	6
Visual impairment	1
Activity Participant: Judgement & Decision Making	
Poor judgement (poor weather, choosing terrain, speed)	28
Equipment chosen not suitable	1
Poor fire management	2
Inadequate knowledge of injury care	2
Throwing objects	2
Not waiting turn	1
Navigated poorly due to unfamiliarity with location	1
Activity Participant: Experience & Competence	
Inexperienced student leaders	1
Activity exceeded ability	1
Inexperienced in activity (e.g. hiking, mountain biking, walking on terrain)	38
Travelling too fast for skill level	2
Bag was too heavy to lift without knowledge of correct method	1
Balance was lacking	1
Inexperience in lighting fires	1
Inexperience with equipment	2
Location was unfamiliar leading to poor navigation	2
Activity Participant: Compliance with Procedures, Violations & Unsafe Acts	
Playing with restricted equipment (e.g. fire hose)	2
Throwing/hitting debris (e.g. sticks)	2
Disembarking activity at the wrong exit as per procedures	1
Engaging in unsafe behaviour	2
Did not comply with generic policies	2
Equipment being used in an unsafe manner	2

Table 7: Contributing factors underpinning the "Activity Participant" categories (Continued)

Travelling too fast	1
PPE not being used (e.g. leather gloves, oven mitts)	3
Tackling	1
Activity Participant: Communication	
Poor communication about mental or physical condition with activity leaders	7
Did not lighten load as instructed	1
Not following instructions (e.g. throwing metal pegs, braked too hard)	18
Did not inform leaders of injury immediately	3
Not disembarking activity at the correct exit as instructed	1
Beginning activity at the wrong time (e.g. before instructed, without activity leaders)	2
Not communicating about progress of activity	1
Not sitting correctly	2
Failure to communicate (e.g. to group, staff)	2
Failure to understand	2
Failure to use equipment as instructed	3

Table 8: Factors impacting on the Activity Participant

Factor 1	Factor 2	Examples	N
Activity Participant: Planning & preparation	*Equipment, clothing and Personal Protective Equipment*	New shoes	2
		No shoes	1
		Sandy surface inappropriate for cooking on	1
		Damage equipment not detected before program	1
Activity Participant: Planning & preparation	*Trees and vegetation*	Did not bring clothes to protect them against shrubs/sticks	1
Activity Participant: Communication & following instructions	*Equipment, clothing and Personal Protective Equipment*	Participant refused to lighten pack load	1
Activity Participant: Communication & following instructions	*Infrastructure & terrain*	Participant not following instructions regarding appropriate speed for terrain	1
Activity Participant: Communication & following instructions	*Activity Participant: Compliance with procedures, violations & unsafe acts*	Participant not following instructions led to them not wearing required PPE	2
Activity Participant: Communication & following instructions	*Activity Participant: Judgement and decision-making*	Participant not listening to instructions and making poor decision	1
Activity Participant: Compliance with procedures, violations & unsafe acts	*Equipment, clothing and Personal Protective Equipment*	Misusing equipment	1

Table 8: Factors impacting on the Activity Participant (Continued)

Activity Participant: Experience & competence	*Equipment, clothing and Personal Protective Equipment*	Participant had not used matches before	1
		Participant had not used this type of can opener before	1
Activity Participant: Experience & competence	*Infrastructure & terrain*	Participant slipped due to lack of experience with terrain	4
Activity Participant: Experience & competence	*Water conditions*	Participant did not have experience with water conditions	1
Activity Participant: Experience & competence	*Weather conditions*	Participant unfamiliar with warm conditions	1
Activity Participant: Experience & competence	*Activity Participant: Judgement and decision-making*	Lack of experience led to poor decision	5
Activity Participant: Experience & competence	*Activity Participant: Planning & preparation for activity, trip*	Due to lack of experience, did not pack appropriate clothing	1
Activity Participant: Experience & competence	*Activity Participant: Situation awareness*	Due to lack of experience, did not perceive hazard	1
Activity Participant: Experience & competence	*Communication within group*	Due to lack of experience, had trouble working within the group	1
Activity Participant: Experience & competence	*Activity Participant: Mental and physical condition*	Lack of experience means not fit enough for activity	1
		Lack of experience compounded fatigue	1
Activity Participant: Judgement and decision-making	*Infrastructure & terrain*	Participant made a poor decision to run despite difficult terrain	1
Activity Participant: Judgement and decision-making	*Weather conditions*	Participant misjudged distance in the dark	1
Activity Participant: Mental and physical condition	*Activity Participant: Situation awareness*	Fatigue contributed to lack of perception of surroundings	1
Activity Participant: Situation awareness	*Infrastructure & terrain*	Lack of perception mean they did not notice change in terrain	6
Equipment, clothing and Personal Protective Equipment	*Activity Participant: Mental and physical condition*	The pack harness rubbed on participants' injury	1
Equipment, clothing and Personal Protective Equipment	*Activity Participant: Situation awareness*	Choice of colour for safety strap made it difficult to see	1
Weather conditions	*Activity Participant: Mental and physical condition*	Weather contributed to participants anxiety	1

Table 89: Factors impacting on the Activity Participant (Continued)

Infrastructure & terrain	*Activity Participant: Mental and physical condition*	Terrain exacerbated previous injuries	2
Group size	*Activity Participant: Communication & following instructions*	Group size made it difficult for participant to communicate their fatigue	1
Group size	*Activity Participant: Mental and physical condition*	Group size increased participants anxiety	1
Activity Leader: Supervision & leadership of activity	*Activity Participant: Communication & following instructions*	Lack of supervision led to participant not following instructions	1
Activity Leader: Supervision & leadership of activity	*Activity Participant: Compliance with procedures, violations & unsafe acts*	Lack of supervision led to participant violating procedures with equipment	5

Other actors at the scene of the incident

Table 9 shows the contributing factors underpinning the categories relating to all other actors at this level. A number of factors were also identified which impacted on the behaviour, decisions and actions of the Activity Leader, which are show in Table 10.

Table 9: Contributing factors underpinning the "Activity Leader", Other People in the Activity Group" and "Activity Group" categories

Category and contributing factors	N
Activity Leader: Supervision & Leadership of Activity	
Not providing enough supervision for participant with behavioural problems	1
Supervision/leadership/instructions of activity inadequate	13
Better time management of multiple tasks needed to ensure group management	1
Better supervision of equipment use	1
Participants were older, so they were not closely supervised	1
Activity Leader: Situational Awareness	
Activity was completed too quickly for conditions	1
Not aware of surroundings (e.g. not concentrating on the terrain)	3
Did not consider the risks/hazards of associated with the activity	1
Not aware that participant was undertaking a dangerous activity	1
Activity Leader: Planning & Preparation	
Using inappropriate equipment	1
Area selected was not appropriate	1
The warm up before exercise was not appropriate	1

Table 9: Contributing factors underpinning the "Activity Leader", Other People in the Activity Group" and "Activity Group" categories (Continued)

Activity Leader: Mental & Physical Condition	
Large body size	1
Pre-existing injury	1
Poor physical fitness	1
Activity Leader: Judgement & Decision Making	
Did not consider the needs of elderly participants	1
Allowed participant to continue with a heavier load	1
Judgement and experience	1
The obstacle could have been managed differently (e.g. top belay instead of bottom belay)	1
Better time management of multiple tasks needed to ensure group management	1
Practical student was the only supervisor	1
Wet weather alternative not adopted	1
Didn't assess group capability	2
Not all students were supervised	1
Poor decision	4
Activity Leader: Experience, Qualification, Competence	
Student leaders were not competent	1
Staff member lacking in confidence and requires more training	1
Poor understanding of equipment	1
Activity Leader: Compliance with procedures, violations & unsafe acts	
Incorrect use of equipment	1
Wet weather alternatives not adopted	1
Playing around (e.g. Throwing/jumping on objects)	3
Activity Leader: Communication	
Group leader did not communicate properly (more instructions/practice needed)	7
Staff should have checked with participants throughout the activity	1
Further training needed to lift equipment safely	1
Incorrect instructions given	1
Did not ensure adequate understanding of participants	1
Other People in Activity Group: Supervision of Activity	
Inadequate supervision of teachers	3
Other People in Activity Group: Situation Awareness	
Inadequate situational awareness of teachers	1
Activity Group Factors: Group Size	
Group size was too large or too small	3
Activity Group Factors: Group Dynamics	
Bullying	4
Activity Group Factors: Group Composition	
Lack of experience	3
Activity Group Factors: Group Communication	
Group did not communicate	4

Table 10: Factors impacting on the Activity Leader

Factor 1	Factor 2	Examples	N
Activity Leader: Judgement and decision-making	*Infrastructure & terrain*	Activity Leader made a poor judgement about the terrain given the group ability levels	1
Activity Leader: Communication, instruction & demonstration	*Infrastructure & terrain*	More instruction regarding the loose terrain was required	1
Activity Leader: Mental and physical condition	*Infrastructure & terrain*	Activity Leader tiredness contributed to falling on loose rocks	1
Activity Leader: Supervision & leadership of activity	*Equipment, clothing and Personal Protective Equipment*	Activity Leader was not supervising participant, so did not notice lack of PPE	1
		Damaged equipment was not detected	1
Activity Leader: Supervision & leadership of activity	*Infrastructure & terrain*	Activity Leader set inappropriate pace for the terrain	1
Activity Leader: Supervision & leadership of activity	*Activity Leader: Judgement and decision-making*	Lack of supervision due to judgement group was competent	2
Activity Participant: Communication & following instructions	*Activity Leader: Planning and preparation*	Participant did not inform Activity Leader of their health condition	1
Training and evaluation of staff	*Activity Leader: Compliance with procedures, violations & unsafe acts*	Management did not provide sufficient training around safety briefings	1
Training and evaluation of staff	*Activity Leader: Experience, qualifications, competence*	Activity Leader lacking in training in the field	1
Training and evaluation of staff	*Activity Leader: Mental and physical condition*	Appropriate training not provided to prevent manual handling injury	1

Equipment, environment and meteorological conditions

One hundred and fifty -one reports identified factors at this level which contributed to injury-causing incidents. Table 11 shows the contributing factors underpinning the "Activity environment" categories and Table 12 shows the contributing factors underpinning the "Activity equipment" categories.

