

# Risk Management for Nature Centers

ANCA CONNECTS • November 20, 2025

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**Jeff Baierlein, Director, Viristar**



September 26, 2024

Howell Nature Center, Michigan

Twelve-year-old child on field trip  
fatally injured by falling tree  
during a presentation on how to  
make a fire

Tragedy raises the question: how  
to manage risk?



# Outline

- Basic Concepts
- Incident Prevention Models
- Risk Domains model
  - Risk Domains
  - Risk Management Instruments
- Safety by Design
- Standards
- Laws
- Additional Resources



# Core Points

1. Nature center risks are generally low
2. Take advantage of safety science and models to understand incident causation & reduce risk
3. Attend to safety standards, laws, and industry good practice

## Q&A

This presentation available at  
[viristar.com/post/nature-center-safety](https://viristar.com/post/nature-center-safety)

**Presenter:**  
**Jeff Baierlein**



- Director, outdoor consultancy Viristar
- Starting in 1987, led env. ed. activities at Aullwood Audubon Center, Glen Helen Outdoor Education Center, Mass Audubon Wildwood Nature Camp, Audubon Ecology Camp in Maine
- Served as Director of Education Services at NatureBridge-Olympic, Executive Director of the Boojum Institute for Experiential Education, Executive Director of Chesapeake Bay Outward Bound School
- Currently outdoor safety consultant & trainer, expert witness







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# Basic Concepts

**Risk:** the possibility of undesirable loss

**Risk Management:** the process of reducing risk so far as is reasonably practicable

**Four ways to manage risk:**

 <b>Eliminate</b>	Avoid certain activities, locations, conditions	No whitewater paddling
 <b>Reduce</b>	Institute sound safety practices	Remove hazard trees
 <b>Transfer</b>	Pass risk to insurers, contractors, participants	Liability waivers
 <b>Accept</b>	Acknowledge some risk as unavoidable	Inherent risk

Loss: physical illness/injury, psychological harm, property damage, reputational harm, etc.

# Models of Incident Causation and Prevention

Contemporary models based on complex socio-technical systems theory

- Not possible to identify all risks and their probability & outcome severity
- Risk environment is always changing
- Failure of one or more elements of safety system is inevitable—but how & when unclear
- Use 'resilience engineering' practices, including redundancy & extra capacity
- Models include AcciMap, Risk Domains model, among others



# AcciMap

- Originally developed for nuclear power industry
- Now used across industries globally
- For optimal safety outcomes, act at all levels of the system

