

UPLOADS: Overview of a new approach to incident reporting for the outdoor sector

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**University of the
Sunshine Coast**

Accident Research (USCAR)

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Overview

- Problem statement: the motivation behind the project
- UPLOADS Accident Causation Model
- UPLOADS data collection and analysis system

Background

- Acknowledged risk of severe and frequent injury in active pursuits (Finch et al, 2007)
- Accidents & injuries occur in led outdoor industry domain
- Industry desire to better understand injury causation
- Systems required to enhance understanding do not exist

What can we do about it?

- Appropriate study of accidents an accepted approach for enhancing safety
- Accident and injury surveillance systems/Databases
- Theories and methods used to understand accidents critical
- Application of contemporary theories and methods e.g. Systems approach to accident causation

Collective Mindfulness



Accident causation



Our vision: UPLOADS

A standardised, industry-wide, approach to incident reporting and learning.

To assist outdoor organisations to:

- Collect detailed information on near misses and adverse events using an electronic database, so they can detect trends and formulate countermeasures.
- Contribute deidentified data to an industry-wide database. The results will be regularly analysed and disseminated so that the industry can understand the risks it faces and take appropriate action.

Collecting useful incident data requires...

1. Domain-appropriate model of accident causation
2. Comprehensive data collection system

Both ingredients are necessary to identify the factors impacting on safety and develop appropriate countermeasures.

UPLOADS Model of Accident Causation

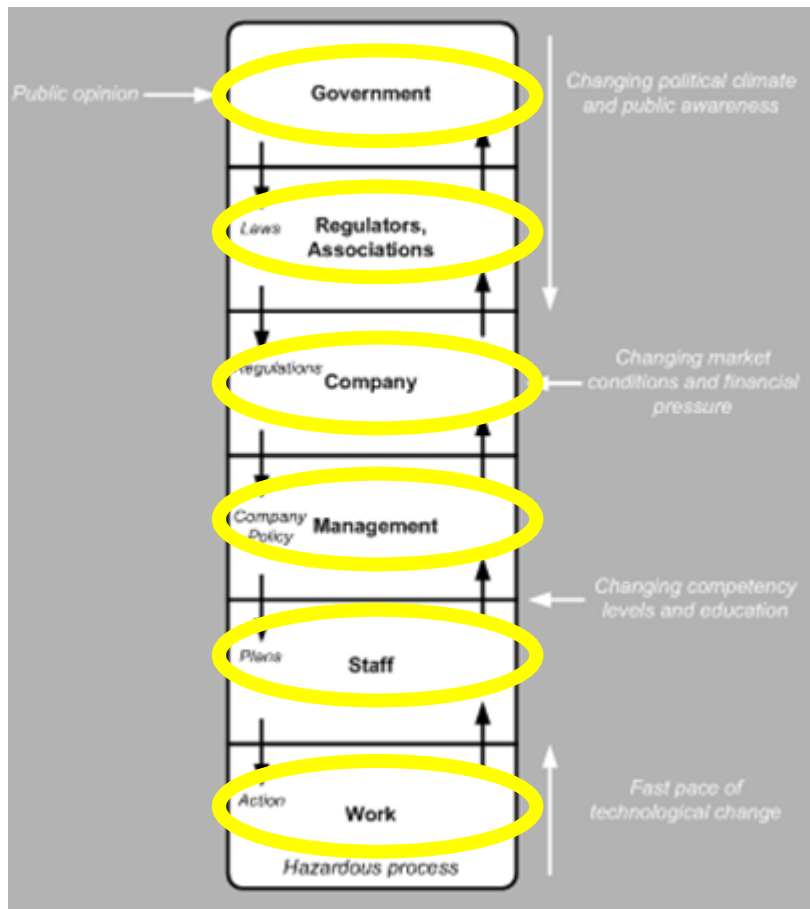
- Underpinned by the systems approach
- Rasmussen's Risk Management Framework adapted for the outdoor activity context

The key principles of the systems approach

1. Safety is impacted by the decisions and actions of everyone in the led outdoor activity system not just front line workers
2. Near misses and adverse events are caused by multiple, interacting, contributing factors.
3. Effective countermeasures focus on systemic changes rather than individuals.

The goal of UPLOADS is not to assign blame to any individual, but to identify how factors across the led outdoor activity system combine to create accidents and incidents.