A number of relationships were identified at this level that directly impacted on other levels. Specifically, one report stated that poor weather contributed to the impact of slippery terrain. All other relationships have been described in the previous sections.

Table 11: Contributing factors underpinning the "Activity Environment" categories.

Contributing factor and examples	N
Activity environment: Other	
Late afternoon	1
Activity environment: Weather Conditions	
Temperature	8
Wet weather	7
Wind	1
Poor weather	2
Darkness (e.g. dark driveway)	4
Activity Environment: Water Conditions	
Rapids	4
Water conditions of creek/river	3
Flowing water	2
Debris in water (e.g. sticks)	1
Activity Environment: Trees & Vegetation	
Exposed tree root	1
Trees	2
Debris in water (e.g. sticks, logs)	4
Bushes (e.g. sharp branches)	3
Activity Environment: Infrastructure & Terrain	
Excess debris (e.g. sticks, boulders)	9
Rocks	10
Moss	2
Slippery conditions (e.g. river bank, cave)	18
Caving	2
Uneven terrain (e.g. pot holes)	20
Sharp barnacles	1
Bitumen/concrete	6
Wooden floor	1
Creek side/swampy environment	2
Not on designated terrain (e.g. the platform)	3
Hilly environment	14
Muddy environment	1
Stairs	1
Unfamiliar terrain	1
Activity Environment: Animal & Insect Hazards	
Leech	2
Tick	1
Jellyfish	1
Insect	2

Table 12: Contributing factors underpinning the "Activity Equipment" categories

| Activity Equipment: Equipment, Clothing & Personal Protective Equipment	
Heavy load	5
Pack was rubbing	4
Strap on stock	1
Equipment	2
Gloves not appropriate for activity	1
Organisation of workspace	1
Equipment heavy and slippery	1
Equipment not in the correct position	3
Lack of appropriate equipment (e.g. shoes, different coloured safety strops)	9
Equipment in poor condition	4
Sharp knife	10
Activity Equipment: Documentation	
Pre-existing condition not noted on information about participant	1
Activity Equipment: Food & Drink	
Choking	1
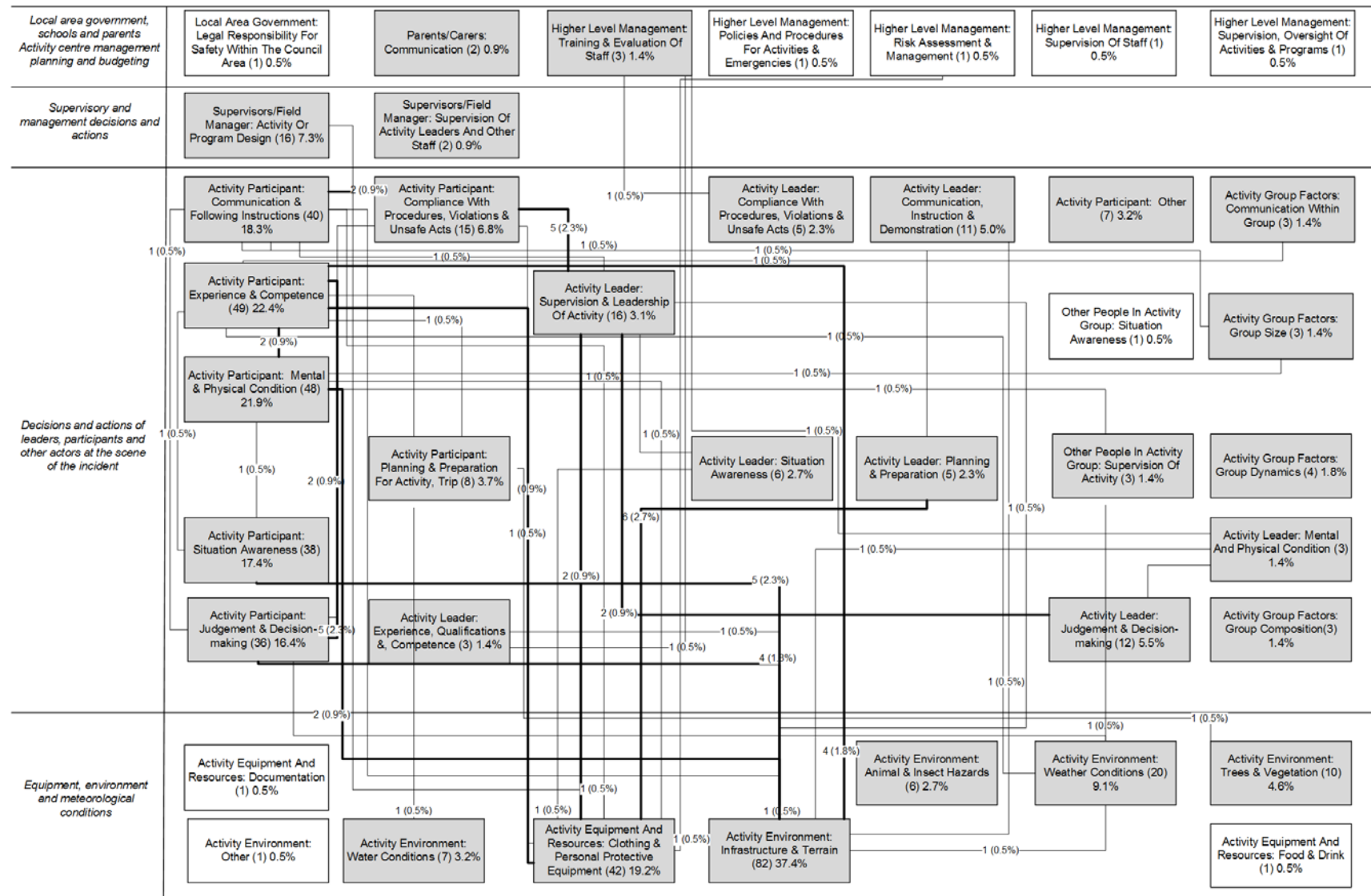
Figure 10: Factors and relationships identified which contributed to injury-causing incidents (n=219). Factors identified in more than one report are shaded in grey, and relationships identified in more than one report are bolded.

1st June - 30th November 2014 Data

Overview of incidents associated with illnesses

In total, 196 incidents were associated with illnesses were reported over the six month period. Across all activities, the mean reported illness rate was 1.5 incidents per 1000 participants. This means that on average less than 2 incidents associated with an illness was reported for every thousand participants involved in a led outdoor activity.

Figure 11 presents a summary of the illness rate per 1000 participants by activity type. Incidents associated with illnesses not related to an activity or program are excluded from the figure below (n = 25). Notably, just under half of all activities recorded were not associated with any illnesses.
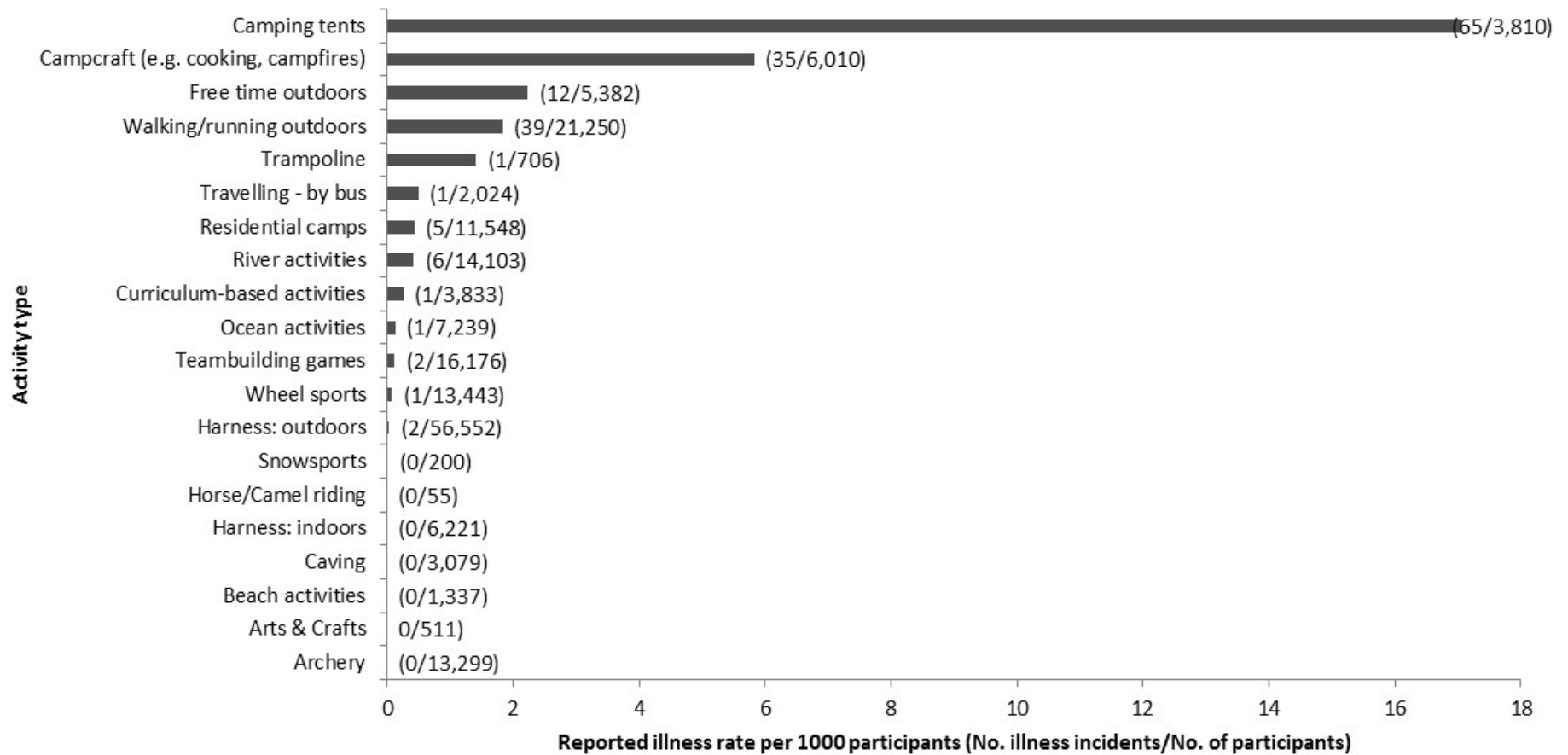
Figure 11: Illness rate per 1000 participants by activity type. Numbers in brackets represent the number of reported incident associated with illnesses and the number of reported participants associated with the activity, respectively.

