

# An incident reporting and learning system for the outdoor sector

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**University of the  
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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

# The problem

- Many outdoor activity providers do not have an effective system for collecting and evaluating incident data.
- Outdoor activity providers that do collect incident data all do it in different ways.
- This makes it difficult to:
  - Identify the causes of near misses, injuries and fatalities to prevent similar accidents occurring.
  - Share what we have learnt with each other so we can improve safety across the industry.

# 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

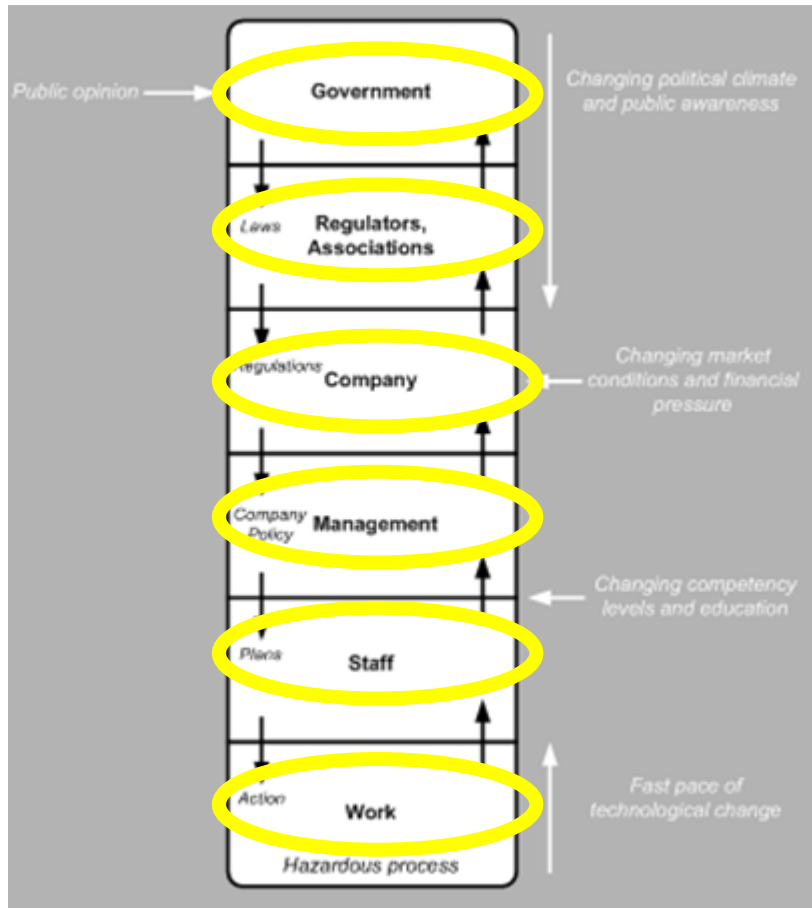
# The key principles of the systems approach

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

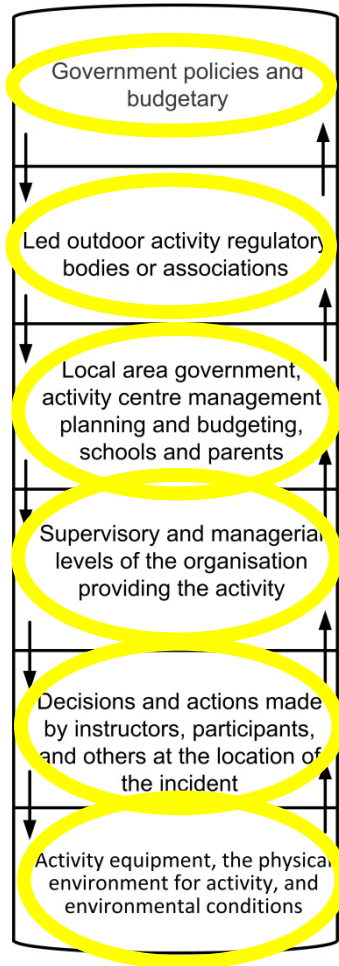


The basis for all aspects of UPLOADS.

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"/>
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="text"/>

Participants (e.g. students)  
Volunteer helpers (e.g. parents)  
Qualified instructors  
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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- Participant/teacher/volunteer contact details, medical records, dietary requirements and behavioural issues.
- Course times, locations, participants and supervisors.