A systems approach: Rasmussen's Risk Management Framework

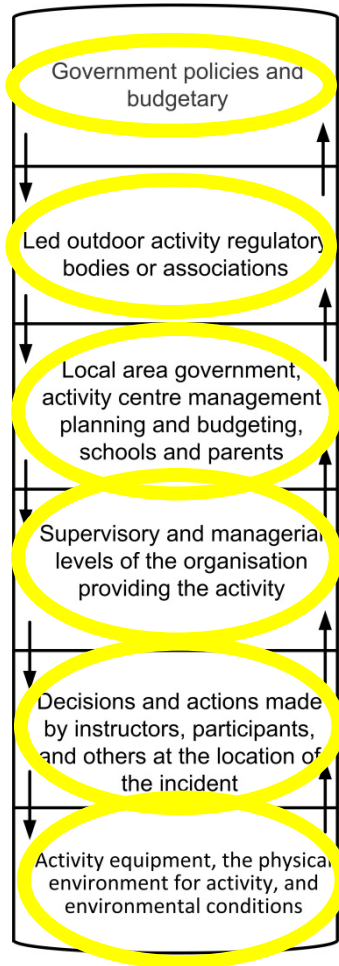


The basis for all aspects of UPLOADS.

Key ideas:

- Decisions and actions at all levels contribute to accidents.
- 'Vertical integration' is required to maintain safe operations.

Adapted for the outdoor context



- Inadequate funding
 - Poor land management
 - Inadequate policy/legislation
 - Failure to conduct audit/inspection
 - Inadequate auditing process
 - Accreditation check inadequate
 - Parents - Fail to inform organisers of medical condition
 - Schools - High staff/student ratio
 - Activity centre - Inadequate risk/hazard management system
 - Failure to check weather forecasts
 - Failure to consider staff skill sets
 - Poor rostering
 - Group - Bullying
 - Participant - Failed to follow instructions
 - Instructor - Lack of competence/skills/capabilities
 - Animal/insect hazard
 - Activity clothing/PPE not used
 - Rain
- Based on:
- Incident reports from Australian outdoor activity providers; and
 - Incident reports from NZ MSC

UPLOADS data collection system

- Specifically designed for outdoor activity providers
- Systematic record keeping
- Domain-specific taxonomy for coding causal factors
- Tools for analysing complex data
- Paper-based and video training
- Secure and confidential contribution to industry database

Specifically designed for outdoor activity providers

- The database fields are specific to outdoor activities.

Incidents	Staff	People	Courses	Templates
Change view	New Record	Delete	Find	Show All

The incident information entered in this form will be sent (via Export) to the University of the Sunshine Coast for further analysis. All names selected via the provided dropdown lists will be automatically de-identified following data export.

1. General Incident Information

Incident ID	<input type="text" value="IAAA_1000"/>
Title	<input type="text" value="understanding waterfalls"/>
Type of Incident	<input type="text" value="Incident associated with adverse outcomes"/>
Severity	<input type="text"/>
SOP number	<input type="text"/>
Course	<input type="text" value="Kayaking 2013-04-22 10:00"/> View
Activity associated with incident	<input type="text" value="Inland aquatic: Kayaking"/>
Staff supervising activity at the time of the incident	<input type="text"/>
Number of people involved in activity	<input type="checkbox"/> Participants (e.g. students) <input type="checkbox"/> Volunteer helpers (e.g. parents) <input type="checkbox"/> Qualified instructors <input type="checkbox"/> Supervisors (e.g. teachers, youth leaders)

Based on the accident causation model developed for the outdoor context

- A domain-specific taxonomy is provided to code the causal factors involved in incidents, that is based on the accident causation model.

Equipment and materials: Activity equipment		<input type="checkbox"/> Yes
<input type="checkbox"/> Equipment not used properly		
<input type="checkbox"/> Failure to use equipment		
<input type="checkbox"/> Inadequate equipment		
<input type="checkbox"/> Lack of equipment		
<input type="checkbox"/> New/unfamiliar equipment		
<input type="checkbox"/> Wrong equipment		
<input type="checkbox"/> Other		

Equipment and materials: Clothing and PPE		<input type="checkbox"/> Yes
<input type="checkbox"/> Activity clothing/PPE not used		
<input type="checkbox"/> Activity clothing/PPE not used properly		
<input type="checkbox"/> Inadequate activity clothing/PPE		
<input type="checkbox"/> Lack of clothing/PPE		
<input type="checkbox"/> Restrictive clothing/PPE		
<input type="checkbox"/> Wrong clothing/PPE		
<input type="checkbox"/> Other		

Systematic record keeping

UPLOADS helps you track:

- Near miss and adverse events during activities.
- Staff contact details, qualifications, medical records and dietary requirements.
- Participant/teacher/volunteer contact details, medical records, dietary requirements and behavioural issues.
- Course times, locations, participants and supervisors.