Actual severity ratings for incidents associated with illnesses

Figure 12 shows a histogram of severity scores for illness incidents. The median severity was 1 (range 0 to 3) indicating that the majority of illnesses required only localised care with short term effects.
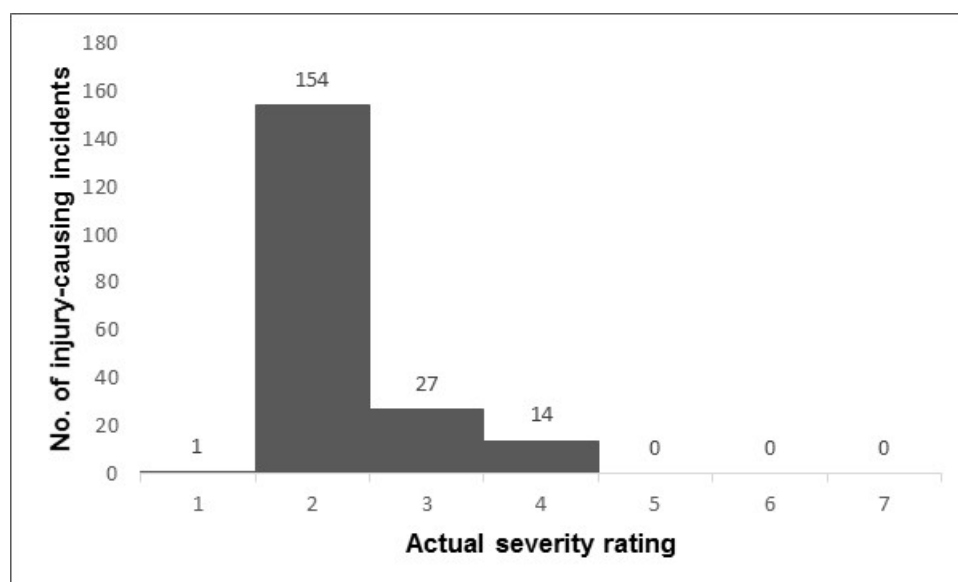

Figure 12: Severity ratings for illness incidents

These ratings are supported by the findings regarding evacuation, hospitalisation and emergency services. Only 35 reported illnesses required evacuation (Walked out = 1; Vehicle = 34), 4 required hospitalisation and 2 required Emergency Services.

Illness type

Of the 196 incidents associated with illnesses, 169 reported illness type. Illness type was frequently reported as "unknown" (n = 75). The following illness types were reported: abdominal problem (n = 28); non-specific fever (n = 21); allergic reaction (n = 13); menstrual (n = 13); asthma (n = 6); heat stroke (n = 5); respiratory (n = 3); diarrhoea (n = 1); food poisoning (n = 1); hypothermia (n = 1); and urinary tract infection (n = 1).

Demographic information for ill people

The reports included details on 179 ill people. In terms of their roles, 160 ill people were classified as Participants, 1 was an Activity Leader and 3 were Teachers (15 missing classification).

The majority of ill Participants were female (143 female, 17 male), with a median age of 15 years (range 9 to 17; 1 missing classification). In terms of experience with the activity, the majority of ill participants had some prior experience (n = 114; no prior experience = 5; unknown = 31; missing classification = 10). Demographic information on other roles is not reported in further detail due to the low number of cases.

Weather for incidents associated with illnesses

Weather at the time of the incident was rated on a 4 point scale across three dimensions (Rain, Temperature and Wind). The majority of illnesses occurred when it was fine ("1" = 135, "2" = 23, "3" = 9, "4" = 5, missing = 24), reasonably warm ("1" = 118, "2" = 39, "3" = 2, "4" = 4, missing = 33), and calm ("1" = 118, "3" = 39, "3" = 2, "4" = 4, missing = 33).

Goals for incidents associated with illnesses

The majority of incidents associated with illnesses were missing details regarding the goals associated with the activity (n = 186 missing classification). No further analysis was undertaken.

Profile of activity group for incidents associated with illnesses

The median number of participants involved in activities associated with illnesses was 17 (range 0 to 82, n = 196 incidents), the median number of Activity Leaders was 2 (range 0 to 2, n = 196 incidents), Supervisors (e.g. teachers) was 1 (range 0 to 6, n = 195 incidents). No volunteers (e.g. parents) were involved in activity groups for incidents associated with illnesses.

In 83% of incidents, the Activity Leader was reported to have relevant qualifications (n = 163). In 10% of incidents qualifications were reported to be "not applicable" (n = 20) and 7% were missing classification (n = 13). Figure 13 shows the number of incidents associated with illnesses by actual severity ratings, partitioned according to leader qualifications. There is no clear relationship between the severity ratings and the presence or absence of leader qualifications. However, again, the cases where leader qualifications were reported to be "not applicable" are potentially cause for concern, as this accounted for a disproportionate number of incidents rated as "3" within the sam-

ple (n = 8). The majority of the incidents where leader qualifications were reported to be "not appli-

cable" involved camping in tents (n = 8), incidents not involving an activity or program (n =6) and

free time outdoors (n = 3). It is unclear why camping in tents was deemed not to require a leader
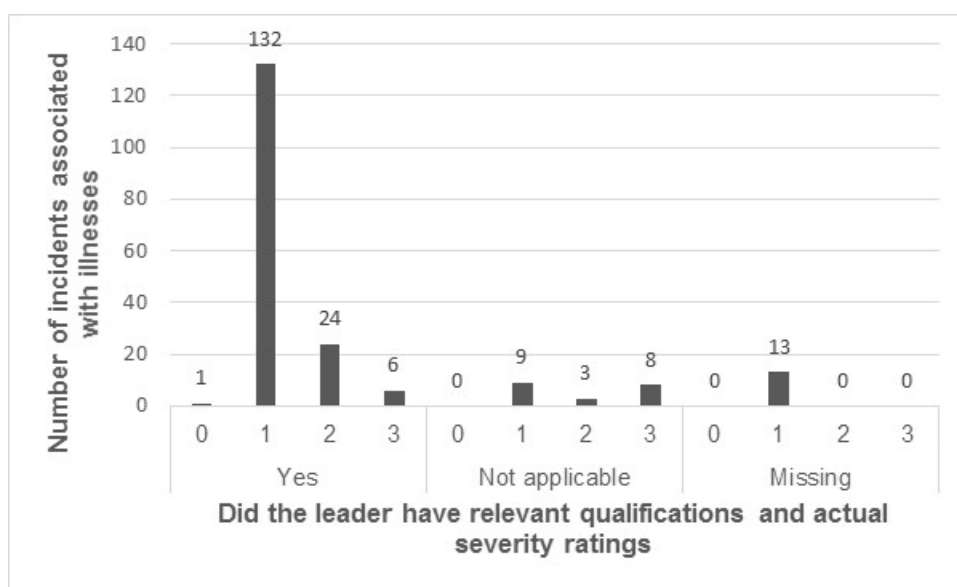
with appropriate qualifications.

Figure 13: The number of incidents associated with illnesses by actual severity rating, partitioned according to responses to the question "Did the leader have relevant qualifications"

Contributing factors for incidents associated with illnesses

In total, 63 illness incident reports had enough detail that could be coded using the

UPLOADS Accident Analysis Framework. On average, 2 contributing factors per illness incident re-

port. Factors at the lower four levels of the UPLOADS Accident Analysis Framework were identified.

A summary of the factors and relationships identified is presented in Figure 14.

Government department decisions and actions

No reports identified factors at this level which contributed to incidents associated with ill-

nesses.

Regulatory bodies and associations

No reports identified factors at this level which contributed to incidents associated with illnesses.

Local area government, Schools, Parents and Activity centre management planning and budgeting

Nine reports identified factors at this level which contributed to incidents associated with illnesses. Table 13 shows the contributing factors underpinning each category represented at this level on the Accimap. No relationships were identified between factors at this level and the other levels.

Table 13: Contributing factors underpinning each category represented on the Accimap at the "Local area government", "Schools", "Parents" and "Activity centre management planning and budgeting" level.

Category and contributing factors	N
Parents and Carers: Communication	
Parents did not provide information about pre-existing conditions (e.g. asthma) on consent form	4
Parents did not provide information about allergies/dietary requirements on consent form	4
Schools: Planning and Preparation	
School not preparing the student adequately for trip	1
Schools: Communication	
School did not pass on information about students diet	2

Supervisory and management decisions and actions

One report identified factors at this level, which related to the design of an activity. Specifically, the report highlighted how the design of the activity did not provide adequate breaks given the environmental conditions at the time.

Decisions and actions of leaders, participants and other actors at the scene of the incident

Fifty-eight reports identified factors at this level which contributed to incidents associated with illnesses. Table 14 shows the contributing factors at this level.

A number of factors were identified that impacted on Activity Participants, which are shown in Table 15. A number of factors were identified that impact on Activity Leaders and other people in the activity group, which are shown in Table 16.