**Government**

*Passes laws*

**Regulators, Associations**

*Create regulations*

**Company**

*Sets policies*

**Management**

*Makes operating plans*

**Staff**

*Performs work actions*

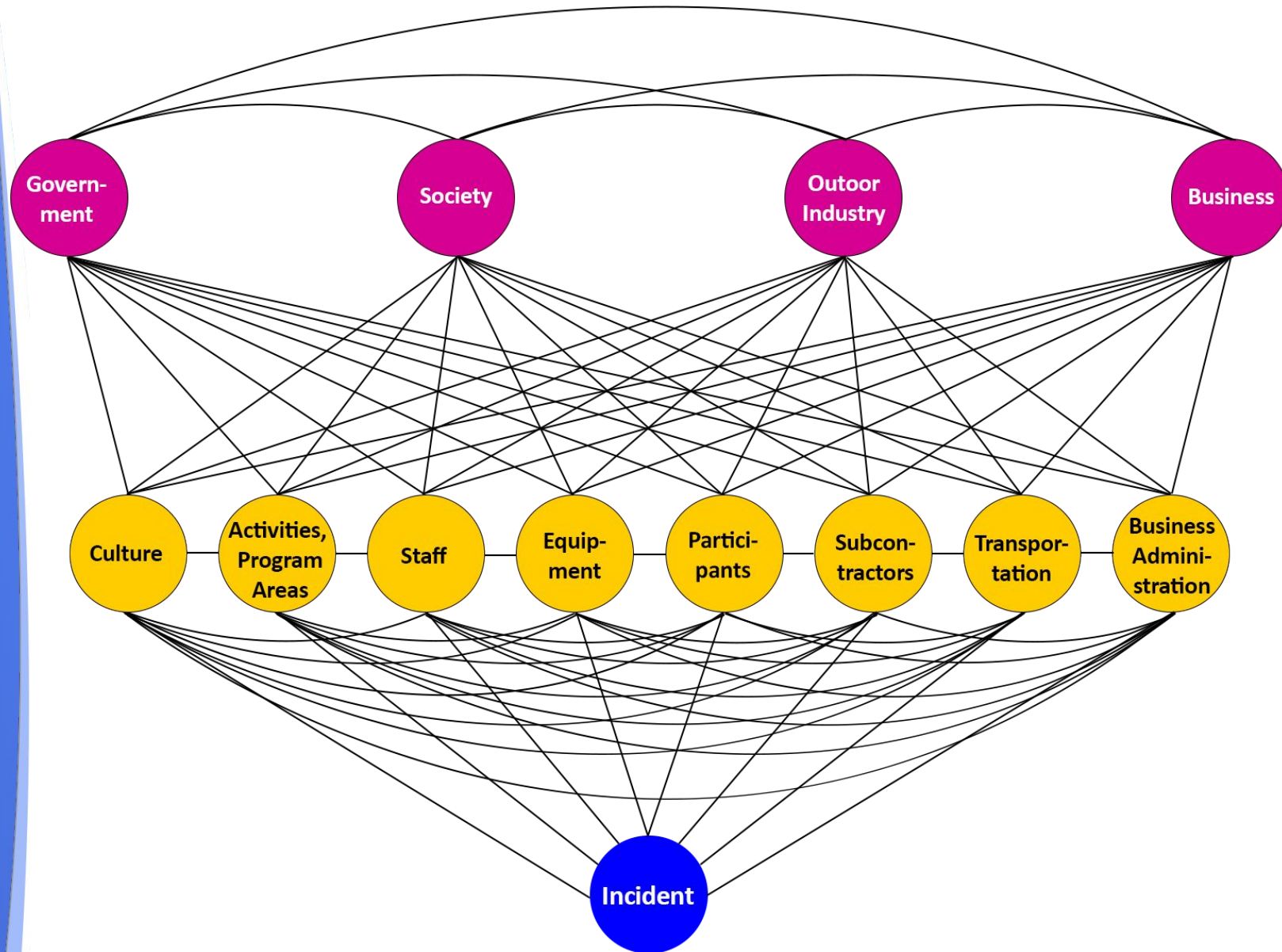
**Work**

*May involve hazardous processes*

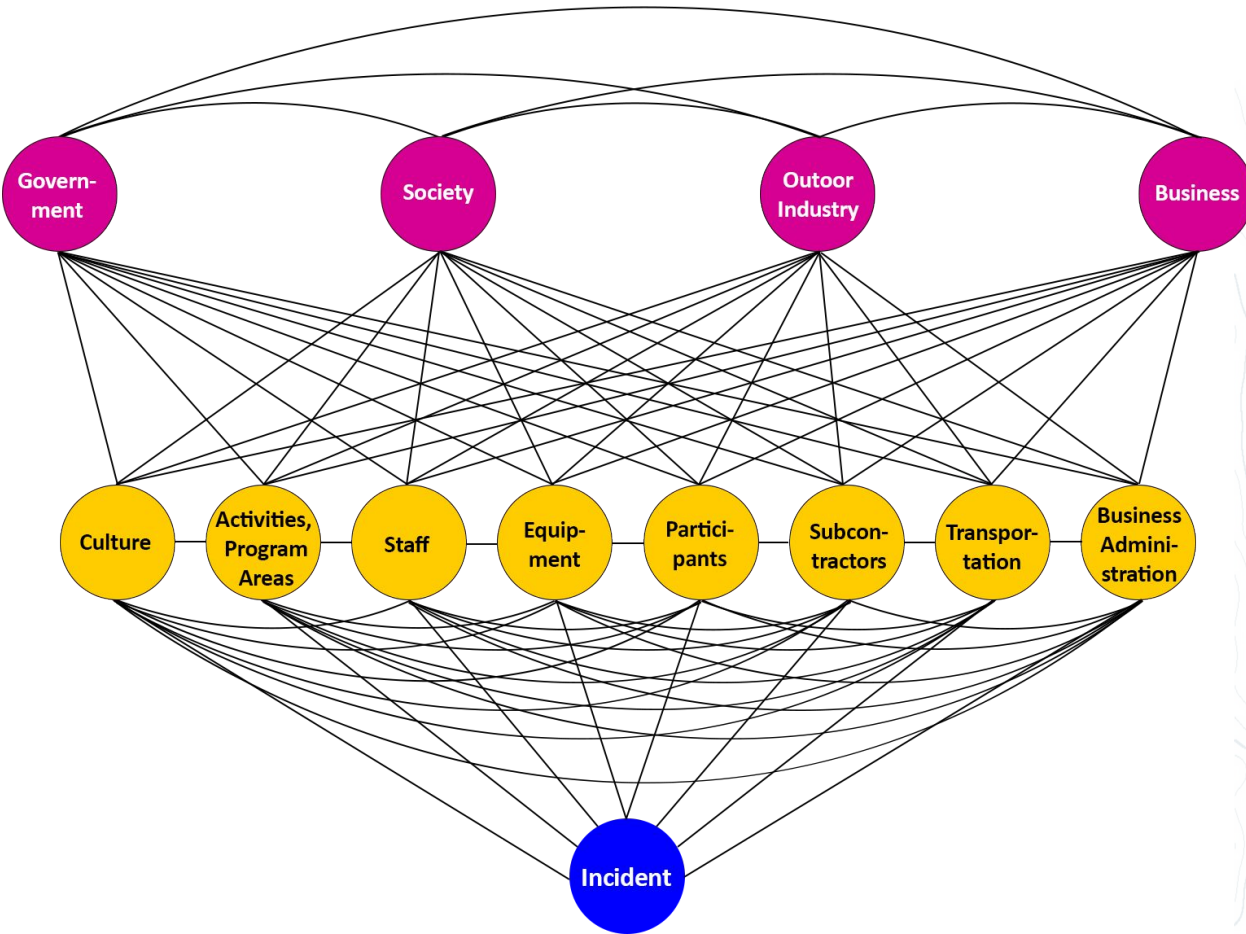


# Risk Domains Model

- Systems-informed model
- Developed for outdoor sector
- Direct risk domains (yellow)
- Indirect risk domains (fuchsia)