2. Adverse outcomes

a) Outcomes involving injuries, illnesses and/or social/psychological damage

Staff ID		or	Person ID	
			GOODE, Tiffany	
Was the incident fatal? <input checked="" type="radio"/> No <input type="radio"/> Yes				
Experience in activity associated with incident		Unknown		
Injury type		Fracture		
Injury location		Head		
Illness		Not applicable		
Social/psychological				
Treatment at the scene of the incident				
Evacuation method		Not applicable		
Hospitalisation required? <input checked="" type="radio"/> No <input type="radio"/> Yes				
Emergency services called? <input checked="" type="radio"/> No <input type="radio"/> Yes				
If yes, which emergency services were called?				

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Incidents	Staff	People	Courses	Templates
Change view	New Record	Delete	Find	Show All

Staff ID	SAAA_1003	Dietary restrictions	None
First name	Alira		
Last name	Goode		
DOB	20/07/1961		
Gender	<input checked="" type="radio"/> Female <input type="radio"/> Male	Medications	Ventolin
Home phone	07 5453 8782		
Work phone	07 5223 5663		
Mobile	0420 199 566	Pre-existing medical conditions or injuries	Ankle injury 2011
Fax			
Email	agoode@expo.com	Notes	
Emergency contact	Jim Goode		
Phone	0412 955 266		
Position	Instructor		
Address	1 Green St		
Suburb	Wyong		
State	QLD		
Postcode	4552		
Qualifications	Name of qualification	Date awarded	
	Diploma of Outdoor Recreation	01/08/2011	

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- Course times, locations, participants and supervisors.

Incidents	Staff	People	Courses	Templates
Change view	New Record	Delete	Find	Show All

Person ID	PAAA_1002		
First name	Tiffany		
Last name	Peters		
DOB	20/08/1999	Age	13
Gender	<input checked="" type="radio"/> Female <input type="radio"/> Male		
Home phone	07 6666 5423		
Work phone			
Mobile	0423 187 543		
Fax			
Email			
Emergency contact	Mabel Peters		
Phone	07 6666 5423		
Classification	Participant		
Experience in led outdoor activities	No prior experience		
Address	1 Yellow St		
Suburb	Claymore		
State	QLD		
Postcode	4223		
Country			

Dietary restrictions
No shellfish

Medications
Prednisone Oral

Pre-existing medical conditions or injuries
None.

Known behavioural
Potential sleepwalker.

Systematic record keeping

UPLOADS helps you track:

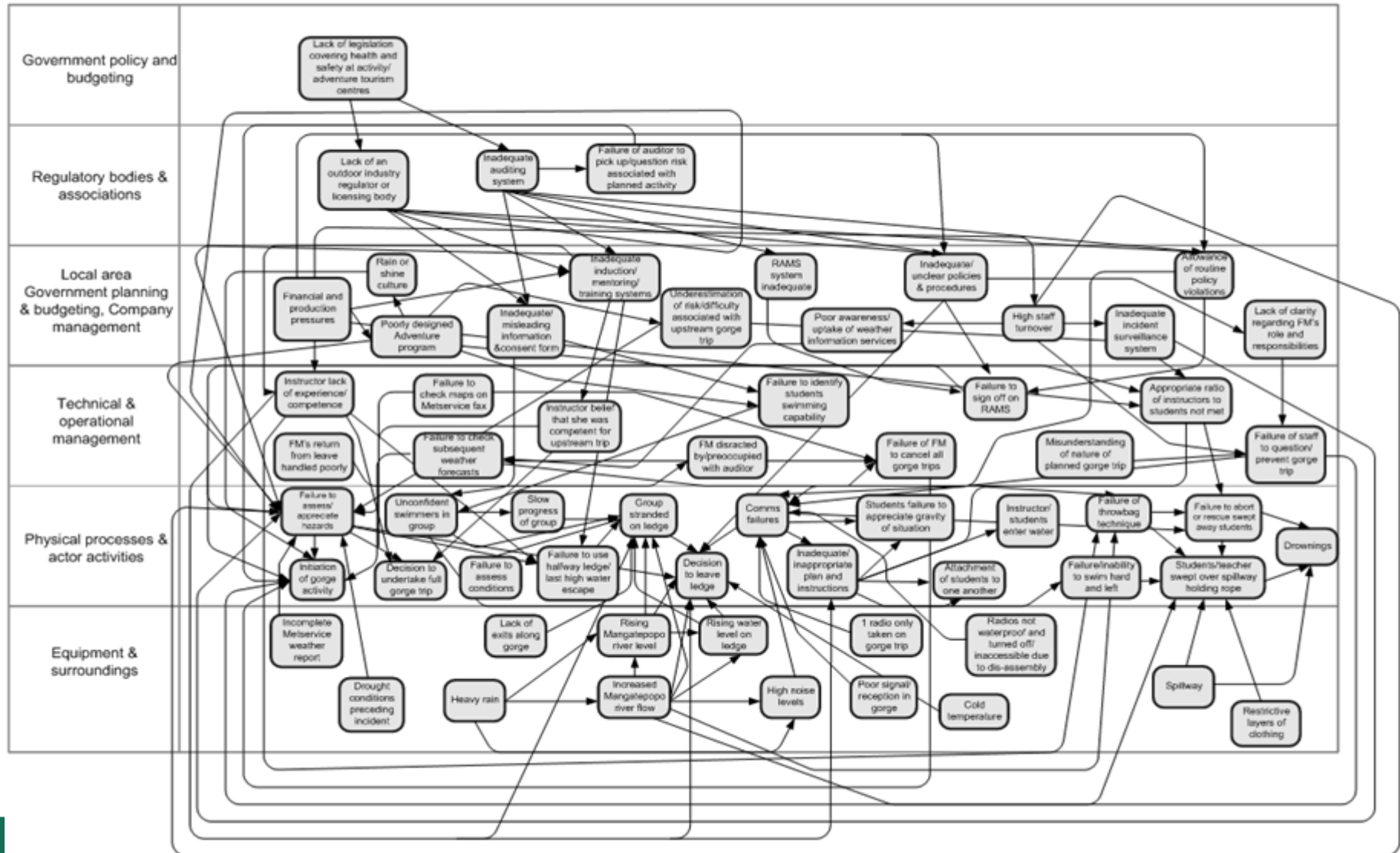
- Near miss and adverse events during activities.
- Staff contact details, qualifications, medical records and dietary requirements.
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- Course times, locations, participants and supervisors.

Incidents	Staff	People	Courses	Templates
Change view	New Record	Delete	Find	Show All

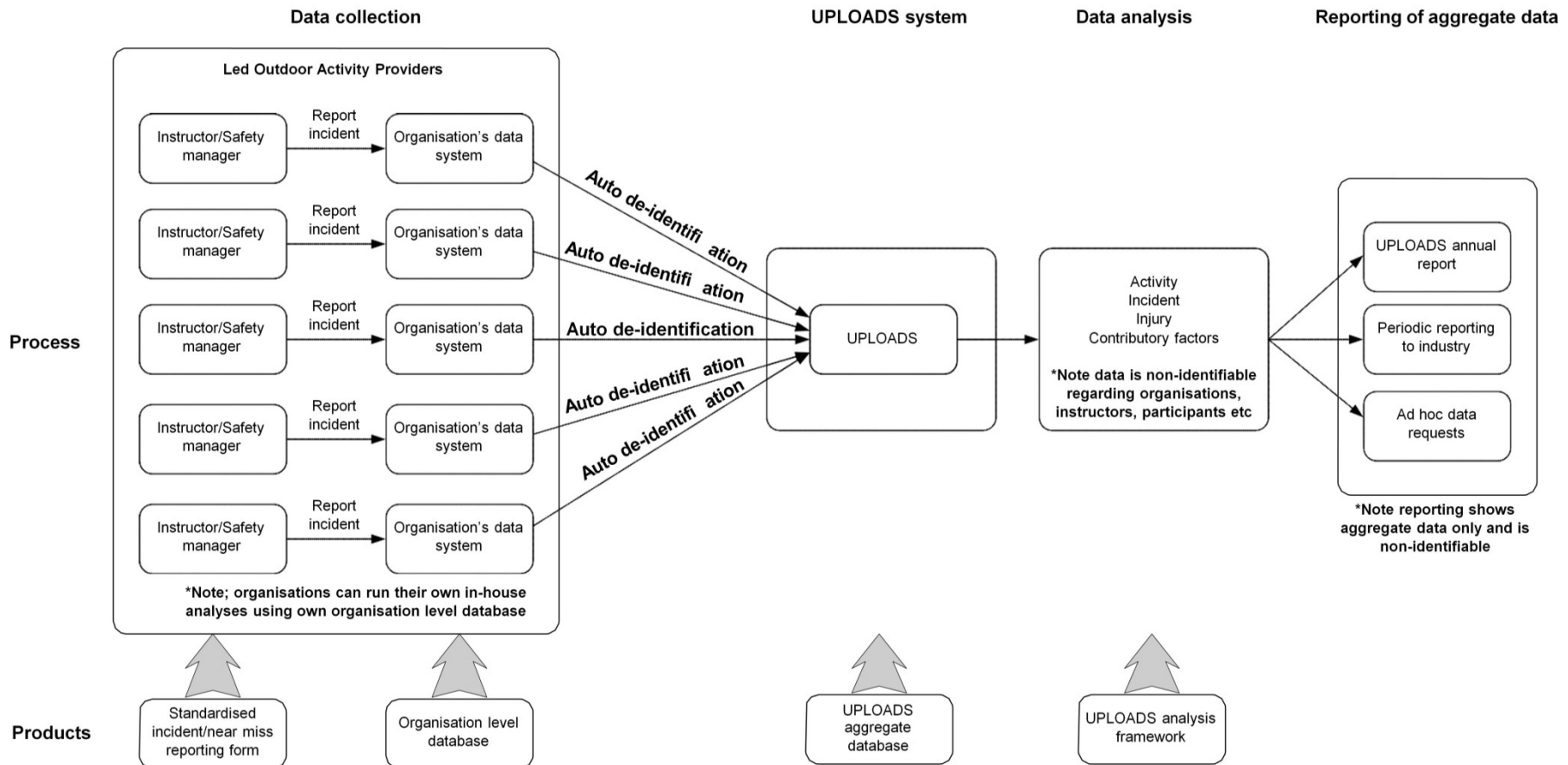
Template ID	TAAA_1000	<input type="button" value="View"/>	Participant limit	20
Course name	Kayaking		Total limit	25
Location	Templestow			
Course ID	CAAA_1000		Staff	
Organisation			GOODE, Alira	
Start date/time	Mon, 22 Apr 2013	10:00	GOODE, Natassia	
End date/time	Mon, 22 Apr 2013	15:00	SALMON, Paul	
Course notes	THOMAS, Miles			