Table 14: Contributing factors underpinning each category represented on the Accimap at the "Decisions and actions of leaders, participants and other actors at the scene of the incident" level

Contributing factor and examples	N
Activity Participant: Mental & Physical Condition	
Symptoms related to pre-existing conditions (e.g. epilepsy, cystic fibrosis, asthma)	12
Arrives with sickness (e.g. food poisoning, vomiting, chest infection, flu/cold-like symptoms)	11
Sickness develops while on program (e.g. headache/stomach ache, dizziness, pain, sore throat, conjunctivitis)	10
Anxiety	9
Tiredness/fatigue	9
Period pain, cramps, headaches	7
Dehydration	3
Lack of general fitness	2
Hay fever	1
Activity Participant: Planning & Preparation	
Not drinking enough water prior to trip	1
Not prepared for what would happen on program	1
Insufficient clothing for conditions	1
Not brought required medication	1
Activity Participant: Experience & Competence	
Participants lack of experience with activity or environment contributed to illness	1
Activity Participant: Communication	
Poor communication about mental or physical condition with activity leaders	5
Activity Participant: Judgement & Decision Making	
Participants decision exacerbated illness	4
Activity Participant: Situation Awareness	
Poor understanding of impact of environmental conditions on health	1
Activity Leader: Supervision & leadership	
Participants illness/symptoms should have been noticed earlier by Activity Leader	3
Activity Leader: Communication	
Poor communication with participants about their wellbeing	2
Activity Leader: Planning & Preparation	
Activity Leader had run out of personal medication.	1
Activity Leader: Mental & Physical Condition	
Embarrassment	1
Arrives with sickness	1
Other People in Activity Group: Mental and Physical Condition	
Teacher had arrived on program with cold-like symptoms	1
Other People in Activity Group: Compliance with procedures, violations, unsafe acts	
Bus did not pick up group at designated time	1
Other People in Activity Group: Planning and Preparation for Trip	
Teacher arrived on program without required medication	1
Activity Group Factors: Group Dynamics	
Fighting between participants contributed to illness	1

Table 15: Factors impacting on the Activity Participant

Factor 1	Factor 2	Examples	N
Equipment, clothing and Personal Protective Equipment	Activity participant: Mental and physical condition	Use of equipment in a way that exacerbated pre-existing condition	1
Weather conditions	Activity participant: Experience & competence	Weather conditions reduced participants ability to cope with symptoms	3
Weather conditions	Activity participant: Mental and physical condition	Weather conditions exacerbated pre-existing condition	10
Activity Leader: Supervision & leadership of activity	Activity participant: Compliance with procedures, violations & unsafe acts	Lack of supervision contributed to participant acting in an unsafe way	1
Activity Leader: Supervision & leadership of activity	Activity participant: Mental and physical condition	Staff did not check participants were drinking enough fluids	1
Infrastructure & terrain	Activity participant: Mental and physical condition	Steep terrain exacerbated medical condition	2
Activity participant: Experience & competence	Activity participant: Mental and physical condition	Lack of experience with equipment exacerbated symptoms	1
Activity participant: Planning & preparation for activity, trip	Medication	Activity participant had not brought required medication	1

Table 15: Factors impacting on the Activity Leader and other people in the activity group

Factor 1	Factor 2	Examples	N
Activity Leader: Planning & preparation	Equipment, clothing and Personal Protective Equipment	Activity Leader bought insufficient clothing	1
Activity Leader: Planning & preparation	Medication	Did not bring required medication	1
Activity Participant: Communication & following instructions	Activity Leader: Planning & preparation	Anxiety around activity not communicated to Leader before start of activity	1
Other people in activity group: Planning & preparation	Medication	Did not bring required medication	1

Equipment, environment and meteorological conditions

Thirty reports identified factors at this level which contributed to incidents associated with illnesses. Table 16 shows the contributing factors underpinning each category represented at this

level on the Accimap. All the relationships identified at this level directly impacted on activity participants, and have been described in the previous section.

Table 16: Contributing factors underpinning the "Equipment", "Environment" and "Meteorological conditions" level.

| Contributing factor and examples	N
Activity Environment: Weather Conditions	
Temperatures (e.g. too cold, too hot)	14
Wind	3
Exposure	1
Activity Environment: Water Conditions	
Cold water	1
Strong current	1
Activity Environment: Infrastructure & Terrain	
Uneven terrain exacerbated pre-existing injury	1
Activity Environment: Animal and insect hazards	
Jellyfish	1
Biting insects	1
Activity Equipment: Medication	
Broken inhaler	1
Lack of medication	3
Activity Equipment: Food & Drink	
Activity participant did not drink enough water	4
Activity participant did not eat enough food	1
Activity Equipment: Equipment, clothing PPE	
Pressure of the waist belt	2
Weight of pack	1
Activity Equipment: Documentation	
Pre-existing condition not noted on information about participant	3
Allergies not noted on information about participant	2
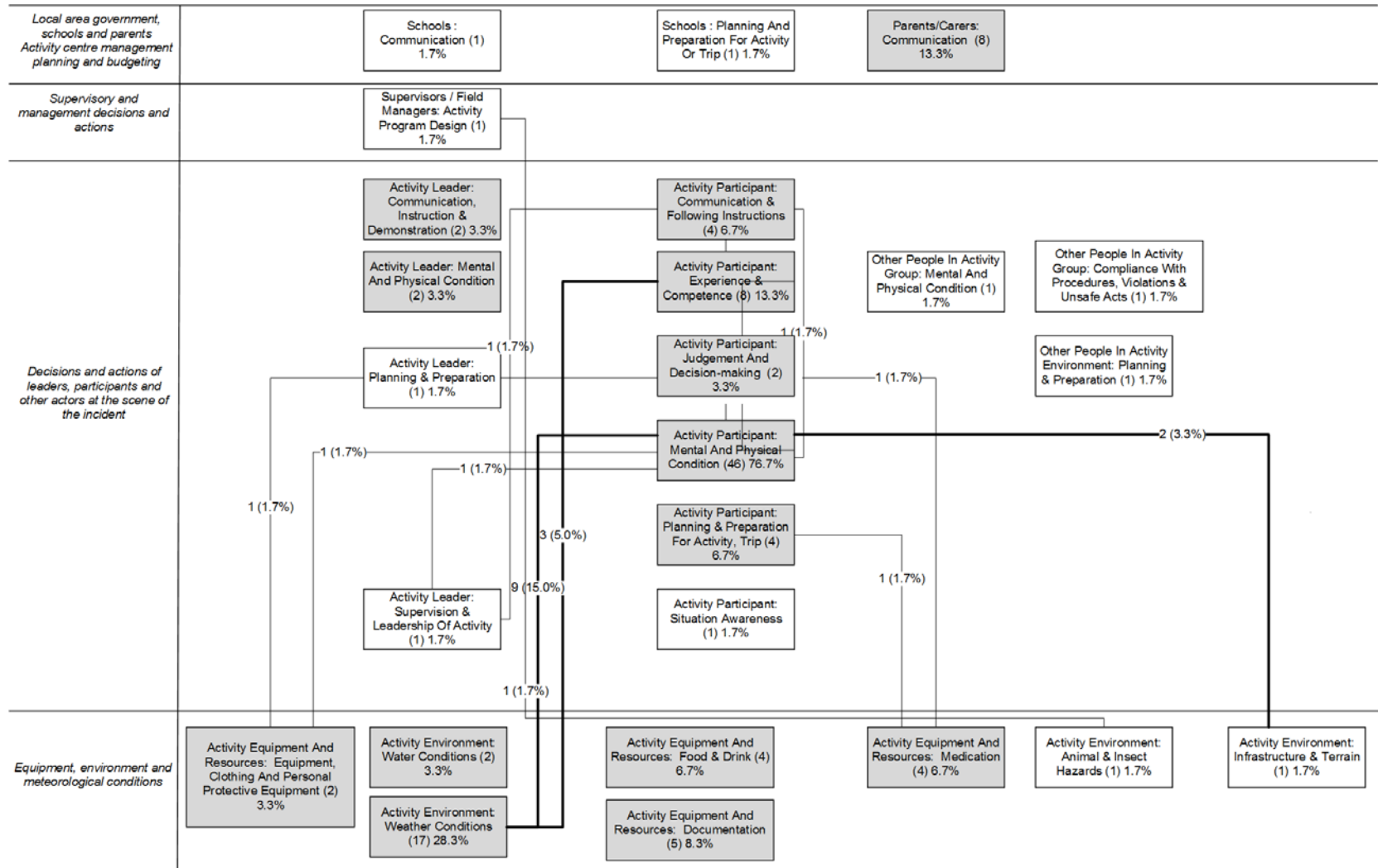
Figure 14: Factors and relationships identified which contributed to incidents associated with illnesses (n=63). Factors identified in more than one report are shaded in grey, and relationships identified in more than one report are bolded.

Overview of near miss incidents

In total, 64 near misses were reported over the six month period. Across all activities, the average reported near miss rate was 1.2 incidents per 1000 participants. This means that less than 2 near misses reportedly occurred for every thousand participants involved in a led outdoor activity. Three near misses were not related to an activity or program, so these were excluded from Figure 15.
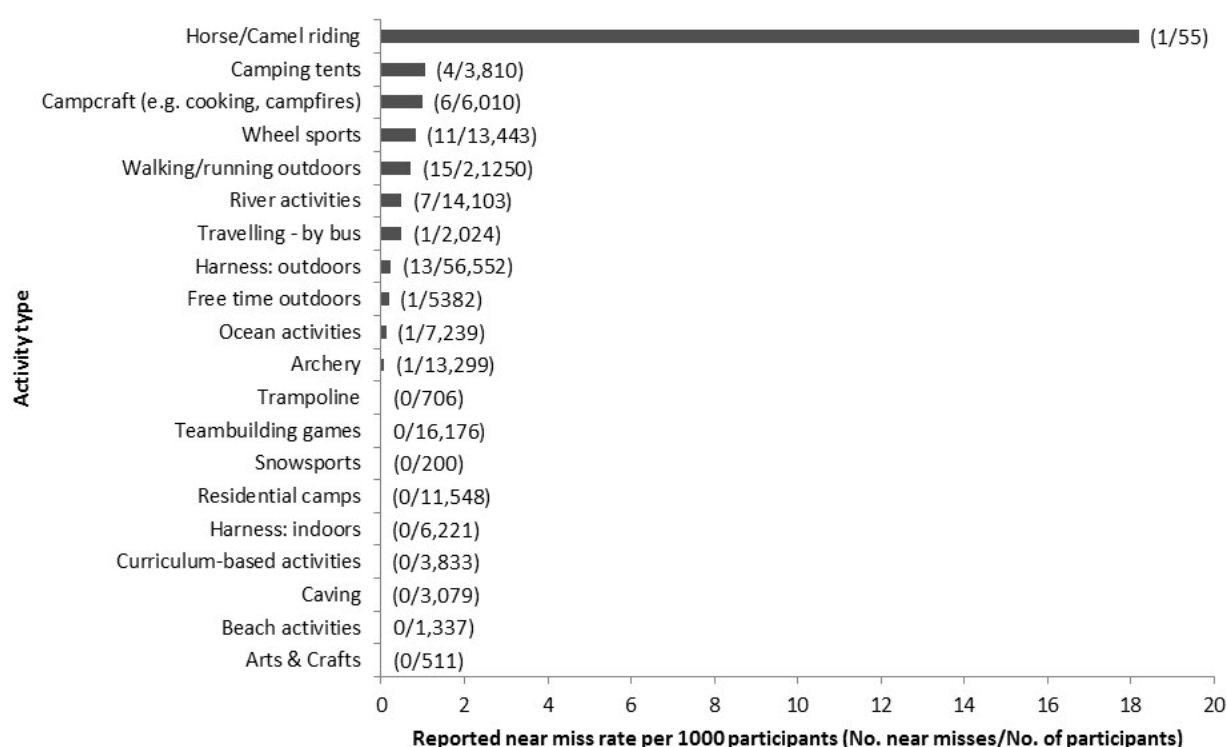