# Risk Domains Model



*Institute policies, procedures, values and systems to reduce risks so far as is reasonably practicable*

## Risk Management Instruments



Risk Transfer



Incident Management



Incident Reporting



Incident Reviews



Risk Management Committee



Medical Screening



Risk Management Reviews



Media Relations



Documentation



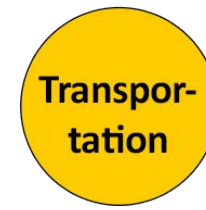
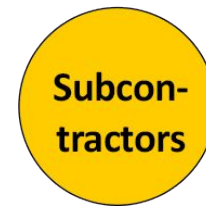
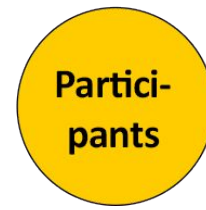
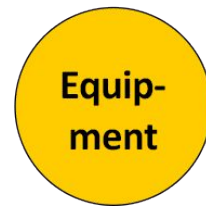
Accreditation



Seeing Systems



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# Safety Culture

The **values** and **beliefs** that drive safety **behavior**

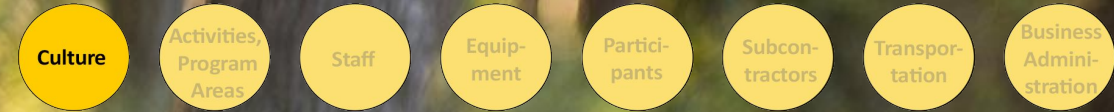


**Actions**--like leaves and stems, visible

**Values** and **beliefs**--like soil and roots, invisible

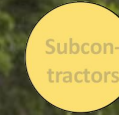
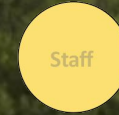
Issues may include:

- Financial pressures
- Pressure to please customers
- Check-box safety vs. proactive vigilance
- Absence of 'Just Culture'



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# Activities & Program Areas



## Before:

- Select areas with lowest risk that meet objectives
- Risk assessments when new conditions
- Establish standard operating procedures (SOPs)

## During:

- Dynamic risk management

## After:

- Review & follow-up



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# Activities & Program Areas



## Program area-related incidents:

- July 10, 1996, massive rockslide in Yosemite National Park damaged Happy Isles Nature Center and killed 20-year-old nearby hiker
- 2018, Santa Monica Mountains Institute closes following Woolsey Fire damage
- October 2025, Wild Bear Nature Center destroyed in fire



# Staff

- Competent & qualified staff
- Certification (e.g. activity-specific; first aid)
- Verifiable training
- Supervision & evaluation

**Driver Check-Off** VIRISTAR

The (Name of Staff): \_\_\_\_\_

**EMPLOYEE ACKNOWLEDGEMENT**  
 I, \_\_\_\_\_, have read the "Vehicle Manual" and understand I am responsible for adhering to the policies, procedures, and guidelines contained within the document. I understand that failure to follow the requirements set forth in the Vehicle Manual could lead to my termination of employment.

Employee Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**AUTO INSURANCE**  
 I am an eligible driver and have been added to the policy as a driver to the auto insurance.

**DRIVING PRACTICAL**  
 The I.M. or designee shall initial blank space after employee has shown competency in each of the following areas:  
 Driving vehicle:  
 — Read the Vehicle Manual and signed above stating that he/she has done so.  
 — Completed the pre-drive inspection form.  
 — Driving under control in the type of terrain the vehicle will be used.  
 — Driving off-road safely (e.g. in case of crossing on or over the road).  
 — Operating vehicle.  
 — Emergency vehicle.  
 — General "defensive" driving techniques (signal, mirror, lane, two bands on wheel, adhere to speed limit, slower vehicles, etc.).  
 Driving vehicle with load:  
 — Loading in AED (ensuring proper drive vehicle).  
 — Completed the pre-drive inspection form.  
 — Loading with water (ensuring no leakage).  
 — Towing correct amount (weight) for other obstructions.  
 — Changing lanes with trailer.  
 — Driving under control on street.  
 — Driving under control on highway or freeway (if applicable).  
 — Driving low to safely load the trailer.  
 — Emergency loading.

I.M. or designee Signature (sign if shows competency to be a driver): \_\_\_\_\_ Date: \_\_\_\_\_

**WRITTEN TEST**  
 I.M. or designee shall initial and date when the employee has completed the written vehicle test. They have answered all of the questions correctly as assessed for correct answers with the official designee.

**DRIVE EVALUATION**  
 I.M. or designee shall initial and date when the employee has been added to the I.M. or designee's list.