Incidents	<b>Staff</b>	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	Pre-existing medical conditions or injuries	Ankle injury 2011
Mobile	0420 199 566		
Fax		Notes	
Email	agoode@expo.com		
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	



# Systematic record keeping

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- Participant/teacher/volunteer contact details, medical records, dietary requirements and behavioural issues.
- 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

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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	<a href="#">View</a>
Course name	Kayaking	
Location	Templestow	
Participant limit	20	
Total limit	25	

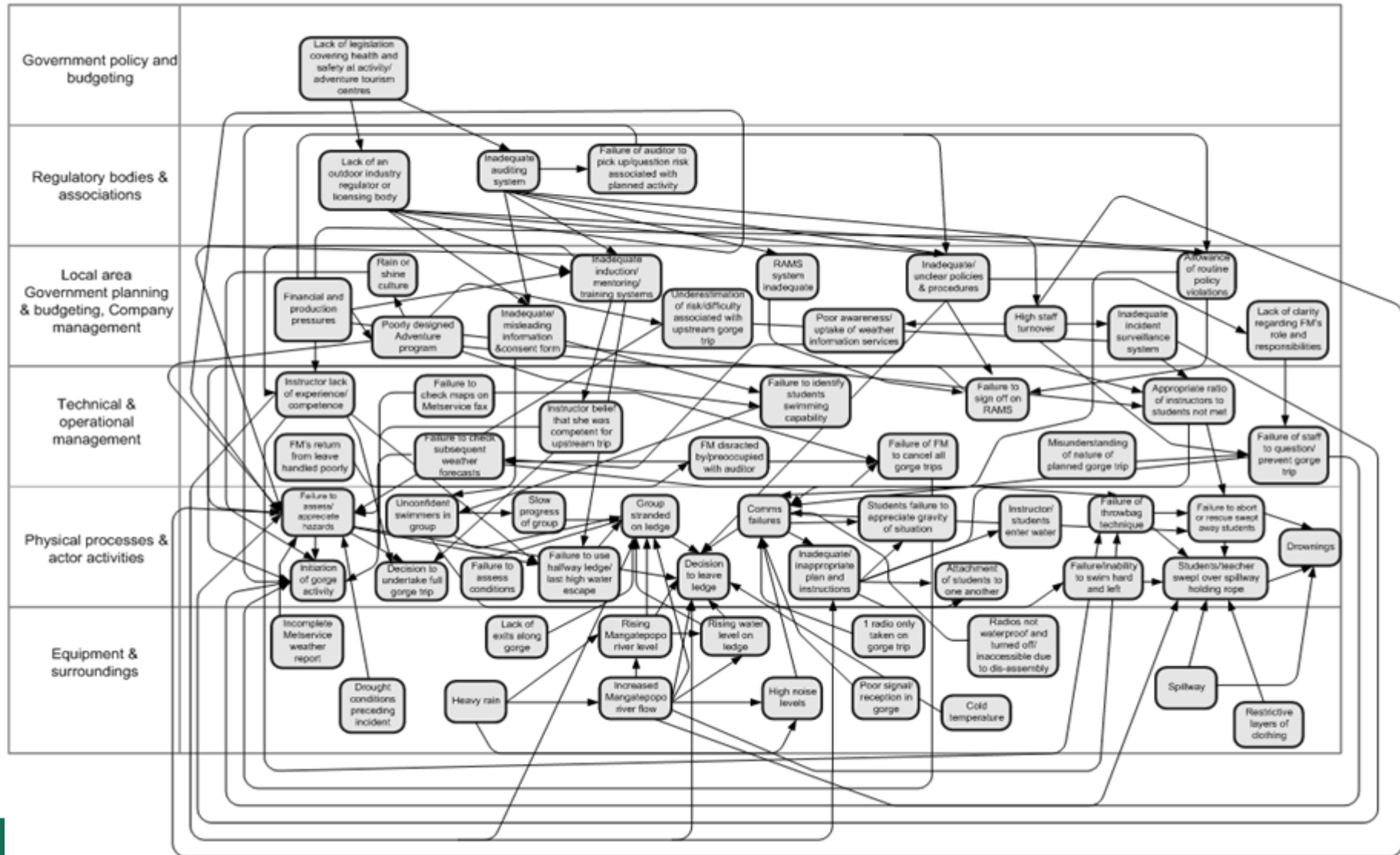
Course ID	CAAA_1000	
Organisation		
Start date/time	Mon, 22 Apr 2013	10:00
End date/time	Mon, 22 Apr 2013	15:00
Course notes		