Figure 15: Near miss incident rate per 1000 participants by activity type

Potential severity ratings for near miss incidents

Near misses were rated in terms of their potential severity. Figure 16 shows a histogram of potential severity scores for near miss incidents. The median severity was 2 (range 0 to 6). The majority of near misses had a potential severity rating of 2 or 3, indicating that they had the potential to result in an outcome of requiring ongoing care with short to medium term effects or timely external care with medium to long term effects.
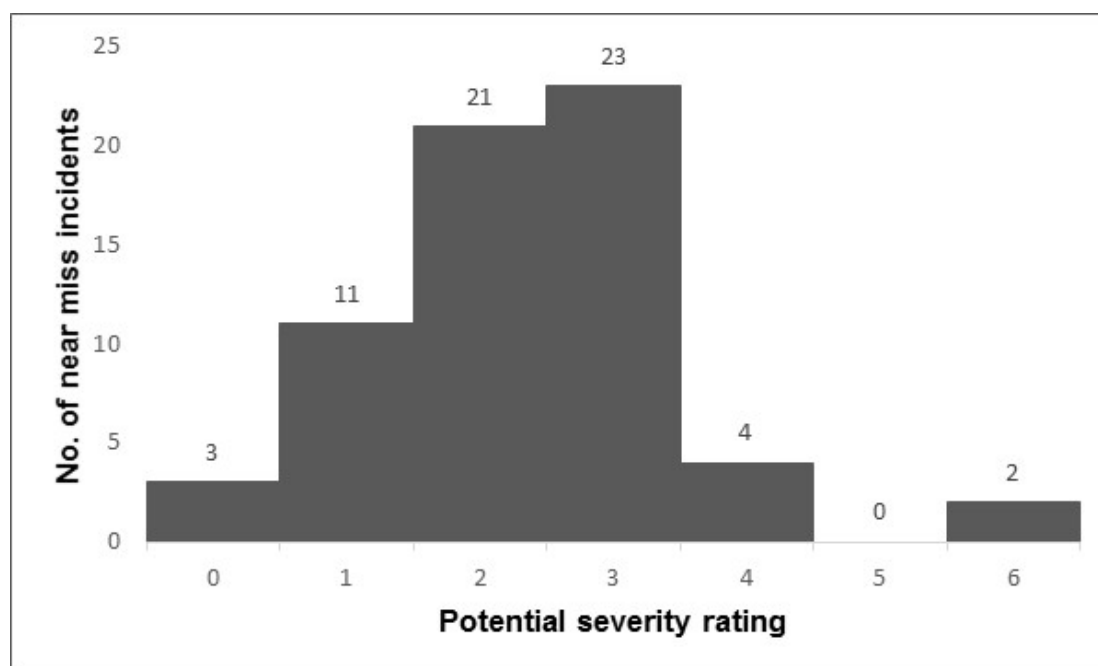
47

Figure 16: Potential severity ratings for near miss incidents

Weather at the time of the incident

Weather at the time of the incident was rated on a 4 -point scale across three dimensions (Rain, Temperature and Wind). The majority of near misses occurred when it was fine to reasonably fine ("1" = 35, "2" = 15, "3" = 6, "4" = 3, missing = 5), reasonably warm ("1" = 7, "2" = 32, "3" = 19, "4" = 2, missing = 4), and calm to reasonably calm ("1" = 26, "3" = 29, "3" = 3, "4" = 0, missing = 6).

Goals for near miss incidents

The majority of incidents associated with illnesses were missing details regarding the goals associated with the activity (n = 51 missing classification). No further analysis was undertaken.

Profile of activity group for near miss incidents

The median number of participants involved in activities associated with near misses was 13 (range 0 to 47, n = 64 incidents), the median number of Activity Leaders was 2 (range 0 to 5, n = 64 incidents), Supervisors (e.g. teachers) was 0 (range 0 to 3, n = 63 incidents) and Volunteers (e.g. parents) was 0 (range 0 to 2, n = 64 incidents).

In 82% of incidents, the Activity Leader was reported to have relevant qualifications (n = 53), and in 5% they were reported to not have relevant qualification (n = 3). In 12% of incidents qualifications were reported to be "not applicable" (n = 8) and 7% were missing classification (n = 13). Figure 17 shows the number of near miss incidents by potential severity ratings, partitioned according to leader qualifications. There is no clear relationship between the severity ratings and the presence or absence of leader qualifications. However, again, the cases where leader qualifications were reported to be "not applicable" are potentially cause for concern, as this accounted for a disproportionate number of incidents rated as "3" within the sample (n = 8). The majority of the incidents where leader qualifications were reported to be "not applicable" involved campcraft (n = 4). It is unclear why campcraft was deemed not to require a leader with appropriate qualifications.
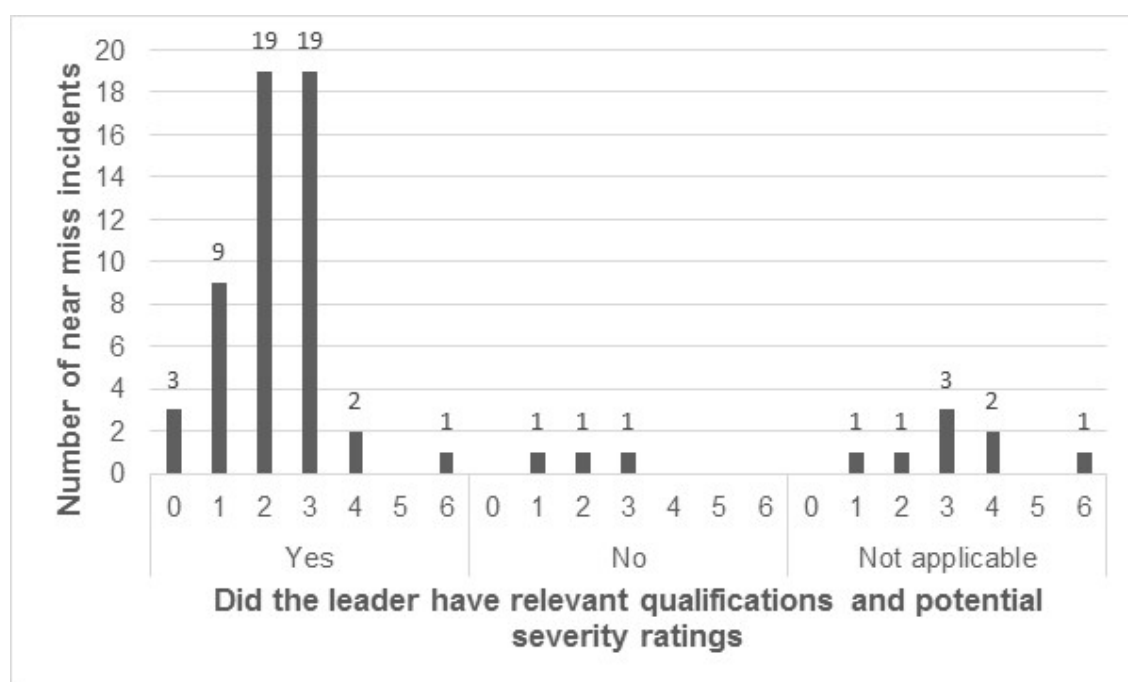

Figure 17: The number of near miss incidents by potential severity rating, partitioned according to responses to the question "Did the leader have relevant qualifications"

Contributing factors for near miss incidents

In total, 60 near miss incident reports had enough detail that could be coded using the UPLOADS Accident Analysis Framework. On average, 3 contributing factors were identified per report. A summary of the factors and relationships identified which contributed to near miss incidents is presented in Figure 18.

Government department decisions and actions

One report identified factors at this level which contributed to a near miss incident, which related to the legislation around campsite licensing and staff accreditation. No relationships were identified between factors at this level and the other levels.

Regulatory bodies and associations

One report identified factors at this level which contributed to a near miss incident, which related to campsite licensing and staff accreditation. No relationships were identified between factors at this level and the other levels.

Local area government, schools, parents and activity centre management planning and budgeting

Eight reports identified factors at this level which contributed to near miss incidents. Table 17 and Table 18 show the contributing factors underpinning each category represented at this level on the Accimap. No relationships between factors at this level and other levels were identified in more than one report. One report stated that the schools lack of planning regarding participants behavioural issues may have contributed to an inappropriate group size.

Table 17: Contributing factors underpinning each category at the "Schools" and "Parents" level.

Category and contributing factors	N
Parents and Carers: Communication	
Parents did not provide information about allergies on consent form	2
Parents did not provide information about pre-existing condition on consent form	2
Parents did not respond to phone calls from staff when participant required treatment	1
Parents did not provide information about medications on consent form	1
Parents and Carers: Planning & Preparation	
Parents did not pack epipens required for participant	1
Schools: Planning & Preparation	
School did not plan for participants behavioural problems	1

Schools: Communication	
School did not provide information about participants' pre-existing condition	2

Table 18: Contributing factors underpinning each category at the "Local area government" and "Higher level management" level

Local Area Government: Policies and Procedures	
Policies around campsite management	1
Local Area Government: Auditing	
Local government lack of monitoring of campsite compliance with regulation	1
Higher Level Management: Risk Assessment	
Inadequate risk controls for activity (e.g. lack of signs about terrain, changes in equipment due to age, equipment not appropriate for participants weight)	3
Company did not seek evidence that staff at campsite were accredited	1
Policies and procedures around selection of campsites	1

Supervisory and management decisions and actions

Four reports identified factors at this level which contributed to near miss incidents. Table 19 shows the contributing factors underpinning each category represented at this level on the Accimap. No relationships between factors at this level and other levels were identified in more than one report. One report stated that higher level management were not following up on weather Activity Leaders were making the required checks of equipment prior to activities.