People	Gen	Age	Emergency contact	Emergency phone
DICKENS, Charles	M	14	Emily Dickens	07 5333 5444
GOODE, Petre	M	14	Mark Goode	07 6666 5544
PETERS, Tiffany	F	13	Mabel Peters	07 6666 5423

Data analysis tools



Secure and confidential reporting



Example: industry-wide accident causation analysis

1014 Incidents

Number in brackets denotes frequency of occurrence of contributing factor

Government Policy and Budgeting	Government dept failed to fulfill safety responsibilities (12)	Actions of other organisations (1)						
Regulatory Bodies and Associations, schools and parents	Parents failed to provide information (10)	Parents fail to pick up participants (1)	Parents judgement error on fitness for camp (1)	Late arrival of group (5)	School failure to provide adequate information (1)	Industry failure to identify equipment issues (1)	Inaccurate activity rating system (1)	
Local area government, activity centre management, planning and budgeting	Poor/lack of risk management system (45)	Poor staff training evaluation system (33)	Poor/inadequate activity policy (13)	Lack of activity policy (2)	Subcontracting activities to other parties (11)	Poor incident learning systems (3)		
Technical and operational management	Poor planning of activity (58)	Failure to adequately plan for participants with special needs (26)	High participant to staff ratio (26)	Failure to provide appropriate equipment (8)	Poor implementation of risk management procedures (8)	Failure to maintain activity area (8) and equipment (7)	Poor communications with instructors (6) and participants (2)	Lack of staff (4)
Physical processes and instructor/participant activities	Participant factors (1359)	Instructor factors (808)	Group factors (81)	Supervisor factors (19)	Other actors (30)	Student leader factors (4)	Other (6)	
Equipment and surroundings	Hazardous terrain (509)	Lack of equipment (197) and equipment failures (144)	Adverse weather conditions (149) and temperature (76)	Plant hazard (65)	Animal hazard (63)	Visibility (46)	Poor communications with instructors (6) and participants (2)	Poor design of equipment (37)

Video and paper-based training

- Manual Part 1 The UPLOADS Approach to Accident Analysis
- Manual Part 2 The UPLOADS Software Tool
- Seven training videos which demonstrate how to use each component of the software tool
- Additional training materials provided to train staff to report incidents

UPLOADS: summary of features

- Based on a systems theory framework.
- Specifically designed for outdoor activity providers.
- Systematically track incident, staff and participant data.
- Tools to analyse your own data.
- Video and paper-based training material.
- Allows you to contribute deidentified data to an industry database.
- Analysis of industry-level data will provide evidence to support systemic changes.