**DRIVE BACKGROUND CHECK**  
 The I.M. or designee shall review employee driving background check within 1 month of the date of the test (if not 1 month after testing in the address for the I.M. or designee or driving privileges). (Check box after driving employee vehicle, sign below when I.M. or designee is satisfied.)  
 — [ ] The employee has met the standards for Motor Vehicle Record check with a status of "clear" or "acceptable" as noted in the Vehicle Manual under the Motor Vehicle Record check section.  
 — [ ] The employee has not met the standards for the Motor Vehicle Record check, but they have a status of "borderline" or "poor" and the supervisor is aware of the employee's status.

I.M. or designee Signature (when I.M. or designee report received): \_\_\_\_\_ Date: \_\_\_\_\_



**Activity Leader Evaluation** VIRISTAR

This evaluation is to be used as a learning opportunity for the activity leader in regards to their professional performance in the area listed below. Keep answers concise and clearly written. Staff must fill out narrative and numerical sections. Please answer on positive as well as improvement areas. Use the back of this sheet if necessary.

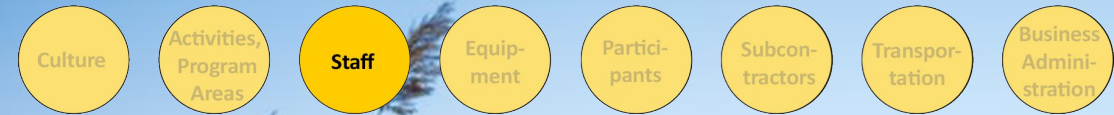
Activity Leader Name: \_\_\_\_\_ Program Dates: \_\_\_\_/\_\_\_\_/\_\_\_\_  
 Organization: \_\_\_\_\_ Location: \_\_\_\_\_

Scale: 1: Unsatisfactory 2: Needs Improvement 3: Satisfactory 4: Above Average 5: Exemplary

Leadership ability	
Enthusiasm and attitude	
Planning and organization	
Preparation	
Teaching ability (e.g. accurate and clear)	
Communication and interpersonal skills	
Interaction with students and chapters	
Technical skill as they related to this course	
Safety	
Acting as an organizational representative	
Ability to cope with stressful situations	
Flexibility during course	
Leadership Strengths	

Specific improvement areas:  
 \_\_\_\_\_  
 Evaluator Name, Title: \_\_\_\_\_

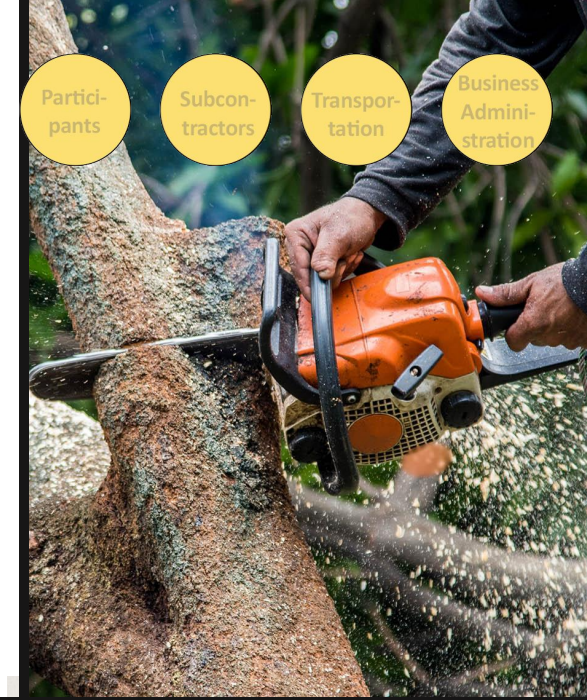
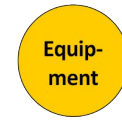
I have read and understood this evaluation. Activity Leader signature: \_\_\_\_\_



“Staff:” Activity leaders, managers, logisticians, etc.

# Equipment

- Manage to OEM, industry standards:
  - Selection
  - Purchase
  - Use
  - Maintenance
  - Repair
  - Inspection
  - Location and storage
  - Retirement
- Inventory control
- Documentation
- Inspection of third-party items
- Staff, participant training



# Equipment

- Ijams Nature Center, Tennessee
- July 29, 2015
- 18-year-old dies after falling on nature center's challenge course, and becoming entangled in safety lanyards
- Review found contributing factor to death could have been "incompatibilities in the equipment"



# Participants

## Pre-program

1. Selection
2. Medical screening
3. Risk transfer:
  - Acknowledgement & assumption of risk
  - Release of liability
  - Indemnification

## During program

1. Education
2. Supervision

## After Program

1. Evaluation
2. Follow-up



# Participants

## Pre-program

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## During program

1. Education
2. Supervision

## After Program

1. Evaluation
2. Follow-up

- 16-year-old Lachlan Cook had diabetic emergency on 2019 trip
- Medical screening, including Diabetes Action Plan process, deficient
- Trip organizer failed to assess and treat the problem
- Lachlan went into coma and died
- Inquest found the death was preventable



# Providers (Contractors)

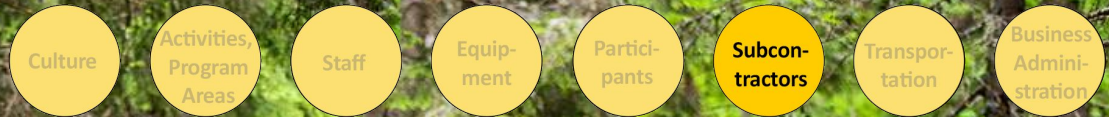
Assess provider prior, during & after hire



## Provider Questionnaire

Please provide responses to the items below. All information will be held in strict confidence.