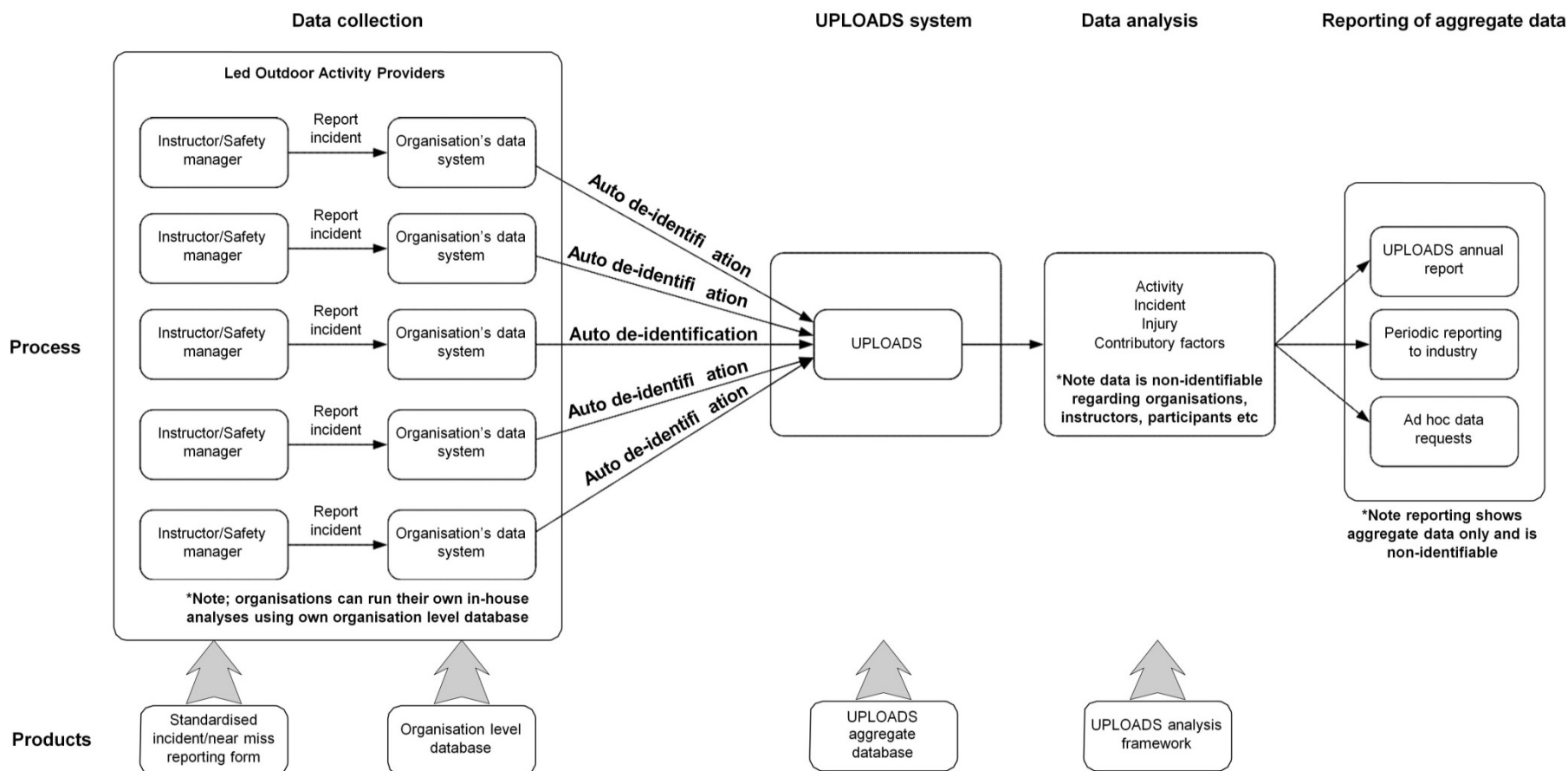
Staff
GOODE, Alira
GOODE, Natassia
SALMON, Paul
THOMAS, Miles

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.

# Interested?

- Become involved in the evaluation of the prototype.
- Help us refine the taxonomy and develop the usability of the system.
- Next year: Australia-wide trial
- Receive full support from our research team.

For more details contact:

Natassia Goode

[ngoode@usc.edu.au](mailto:ngoode@usc.edu.au)

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