Research activities to improve the system

- 6 month prototype trial (as at 14th October)
- Evaluation of prototype – outdoor experts and HF/injury surveillance researchers
- Coding reliability study – outdoor experts test the reliability of the coding framework

Six month trial progress

15 organisations

State (NSW = 5, QLD = 3, SA = 1, TAS = 1, VIC = 4, WA = 1)

Type of organisation (School = 2, RTO = 2, Neither = 10)

Type of organisation (Government agency/public sector = 2, Not-for-profit = 6, Commercial enterprise = 6)

Number of locations/operating sites (Range = 1 – 7, Mean = 2.85)

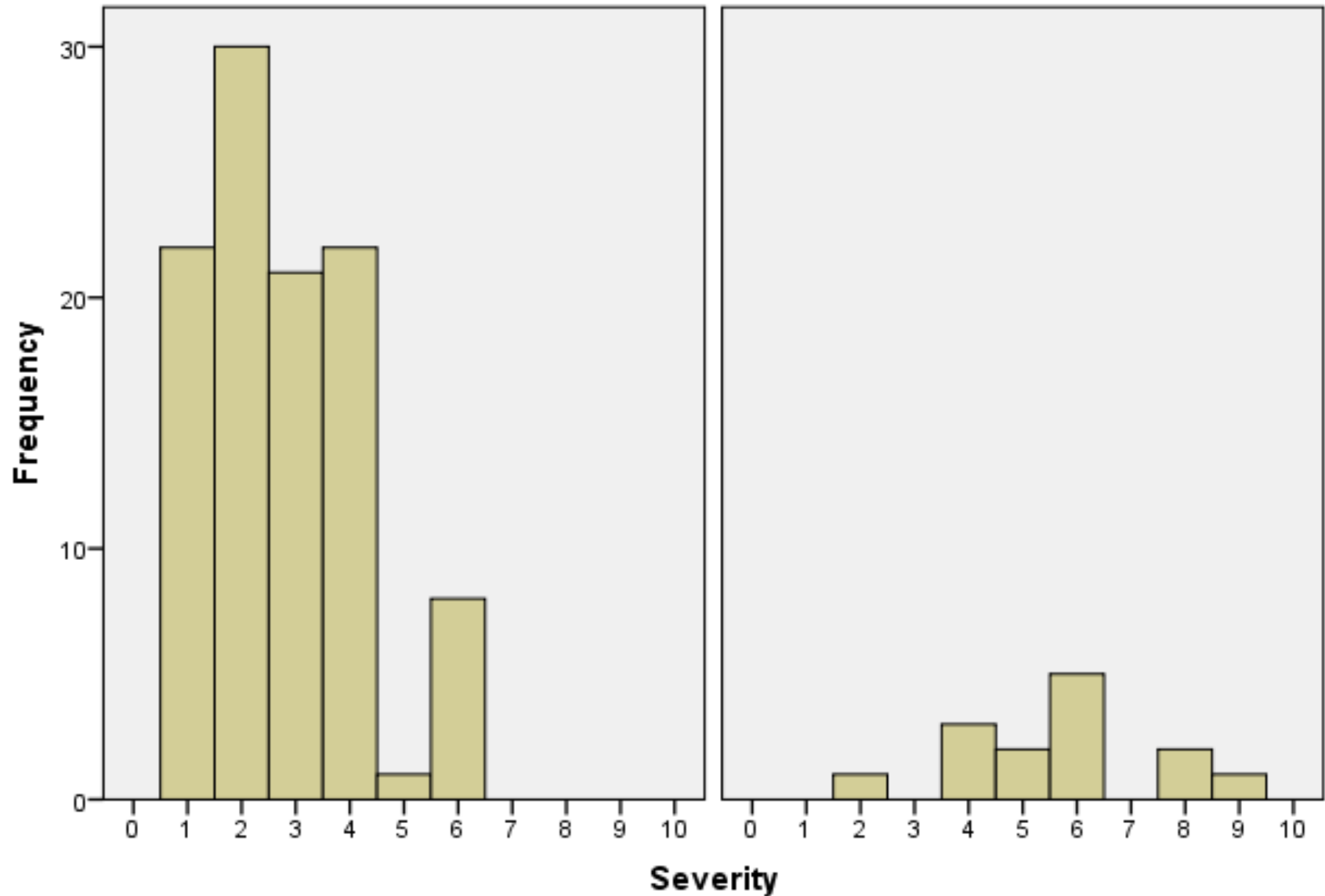
Initial incident data

- 8/15 organisations contributed incident data
- 118 reports
- 104 incidents associated with adverse outcomes
 - 83 injuries
 - 20 illnesses
 - 5 psychological/behaviour outcomes
 - 0 overdue/missing, equipment, environment
- 14 near misses