1. **Permits & Certificates.** Please provide copies of any authorizations (including permits and licenses), accreditations, and certifications relevant to the activities and areas under consideration
2. **Prior Experience.** Please describe the organization's level of experience with the activity and activity area (measured, for example, by length of time)
3. **Safety Record.** Please provide a summary of your safety record for last 10 years, including incidents, insurance claims and legal actions
4. **Safety Reviews.** Please provide a summary of findings of any safety reviews of the organization in the last 10 years
5. **Emergency Plan.** Please provide a copy of the organization's emergency plan
6. **Equipment Standards.** Please describe your standards for equipment use, care, and management (including selection, inspection, maintenance, repair, storage, and retirement) for the equipment that will be used with the activities under consideration. Please list all safety and emergency response equipment provided.
7. **Staff Qualifications.** Please describe the qualifications for staff, including required experience, skills, training, certifications (medical, technical outdoor skills, licenses, or other) and background check results
8. **Transportation.** If you will be providing transportation: please provide your transportation safety policies, including vehicles (including management standards in item number five above), licensing, operator testing and training, motor vehicle record checks, vehicle operating procedures
9. **Sub-Providers.** Please list all sub-providers (sub-subcontractors) that you may use, and the above information for each one
10. **Liability Insurance.** Please provide a copy of your current certificate liability insurance to USD \$1,000,000
11. **Facilities Inspections.** For facilities and structures: please provide a copy of safety inspections from the last three years. We may conduct our own on-site inspection.



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# Transportation



1. **Operator eligibility:** testing, record check
2. **Training:** vehicle operations, emergencies
3. **Procedures:** impaired driving, breakdowns, rest, collisions, loading, trailers, diminished conditions, etc.
4. **Occupants:** safety rules
5. **Administrators:** repair, insurance, documentation