Table 19: Contributing factors underpinning each category represented on the Accimap at the "Supervisory and management decisions and actions" level

Category and contributing factors	**N**
Supervisors, Field Managers: Activity/Program Design	
Length of the program	2
Bus too small for size of group	1
Activity design did not adequately account for the weight of potential participants	1
Supervisors, Field Managers: Supervision/Oversight of Activities	
Use of PPE not regularly checked by supervisor	1

Decisions and actions of leaders, participants and other actors at the scene of the incident

Fifty-one reports identified factors at this level which contributed to incidents associated with illnesses. Table 20 shows the contributing factors underpinning the Activity Participant categories and Table 22 shows the contributing factors underpinning the categories relating to all other ac-

tors at this level. No relationships between Activity Participant factors and other factors were identi-

fied in more than one report. Examples of factors impacting on Activity Participants are presented in

Table 21. A number of recurring relationships were identified between Activity Leader factors and

other factors, these are shown in Table 23.

Table 20: Contributing factors underpinning the "Activity participant" category

Contributing factor and examples	N
Activity Participant: Experience & Competence	
Lack of experience and ability in performing tasks within the activity	13
Activity Participant: Communication	
Not following instructions	9
Misunderstanding instructions	1
Not paying attention to instructions	2
Not communicating critical information to Activity Leader	2
Activity Participant: Compliance with procedures, violations, unsafe acts	
"Horsing around" doing dangerous stunts	4
Activity Participant: Situation Awareness	
Lack of awareness of other participants in the activity	3
Lack of awareness of the hazardous nature of the situation	3
Lack of awareness of the spatial location of the equipment	1
Activity Participant: Planning & Preparation	
Did not have required medication	1
Activity Participant: Mental & Physical Condition	
Pre-existing injury/illness	9
Tiredness/fatigue	4
Fitness	1
Allergies	1
Ability level of participant	1
Anxiety	1

Activity Participant: Judgement and Decision Making	
Errors in using equipment (e.g. braking, speed, terrain)	7
Not eating and drinking enough for the activity	1
Activity Participant: Other	
Carelessness	3

Table 21: Factors impacting on the Activity Participant

Factor 1	*Factor 2*	Examples	N
Activity Participant: Judgement and decision-making	*Infrastructure & terrain*	Inappropriate speed for terrain	1
Weather conditions	*Activity Participant: Communication & following instructions*	Weather contributed to participants not listening to instructions	1
Activity Leader: Supervision & leadership of activity	*Activity Participant: Communication & following instructions*	Lack of supervision led to participant not following instructions	1
Activity Leader: Supervision & leadership of activity	*Activity Participant: Judgement and decision-making*	Lack of supervision led to participants becoming lost	1
Activity Participant: Communication & following instructions	*Activity Participant: Judgement and decision-making*	Did not follow instructions about what to do in event of emergency	1
Activity Participant: Communication & following instructions	*Activity Participant: Mental and physical condition*	Did not follow instructions due to fatigue	1
Activity Participant: Communication & following instructions	*Activity Participant: Experience & competence*	Did not follow instructions due to lack of experience	1
Equipment, clothing and Personal Protective Equipment	*Activity Participant: Mental and physical condition*	Equipment not appropriate for size of participant	1

Table 22: Contributing factors underpinning the "Activity leader", "Other people in the activity group" and "Activity group" categories

Contributing factor and examples	N
Activity Leader: Supervision, Leadership of Activity	
Lack of supervision of participants	8
Activity Leader: Situation Awareness	
Did not realise that participants were not using PPE	2
Activity Leader: Planning & Preparation	
Poorly prepared group for activity	1
Did not learn the route prior to the activity	2
Did not check the equipment adequately	2
Activity Leader: Judgement & Decision Making	
Poor decision to go ahead given the conditions	3
Did not perceive the risks relating to the faulty equipment	1
Poor use of safety equipment	1
Activity Leader: Experience, qualifications, competence	
Lack of familiarity with the route	1
Lack of experience supervising participants	1
Activity Leader: Compliance with procedures, unsafe acts	
Did not comply with procedures for lost participants	1
Activity Leader: Communication	
Insufficient briefing to participants prior to the activity	3
Insufficient briefing to other supervisors prior to the activity	1
Poor communication with group during the activity	3
Activity Leader: Other	
Carelessness	1
Other People in Activity Group: Supervision of activity	
insufficient pre-departure checks of equipment by supervising staff and driver	1
Other People in Activity Group: Communication	
Staff chose not pay close attention to the instruction from Activity Leader	1
Activity Group Factors: Group Size	
Group too large	1
Activity Group Factors: Group Dynamics	
Activity design caused group members to fight	2

Table 23: Factors impacting on the Activity Leader

Factor 1	Factor 2	Examples	N
Activity Leader: Planning & preparation	*Equipment, clothing and Personal Protective Equipment*	Equipment not set up appropriately	2
Activity Leader: Judgement and decision-making	*Equipment, clothing and Personal Protective Equipment*	Decision to cancel activity should have been made once equipment fault identified	1
Activity Participant: Communication & following instructions	*Activity Leader: Planning & preparation*	Activity participants did not communicate pre-existing condition to staff, so staff were not able to take this into account in planning	1

Equipment, environment and meteorological conditions

Thirty reports identified factors at this level which contributed to near miss incidents. Table 24 shows the contributing factors underpinning each category represented at this level on the Acci-map. All the relationships identified at this level directly impacted on activity participants, and have been described in the previous section.

Table 24: Contributing factors underpinning each category at the "Equipment", "Environment" and "meteorological conditions" categories.

| Contributing factor and examples	N
Activity Environment: Weather Conditions	
Temperatures (e.g. too cold, too hot)	4
Sunburn	2
Wet conditions	1
Wind	1
Activity Environment: Water Conditions	
Fast moving water conditions	3
Activity Environment: Trees and Vegetation	
Scratches from vegetation	2
Falling branches	1
Activity Environment: Infrastructure & Terrain	
Rocky terrain	3
Downhill terrain	3
Slippery terrain	2
Activity Environment: Animal & Insect Hazards	
Horse slipped on path	1
Snake on path	1
Activity Equipment: Equipment, Clothing, PPE	
Problems with cooking equipment (e.g. BBQ, trangia, boiling water)	4
Faulty activity equipment	5
Weight/design of walking packs	2
Poor use of PPE (e.g. helmets, torches)	2
Risks associated with equipment (e.g. falling off bikes, capsizing canoes)	3
Incorrect use of equipment	2
Activity Equipment: Documentation	
Allergy not noted on medical form	1
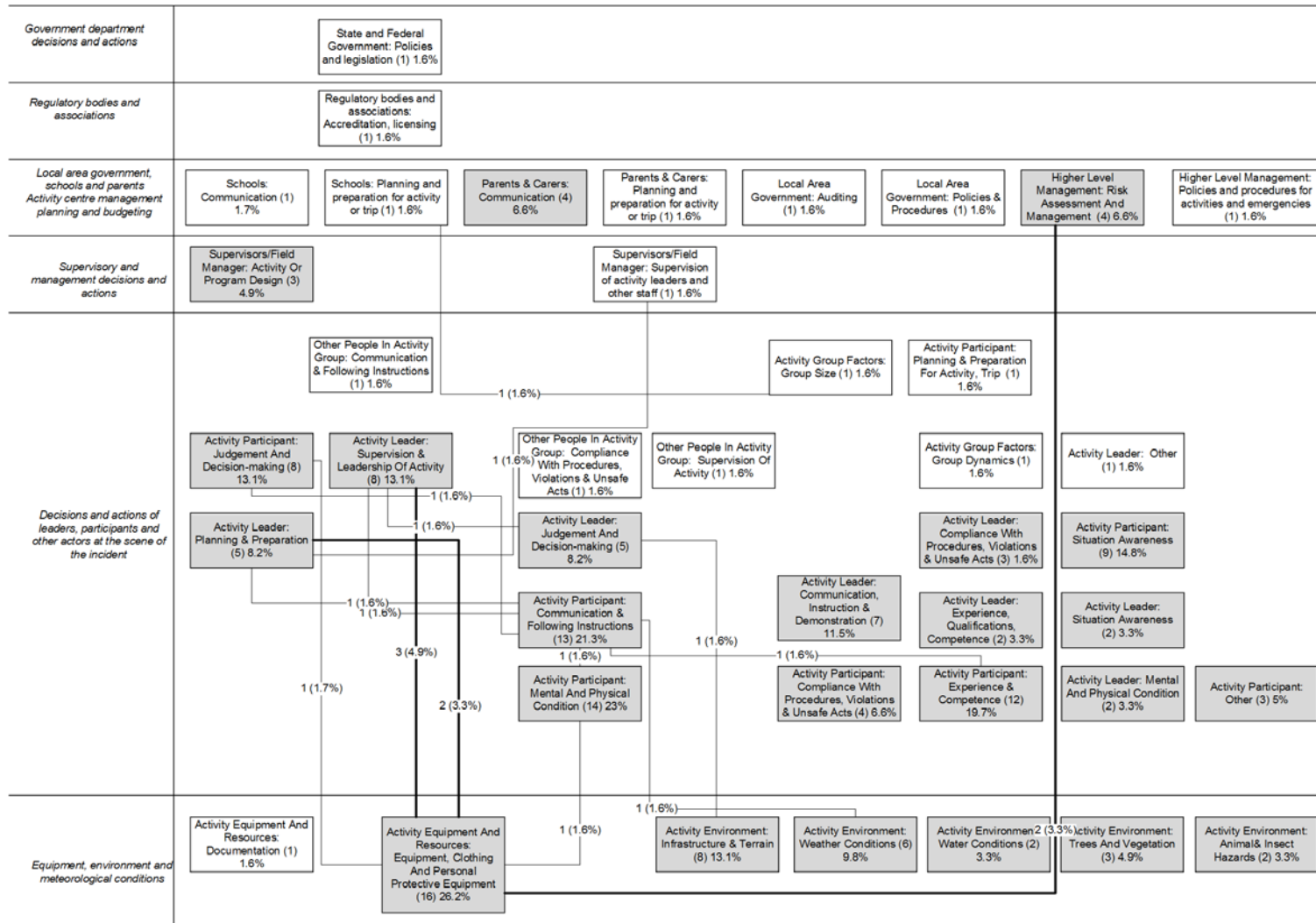
Figure 18: Factors and relationships identified which contributed to near miss incidents (n=60). Factors identified in more than one report are shaded in grey, and relationships identified in more than one report are bolded.