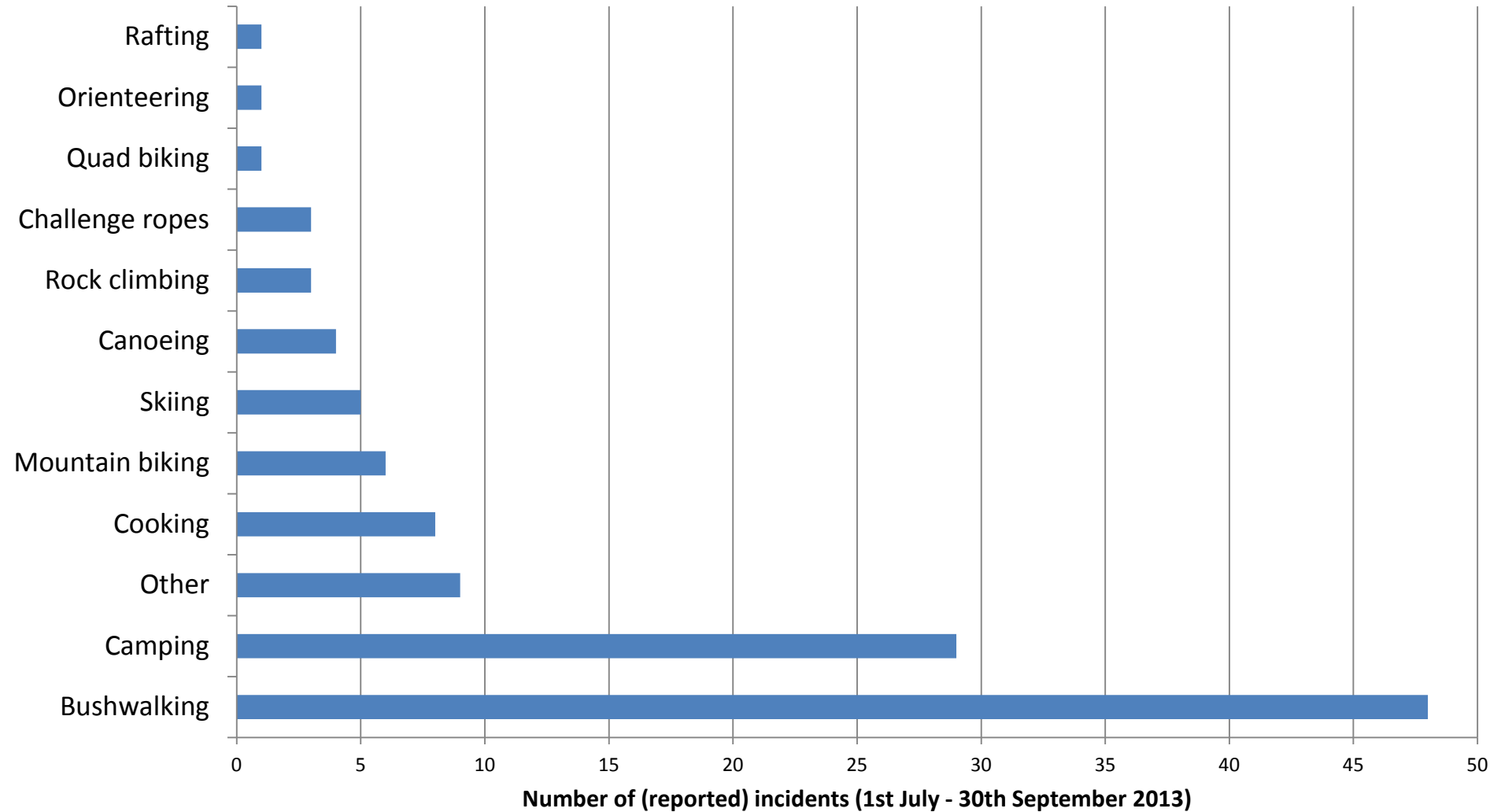
Incident_type

Incident associated with adverse outcomes

Near miss

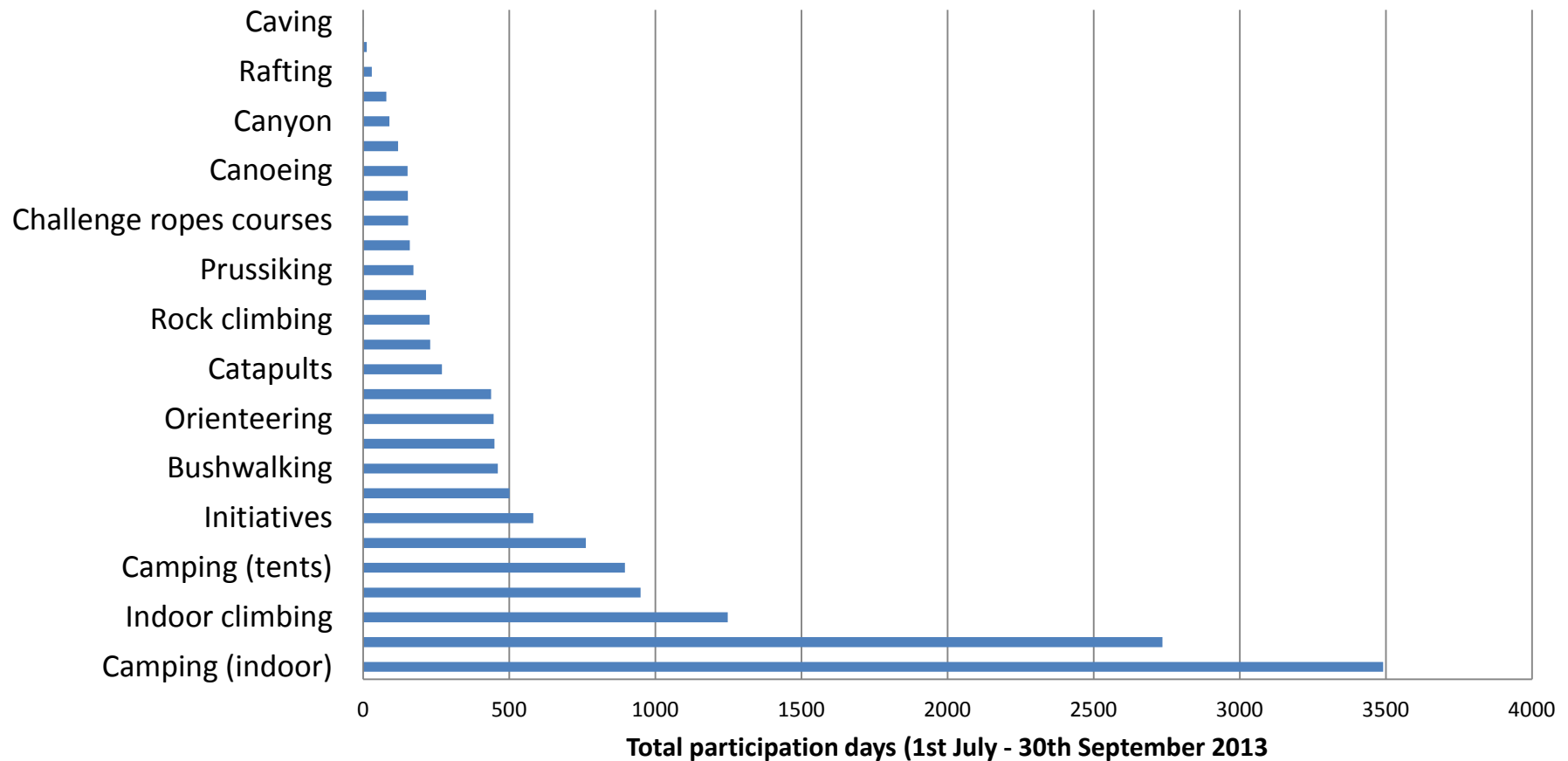


Incidents by activity



Participation data

- 9/15 organisations contributed participation data



Expert evaluation

Participants undertake a number of simulated reporting tasks, testing each aspect of the system. Asked for comments on all aspects, including software, forms and training.

Organisations involved in 6 month trial:

- 3/15 Complete

Outdoor Education/Recreation:

- 12/26 Complete

Human Factors/Injury Surveillance Experts:

- 11/15 Complete

Coding reliability study

Participants were asked to use the coding taxonomy to code 10 incident reports.

15 participants:

- 11 outdoor education/recreation providers
- 2 outdoor educator training organisation
- 2 outdoor industry bodies/professional associations

Average 15 years experience in the outdoor education/recreation sector

Majority had outdoor-specific qualifications (n = 13)

Majority lead activities as part of their current role (n = 9)

Interested?

- Become involved in the one year trial.
- Receive full support from our research team.

Contact:

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