# Business Administration

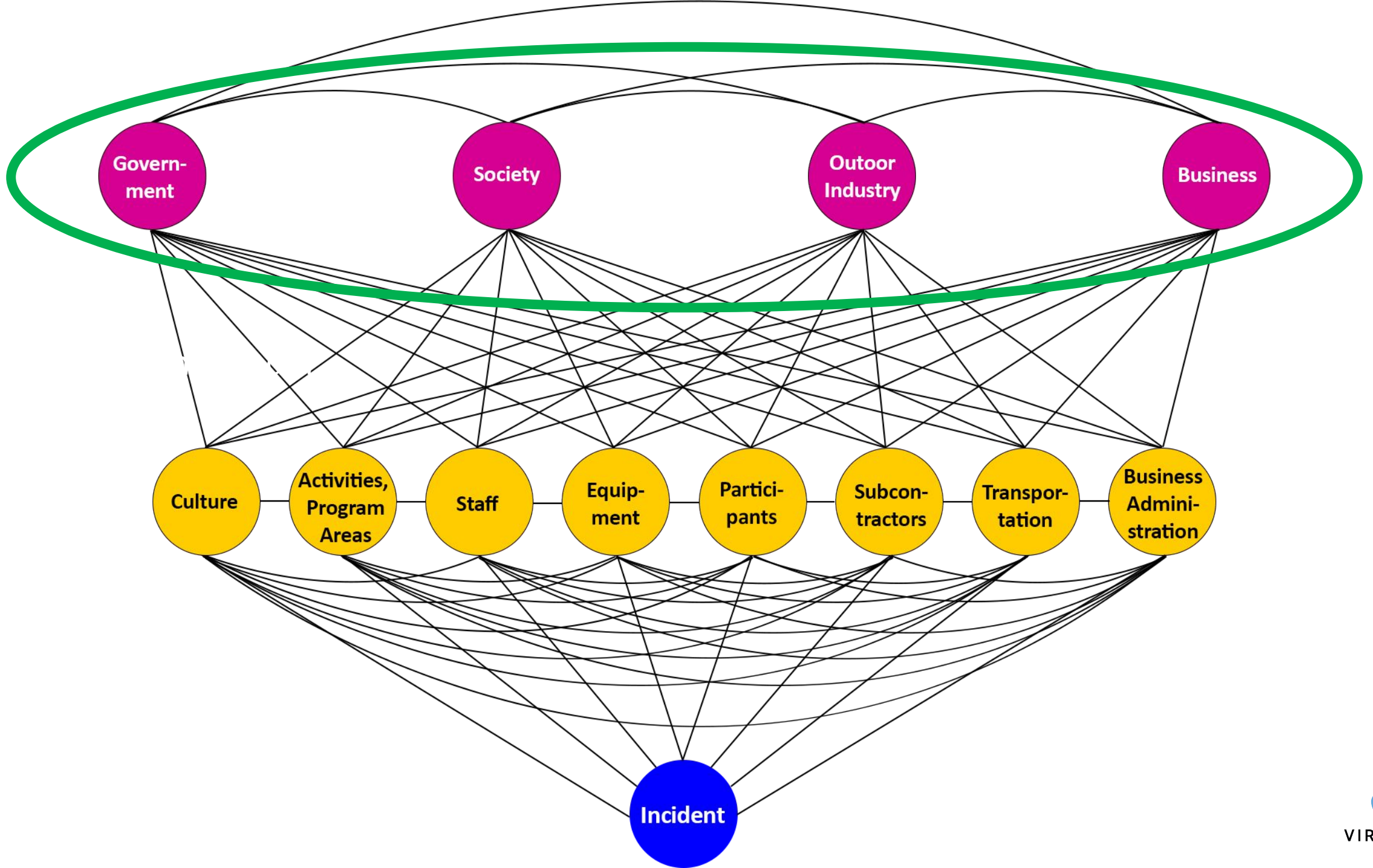
## Immediate risks

- Workplace health and safety
- Truthful marketing
- Physical facilities
- Human resources
- Data protection
- Finance
- Legal

## Strategic risks

- Geopolitics
- Climate change





## Government

- Safety law and regulation
- Licensure, e.g. nature-based preschool
- Funding, e.g. nature-based preschool, outdoor school
- Public land use, permitting, access; public-private partnership

Government

Society

Outdoor Industry

Business



## Society, Business

Society valuing safety, well-being



Corporate citizenship; supporting government oversight



# Industry

## Industry associations



## Standards



## Activity leader certification



## Organization accreditation





Government

Society

Outdoor Industry

Business

Culture

Activities,  
Program  
Areas

Staff

Equip-  
ment

Partici-  
pants

Subcon-  
tractors

Transpor-  
tation

Business  
Admini-  
stration

Government

Society

Outdoor  
Industry

Business

Culture

Activities,  
Program  
Areas

Staff

Equip-  
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Partici-  
pants

Subcon-  
tractors

Transpor-  
tation

Business  
Admini-  
stration

## Question:

With respect to your nature center programs, to what extent have you:

1. Identified risks in all applicable relevant risk domains
2. Instituted policies, procedures, values and systems to reduce those risks so far as is reasonably practicable?



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National Shinshu Takato Youth Outdoor Learning Center

# Risk Management Instruments



Risk  
Transfer



Incident  
Management



Incident  
Reporting



Incident  
Reviews



Risk  
Management  
Committee



Medical  
Screening



Risk  
Management  
Reviews



Media  
Relations



Documentation



Accreditation



Seeing Systems

# Risk Transfer

Risk may be transferred to:

- Insurance company
  - Liability, property, inland marine, D&O, etc.
- Group
  - Release of liability
  - Indemnification
- Participants
  - Acknowledgement & assumption of risk
  - Release of liability
  - Indemnification
- Third-party provider (via contract)
  - Certificate of insurance, additional insured
  - Indemnification

Consult a qualified attorney and an insurance broker for guidance

**Participant Acknowledgement and Assumption of Risk, Indemnification and Release of Liability**

Name of Participant: (Print Clearly): \_\_\_\_\_  
Program Location and Dates: \_\_\_\_\_  
Activities: \_\_\_\_\_  
Program offered through: \_\_\_\_\_

In consideration for the [organization] permitting me to participate in the above-named course, I, the participant ("Participant"), and in the case of the participant being under the age of 18, my parents or legal guardian for themselves and on my behalf, hereby represent, acknowledge and agree as follows:

**Acknowledgement and Assumption of Risks:**

Although [organization] has taken reasonable steps to ensure that I have appropriate equipment and skilled instructors so I can enjoy activities in which I may not be skilled, these activities are not without risk. Certain risks cannot be eliminated without destroying the unique character of the activities. The same elements that contribute to the unique character of these activities can be causes of loss or damage to my equipment, accidental injury or illness, or, in extreme cases, permanent trauma or death. [organization] does not want to frighten the participant or reduce his or her enthusiasm for these activities, but thinks it is important for the participant to know in advance what to expect and to be informed of the inherent risks. The following describes some, but not all, of those risks:

The course takes place outdoors, and exposure to natural elements can be uncontrollable and may be harmful. The participant may be exposed to extreme or inclement weather, including rain, snow, lightning, cold, heat, and intense sunlight. The participant can be injured by natural hazards including: animals, insects, toxic plants, falling rocks or trees, flooding, ice and snow. The participant may engage in strenuous and/or prolonged physical exertion which may reveal previously unknown health problems or make known health problems worse. The course, or part of the course, takes place in a remote location where there are no medical facilities, physicians or health-care providers other than [organization] staff first responders, and there may be no immediate means of communication or rapid transportation. There is risk that medical care for accidents or illnesses may be significantly delayed, and that the first responder care provided by [organization] may be inadequate for a serious accident or illness.