Discussion

The aim of this report was to present a detailed overview of all the data contributed to the UPLOADS National Incident Dataset, to provide a more holistic understanding of the incidents that occur during led outdoor activities in Australia. In addition, feedback will be sought from the sector on the presentation of the findings, to inform the on-going reporting of the National Incident Dataset.

Incident rates

Although caution is urged as the incident rates may underestimate the actual incidence of injuries due to potential underreporting, the data does indicate that the injury rate is quite low (3 per 1000 participants), especially when compared to estimates of injury rates per 1000 participants for other organised sports in Australia. For example, in a study of sports and active recreation injury in the Latrobe Valley, cricket had the highest rate of 242 injuries per 1,000 participants, followed by horse-riding (122 injuries per 1,000 participants), soccer (107 injuries per 1,000 participants) and netball (51 injuries per 1,000 participants) (Finch, Cassell, & Stathakis, 1999). In addition, the vast majority of injuries were rated as having only a short-term impact on participation. Only 19 injuries (out of 520) were reported to require hospitalisation.

Contributory factors

A significant contribution of the analysis presented is that it enables practitioners to identify contributory factors and relationships that could be focussed on for prevention activities. Whilst the purpose of this report is not to identify specific areas for improvement, the major findings are discussed below. However, it is important to note that it is up to organisations, and the sector, to incorporate the information provided in this report into their risk management approach.

The data analysed indicates that there were, on average, 2 contributing factors involved in each incident. These contributory factors covered the 4 lower levels of the UPLOADS accident analy-

sis framework. These findings provide further evidence that injuries in this sector are caused by multiple factors from across the overall led outdoor activity system. A key implication of this is that interventions developed by organisations and the sector need to focus on factors across the overall sector, rather than only on instructors, equipment, and the environment.

Whilst the majority of contributory factors reported were related to activity participants, leaders, equipment, and the environment, this and other analyses (e.g. Salmon et al, 2012; 2014) suggests that other contributory factors are involved in shaping participant and leader behaviours, use of equipment, and the environment in which activities take place. The prominent reporting of factors related to activity participants, leaders, equipment, and the environment, but lower reporting of related factors may be a by-product of the limited exposure that the sector has had to systems thinking in accident causation. An important implication of this is that further education may be required on the systems thinking approach to accident causation and indeed on how factors across the led outdoor activity system might influence activity and leader behaviour, use of equipment, and the environment in which activities take place. It is further important to stress that injury prevention efforts should not focus exclusively on factors at these levels, as the other influencing factors are ignored.

The relationships identified provide some important conclusions regarding accident causation and prevention within this dataset and further emphasise the points made above. For example, in relation to activity equipment factors, factors associated with supervisors, activity and program design, risk assessment, training and evaluation of staff, planning and preparation, and participants themselves were found. The implication of this is that there is a network of contributory factors linked to those factors frequently reported at the lower levels. Prevention efforts need to focus on removing the network of contributory factors, not just the prominent factors at the lower levels.

Reporting

The data provided during the first six months has some important conclusions for reporting in the sector. Only 25 out of the 35 participating organisations provided participation and/or incident data.

In addition, of the injury incidents reported, less than half contained sufficient information to enable identification of contributory factors. Finally, compared to the number of incidents reported, a disproportionate number of near miss incidents were reported. These findings bring into question the reporting culture within the led outdoor sector, both in terms of understanding the importance of reporting and in understanding what to report. The implication of these findings is that further effort is required to build a reporting culture within the led outdoor activity sector. This will increase the uptake of UPLOADS and will enhance the quality of the data reported by users.

Limitations and directions for future work

As a first analysis of data derived from the National Incident Dataset, there are several limitations worthy of mention. First, generalisability is potentially limited due to the short period of data collection and limited number of organisations who contributed data. Generalisability will increase over time, as a greater time period is covered by the National Incident Dataset, and more organisations sign up and contribute data. Since November 2014, ten organisations have joined the UPLOADS Project. Second, injury rates may underestimate the actual incidence of injuries for various reasons, such as underreporting by staff of injuries that do not require treatment or organisations choosing not to report more serious injuries. Following feedback from the sector we have increased the reporting threshold for adverse outcomes to 2 or greater (Requires ongoing care with short to medium term effects.). This should decrease the workload on reporters and those entering data into UPLOADS, and therefore hopefully increase the comprehensiveness of data collected. Third, the extremely low number of reported near miss incidents suggests that this area warrants further attention within organisations and from the UPLOADS research team. On the one hand, it may indicate that there is not a strong culture of reporting near misses within the sector. On the other hand, the definition of a near miss may not be suitable for the led outdoor activity domain, as it was adopted from healthcare. To address this issue, we plan to develop an online training package on reporting near misses. We are also actively seeking an honours student or PhD candidate to undertake research in this area. Fourth, due to issues with data entry, we were unable to calculate incident rates

based on participation days. This represents critical information for the sector, as this would allow

for a comparison with led outdoor activity incident rates in North America (Gaudio, Greenwald, &

Holton, 2010; Hamonko, McIntosh, Schimelpfenig, & Leemon, 2011; Leemon & Schimelpfenig, 2003).

To address this issue, we plan to redesign the participation data section of the UPLOADS Software

Tool and improve our online training material. Fifth, only 50% of reported incidents contained had

sufficient associated information to support further analysis with the UPLOADS Accident Analysis

Method. This means that critical information regarding incident causation could not be gleaned from

these reports. Further work with the sector is required to increase the quality of the incident de-

scriptions. A series of workshops are planned for 2016 on entering incidents, using the UPLOADS Ac-

cident Analysis Method and developing countermeasures. Despite these limitations, to date, this

represents the most comprehensive incident data available for led outdoor activities in Australia.

Conclusions

        This report provides a watershed moment for the led outdoor activity sector in Australia,

presenting the findings from an analysis of the first six months use of UPLOADS. The findings pro-

vide important conclusions regarding participation rates and incidents and their associated contribu-

tory factors. It is concluded that UPLOADS provides the sector with a usable system to report and

analyse participation and incidents and in turn that is possible for organisations to report usable

data. Whilst there is work to do in order to enhance uptake of the system and indeed the quality of

the data reported, it is clear that UPLOADS will be an important tool in the sectors delivery of safe

led outdoor activities. It is intended that the continued analysis and dissemination of the UPLOADS

National Incident Dataset will contribute to Australian efforts to reduce incidents during led outdoor

activities.

Appendix A: Categorisation of Activities

Activity category	Activity coded in participation data
Archery	Archery
Arts & Crafts	Arts & Crafts
	Bush Art
Beach activities	Beach Sports/activities
	Fishing
	Sandboarding
Campcraft (e.g. cooking, campfires)	Camping: Campcraft (e.g. cooking, campfires)
Camping tents	Camping: Pioneering
	Camping: Soft top (i.e. tent type accommodation)
Caving	Caving
	Caving (artificial)
Curriculum-based activities	Curriculum-based activities (e.g. Environmental, conservation, science studies)
	Earth Education
	Environmental Rehabilitation Rolls
Free time outdoors	Free time Unstructured: outdoor accidents during free time
Harness: indoors	Harness: Climbing artificial surfaces
Harness: outdoors	Aerial Runway
	Bouldering
	Combo abseil and climb
	Giant Swing
	Harness: Abseiling
	Harness: Canyoning
	Harness: Crate climb
	Harness: Dangle Duo
	Harness: Flying fox/zip line
	Harness: Giant swing
	Harness: High/low ropes courses
	Harness: Leap of faith
	Harness: Outdoor rock climbing
	Harness: Prussiking
	Multi-pitch abseil
	Pamper Pole
Horse/Camel riding	Camel riding
Ocean activities	Aquatic: Sailing
	Aquatic: Sea kayaking
	Aquatic: Snorkelling
	Aquatic: Surf Education
	Aquatic: Surfing
	Aquatic: Swimming
	Standup Paddle Boarding
Residential camps	Camping: Hard top (i.e. indoor accommodation)

	Expedition Preparation
River activities	Aquatic: Canoeing
	Aquatic: Dragon Boating
	Aquatic: Kayaking (flatwater)
	Aquatic: Rafting (flatwater)
	Aquatic: Rafting (whitewater)
	Raft Making
	Rock Pooling / Creek Dipping
Snowsports	Snow: Skiing (Cross-country/Nordic)
	Snow: Skiing (Downhill)
	Snow: Snowboarding
Teambuilding games	Animal Games
	Initiatives/Team games
	Night Time Activities
Trampoline	Trampoline
Travelling - by bus	Travelling - by bus
Walking/running outdoors	Adventure Course
	Adventure Racing
	Bird watching
	Bushwalking
	Farm Days
	Geocaching
	Guided Tour
	Kite-flying
	Laser Skirmish
	Orienteering/Rogaining
	Running activities
	Solo Day/Environmental Interpretation
Wheel sports	Wheel sports: Billy Carts
	Wheel sports: Cycling (bmx)
	Wheel sports: Mountain biking
	Wheel sports: Quad biking
	Wheel sports: Skating - inline and skateboarding

Appendix B: Feedback on the draft report and response from the UPLOADS Research Team.

Prior to the release of the final report, we sought feedback from the sector on the content and format of the draft report. The draft report was sent out via email for comment to organisations that are directly involved in the UPLOADS Project, and representatives of industry bodies and government departments that have an interest in the findings from the project. In addition, the findings were presented at a seminar on the 20th March 2015 at the Department of Sport and Recreation, Victoria.

Feedback was requested on the following points:

- Have we answered your burning questions about the data?
- What additional information about the data would you like?
- Does the presentation of the findings make sense?
- Are more/less details needed?
- Are further explanations of the data required?

We received written feedback from six people and verbal feedback from eight people. The majority of feedback was positive. Some examples:

"From my perspective the report makes sense and provides useful data to reflect and plan on…. Great work well done."