**In courses that include hiking:** participants will be walking over loose rocks, steep slopes, and in rugged terrain while carrying personal and/or group gear. They risk injury from falling down slopes or off rocks, as well as abrasions, ankle and knee injuries, and fractures.

**In courses that include camping:** participants will be setting up camp and sleeping in tents or outside, preparing meals and cooking over camp stoves, being around an open campfire, and using primitive toilet facilities. They risk extended exposure to heat or cold, falling onto tents, equipment, or campfires, burns and cuts from cooking, and exposure to infection.

**In courses that include bicycling:** participants will be traveling by bicycle along paved or dirt roads or paths with uneven surfaces in remote locations. They risk becoming lost and injury from falling off the bike, becoming caught in the bicycle's moving parts, or experiencing collision with another object.

**In courses that include skiing or snowshoeing:** participants will be traveling through remote natural areas in extreme and cold weather, in conditions of reduced visibility and difficult and hazardous camp and travel conditions, with short daylight hours, and in steep, rugged and uneven terrain, while carrying equipment. They may become lost, hypothermic, dehydrated, or frostbitten, or sustain injuries associate with hiking (as listed above).

**In courses that include urban activities:** participants will traveling through a city environment, exploring urban areas, taking motorized and/or mass transit, and interacting with strangers. They risk injury from hostile bystanders, motor vehicle accidents, and encounters with the built environment such as buildings, machinery and other structures.

**In courses that include canoeing or kayaking:** participants will be paddling a canoe or kayak by themselves or with a co-participant or instructor. They may fall into the water or the boat may turn over requiring them to float (with the aid of the personal flotation device provided to them) or swim to shore. They risk being exposed to or falling into cold moving water, being struck by paddles or other boats, and being exposed to water-borne toxins or infections.

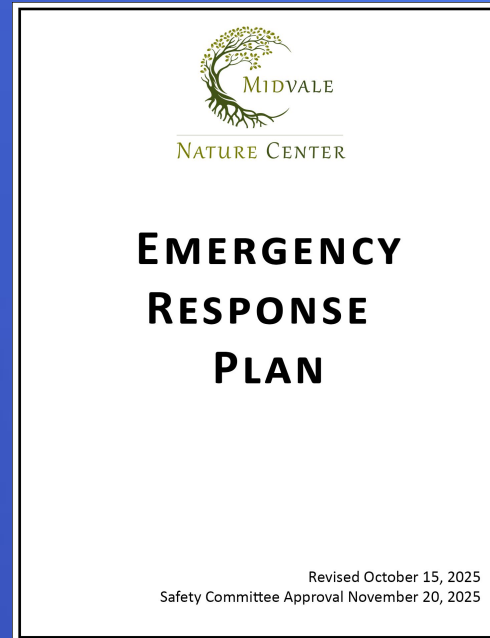
**In courses that include rock climbing or a challenge course:** participants will climb objects while attached to a rope protection system. While rock climbing participants may climb up to 75 feet high on rock walls or boulders. On a challenge course participants may climb trees or poles, move across ropes, wires and poles at heights up to 40 feet, and swing on ropes and balance on platforms. In both cases, while climbing participants will wear a helmet and a harness, and be attached to a rope

Rev 2025-11-20  
Page 1 of 3

# Incident Management

## Emergency Response Plan

- Written and practiced
- Initial field response
- Administrative response
- Includes long-term follow-up
- Regularly reviewed, updated, & approved



# Incident Reporting

- Document incident & near-miss details
- Analyze individually and in the aggregate
- Implement changes based on analysis
- Culturally support incident reporting

**Incident Report**

Attach Witness Statement, photos and SOAP Note, as applicable, to this report. Use additional sheets for documentation if necessary. Fill this form out completely. Complete both sides. Write legibly in blue or black ink.

Subject Full Name: \_\_\_\_\_ ☐ Employee ☐ Guest ☐ Other (specify) \_\_\_\_\_ Age: \_\_\_\_\_

Gender Identity: ☐ Male ☐ Female ☐ Other; please specify: \_\_\_\_\_ Guest home address: \_\_\_\_\_

Guest email address: \_\_\_\_\_ Name of guest ship/hotel: \_\_\_\_\_ Guest room/cabin number: \_\_\_\_\_

Activity/Tour: \_\_\_\_\_ Department: \_\_\_\_\_ Tour Guide Name: \_\_\_\_\_

Incident Date: \_\_\_\_\_ Time: \_\_\_\_\_ a.m. / p.m. Geographical Location of Incident: \_\_\_\_\_

**Type of Incident:** (check all that apply) ☐ Injury ☐ Illness ☐ Motivational/Behavioral ☐ Property Damage  
☐ Near Miss ☐ Evacuation ☐ Missing Person ☐ Fatality