"May I request that my congratulations be passed on to the whole team working on Uploads. The report is indeed a watershed moment for the industry...I have found the report both enlightening and encouraging."

"Wow, wow, wow!!! As you point out this really is a watershed moment for our industry and we do need to change to a "systems thinking approach to accident causation"…. Detail is good. Lets you dig deeper if needed without overwhelming you.

"The discussion section is excellent."

"I found it useful, and like the amount of detail, I certainly don't think there should be less."

A number of suggestions for improving the report were also put forward; where possible, we have revised the report in line with these suggestions. Other suggestions will be addressed as more

data is collected and others will be addressed in later stages of the planned research. Table 25 details the suggestions put forward and the response from the UPLOADS Research Team.

Table 25: Suggestions for improving the draft report and response from the UPLOADS Research Team

Comment	Reponses
At this stage I believe it gives all data I would expect perhaps in time more details of like incidents would be available to suggest minimisation strategies?	The development of appropriate injury countermeasures is an important next phase in the UPLOADS program. Accordingly, additional funding has been sought from the Australian Research Council to develop a new countermeasure development framework for the sector. If the funding application is successful, this research will begin early 2016. It is important that countermeasure development is led by the sector and the organisations experiencing the incidents (with the research team acting in an advisory capacity). Accordingly, we plan to run annual workshops with representatives from the outdoor sector to formulate countermeasures. We believe that this is a more appropriate approach than making suggestions ourselves, as people within the sector (rather than researchers) have the expertise to make recommendations for change.
I note "Participation days was not included in the analysis, as the initial check of the data revealed that some values were outside the range of possible values (e.g. indicating that data had been entered incorrectly)." Can this be corrected/improved in future data collection as I would think that (e.g.) an injury from 25 participants engaged in a 12 day hike (1:300 Participant days) is a more accurate base on which to work injury rates than an injury with 25 participants (1:25).	We agree that participation days represents critical information for the outdoor sector. To address this issue, we plan to redesign the participation data section of the UPLOADS Software Tool and improve our online training material (see p.60). This will enable the collection of more accurate data around participation days.
How does the analysis account for overlap (e.g. Residential Camps may have one or more of the other activities as part of their program?) Is there any mention of the total number of participants?	Organisations are asked to provide participation data for each activity then conduct. Therefore, there is likely to be overlap between activities. 　　　To address this issue: 1) We have revised the incident rates to reflect an average across all activities (rather than summing the number of participants); 2) The redesign of participation data will take into account the need

	to collect data on the total number of participants.
Is there any way of finding if Accreditation (ATAP http://www.atap.net.au/industry/ or NARTA http://www.narta.org.au) has any net effect? As more organisations enter data this may be a question that could be answered so that trends could be determined. (i.e. Does being accredited help??)	Currently, the demographics survey is not set up to collect this data, and we do not have enough organisations involved to report meaningfully on this issue. However, if more organisations join the project, these questions could easily be addressed through a survey.
I realise the complexity of the relationship (spaghetti) charts but it may be worthwhile including some snapshot analysis under each to enable the uninitiated better understanding. Everything else is great.	The Accimap diagrams are complex; however, we feel it is important at this stage to communicate this. The diagram shows clearly that there are important interrelated contributory factors across all levels of the system. It is hoped that this supports a movement away from the currently prevalent culture of blaming individuals such as leaders and participants. We agree, however, that the diagram is difficult to read. We have attempted to explain some of the intricacies via shading and by presenting tables of the relationships between contributory factors. In addition, we have also added a section on p. 25 providing advice on reading the Accimap.
Although perhaps outside the scope of the report, something that I think would be very useful to many, would be comparative statistics as you have done in a slide on the Uploads website, comparing cricket, horse riding, soccer, netball etc. Perhaps this could be a separate one off report (that could then be updated every few years by a peak body).	Great suggestion! We will produce a one pager comparing the findings to other organised sports at the completion of the 12 months period.
It would also be very useful to have some workshops giving training on entering incidents, looking at coding causal factors the analysis and developing countermeasures within organisations.	We agree and have been providing such workshops based on appropriate requests from the sector. A series of workshops are planned for 2016 on entering incidents, using the UPLOADS Accident Analysis Method and developing countermeasures.
It would be nice to know the percentage of data submitted from all participating organisations. I know the report is anonymous however it feels that it's certainly being driven by OEG as the most influential contributor. It's fantastic that such a large organisation are on board and providing such a large amount of data however I'm not sure it's a true representation of the industry as a whole.	To maintain confidentiality, it is not possible to report on the percentage of data submitted from each organisation. However, over time with more data we will be able to produce special reports on data from different types of organisations (e.g. schools, camp-type organisations) and organisations of different sizes (e.g. organisations with less than 5 full time staff, organisations with more than 50 full time staff).

	Due to difficulties with using the UPLOADS Software Tool across multiple sites and large scale data entry, OEG have not contributed data to the National Incident Dataset. We are currently seeking funding to develop a web-based app that would be more appropriate for large multi-site organisations.
Sample of organisations – need more detail on who is involved.	We have included further demographic information on the organisations that contributed data.
Lack of reporting of causes could be down to people reporting lots of less severe incidents.	We agree. Hopefully this will be addressed in future reporting cycles where the threshold has been increased to severity of 2.
[For persons injured] could you include the general demographic data as well? Were most of the participants in general teen girls? Does this information imply that teen girls get injured more than teen boys or were overall participant demographics skewed the same way? (E.g. if 90% of the participants were 15 females, I wouldn't read too much into this, but if only 50% of the participants were female, then I would be curious why they are so overrepresented.	UPLOADS doesn't collect demographic information on participant who are not injured, and it is beyond the scope of the current project to do so. However, this issue could be addressed through follow on projects.
[Definition of near miss] I was wondering about this definition – what do you think about tying it with the Adverse Outcome language"? I was thinking about "Any event that potentially results in a negative impact, if not for preventative action or chance", i.e. – an Adverse Outcome Avoided. Anyway, don't know if you want stuff like that included in this.	The extremely low number of reported near miss incidents suggests that this area warrants further attention within organisations and from the UPLOADS research team. On the one hand, it may indicate that there is not a strong culture of reporting near misses within the sector. On the other hand, the definition of a near miss may not be suitable for the led outdoor activity domain, as it was adopted from healthcare. To address this issue, we plan to develop an online training package on reporting near misses. We are also actively seeking an honours student or PhD candidate to undertake research in this area.
Should the two [organisations] that dropped out [in the second reporting period] still have their data included in the 6-month analysis?	
Why exclude [incidents associated with social or psychological outcomes, equipment damage, missing or overdue people and equipment damage]? Does the low numbers effect the value of the contributing factor analysis, or just not worth it due to the specifics of the incidents?	The guidelines set for reporting are more than 3 incidents from more than 3 organisations. The incident collected reporting on equipment damage, missing or overdue people and equipment damage does not meet this threshold.

While the incident rate for social or psychological outcomes does meet this criteria, |

	it was decided that the information contained in the reports was too sensitive to report on only 20 reports. We have now increased the criteria for reporting incidents associated with social or psychological outcomes to more than 100 incidents from more than 5 organisations.
[Injury-causing incidents not related to an activity or program are excluded from the figure below (n = 22)] Are these incidents due to data entry error?	No. Some organisations are using the UPLOADS Software Tool to record all incidents that are occurring, including those that occur outside the context of an activity or program (e.g. gardening, catering injuries). From the perspective of the research team, this represents the best approach for managing incidents, as it removes the need for a second system and gives a more holistic understanding of the most frequently occurring incidents. However, these incidents are outside the aims of the National Incident Dataset so they are excluded from analysis.
Severity scores - Would love to see the count included here (our organization looks quite deeply into severity 3 incidents)	We have updated all graphs to include data labels (e.g. numbers).
For type, there is: Dislocation, sprain and strain/Injury to muscle, fascia and tendon. As a tendon/muscle injury is also a strain; some staff confused by this.	These injury types are from the World Health Organisations International Classification of Diseases (ICD-10) which is a standard epidemiological diagnostic tool. Eventually, using the ICD-10 will ensure that the data collected by the UPLOADS National Incident Dataset is comparable to hospital data collections and other injury data from around the world. However, we acknowledge that there may be differences in how the outdoor community understand injury types. We will include explanations of the classifications in the new training package.
Superficial injury makes up so many of these incidents, should there be clarity among the different types?	Superficial injuries reflect cuts, scrapes, bruises and abrasions. The research suggests that it is typically difficult to code these types of injuries at a lower level of detail.
Why is this different to the 520 injuries noted earlier? Or did only 505 records detail patient role?	Yes, that is correct. We have now clarified this within the text.
Weather - s there any indication of the general weather across the programs detailed? E.g. if 80% of the reports were Oct/Nov, we'd expect a lot of pleasant weather.	The ratings of weather will become more relevant once more data is collected, across multiple seasons. This will allow us to examine whether there is any relationship between the weather conditions and injuries in certain activities.
This is an example where I would expect to show where severity fell based on activity leader qualifications.	The report now includes a graph of incident severity ratings according to whether the leader

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	was qualified for injuries, illnesses and near misses.
Contributing factors- Again, this by severity would really help us out.	Currently, to maintain confidentiality it's not possible to report on contributing factors by severity. However, once more data is collected this will be included in future reports.
On page 10, you asked for reported Adverse Outcomes of 1 or above. Should the 0 Severity record(s) be excluded?	Although organisations are asked to report on all incidents with a rating of 1 or above, there is no direction not to report on less minor events. As this only represents 1 incident report, this should not have a significant impact on incident rates. In future reporting cycles, we may exclude incidents rated 0 or 1 from the calculation of incident rates as we have instructed organisations to report on all incidents of 1 or above.
Do we know if these evacuations are for the day for from the program as a whole?	No, we do not collect details on length of evacuation.
Illness unknown = 41% unknown is pretty high. Is there anything indicating any assessment to determine if these were an illness or something else?	More information is included in the incident description. However, this finding is not surprising, as the person making the assessment is typically an instructor rather than a clinician.
Are there any suggestions related to improving/addressing these limitations (as well as those listed above) in future reporting cycles?	We have amended the report to describe how each limitation will be overcome in future reporting cycles.
Include an appendix of the activities classified under each category	This is now included in Appendix A

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