**Type of Injury or Property Damage:** (check all applicable) ☐ Not applicable  
☐ Superficial wound ☐ Site/sting ☐ Spine/nervous system ☐ Heat-related ☐ Internal ☐ Musculoskeletal  
☐ Crush ☐ Burn ☐ Wound, open ☐ Head trauma ☐ Amputation ☐ Other \_\_\_\_\_  
If property damage, describe \_\_\_\_\_

**Anatomical Location of Injury:** ☐ Not applicable  
☐ Head ☐ Shoulder ☐ Wrist ☐ Upper Back ☐ Thigh ☐ Foot/toe ☐ Face ☐ Knee  
☐ Upper Arm ☐ Neck ☐ Hand/finger ☐ Eye ☐ Chest ☐ Pelvis ☐ Lower Leg ☐ Forearm  
☐ Abdomen ☐ Hip ☐ Ankle ☐ Lower Back ☐ Elbow ☐ Other: \_\_\_\_\_

**Type of Illness:** check all applicable ☐ Not applicable  
☐ Abdominal/GI ☐ Upper respiratory illness ☐ Fever  
☐ Allergic reaction, local/mild ☐ Lower respiratory illness ☐ Urinary tract infection  
☐ Anaphylaxis ☐ Cardiovascular ☐ Heat cramps  
☐ Drowning ☐ Altitude-related ☐ Heat exhaustion  
☐ Food-related illness ☐ Hyponatremia ☐ Heat stroke  
☐ Skin infection ☐ Hypothermia (core temp if known \_\_\_\_°C) ☐ Other \_\_\_\_\_  
☐ Eye infection ☐ Heat illness (core temp if known \_\_\_\_°C)

**Environmental Conditions at Time of Incident:**  
Temperature: \_\_\_\_°C Precipitation: ☐ None ☐ Rain ☐ Other: \_\_\_\_\_ Wind Speed: \_\_\_\_kph  
Visibility: ☐ Clear ☐ Limited to \_\_\_\_ meters or ☐ km Wave height (if applicable): \_\_\_\_\_  
Surface & Conditions: check all that apply  
☐ On/under water ☐ On land ☐ Even ☐ Uneven ☐ Sloped ☐ Wet  
☐ Grass ☐ Sand ☐ Dirt ☐ Rock ☐ Mud ☐ Dry

**Program Activity at Time of Incident:**  
☐ Bus transport ☐ Ferry ☐ Parasailing ☐ SUP ☐ Workshop/class  
☐ Car transport ☐ Flamingos ☐ Retail ☐ Glass-sided boat ☐ Other: \_\_\_\_\_  
☐ Catamaran ☐ Hiking ☐ Sea TREK ☐ Swimming  
☐ Community service ☐ Jeep ☐ Snorkeling ☐ Team-building  
☐ Jetski ☐ SNUBA ☐ UTV  
☐ De Palm Island ☐ Kayaking ☐ Splash park ☐ Van transport  
☐ Deep-sea fishing ☐ Meal time/eating ☐ Submarine ☐ Water park

**Briefly describe incident:** What happened and how? Who was involved? Where? When? Why?  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

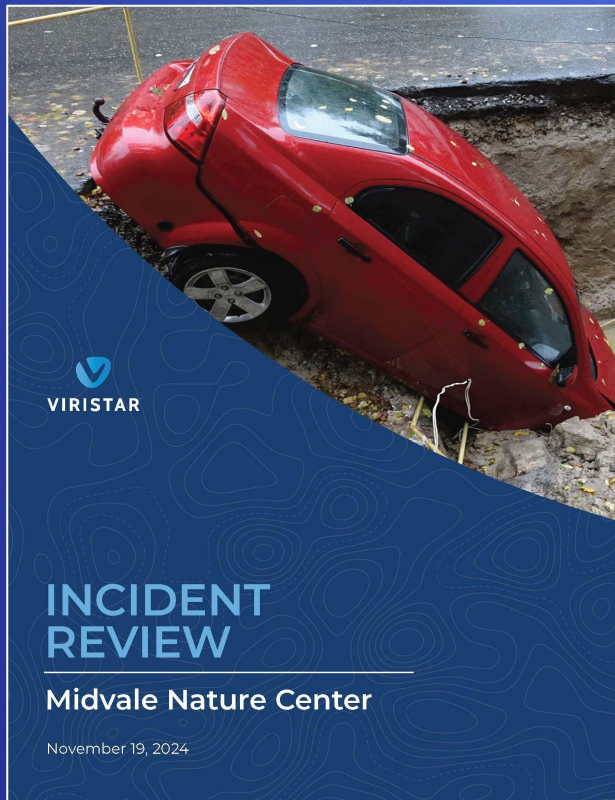
Incomplete sample - not for actual use



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# Incident Reviews

- For major incidents
- To help prevent future serious incidents
- Internal and/or external reviewers
- Develop & act on recommendations



## Risk Management Committee

- Includes members external to the organization
- Provides unbiased, candid viewpoints
- Proactive and reactive safety roles
- Broader scope than technical advisor



### **SAFETY REPORT FALL 2025**

A. Palmata, Executive Director  
M. Sylvestra, Chair of Risk Management Committee



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# Medical Screening

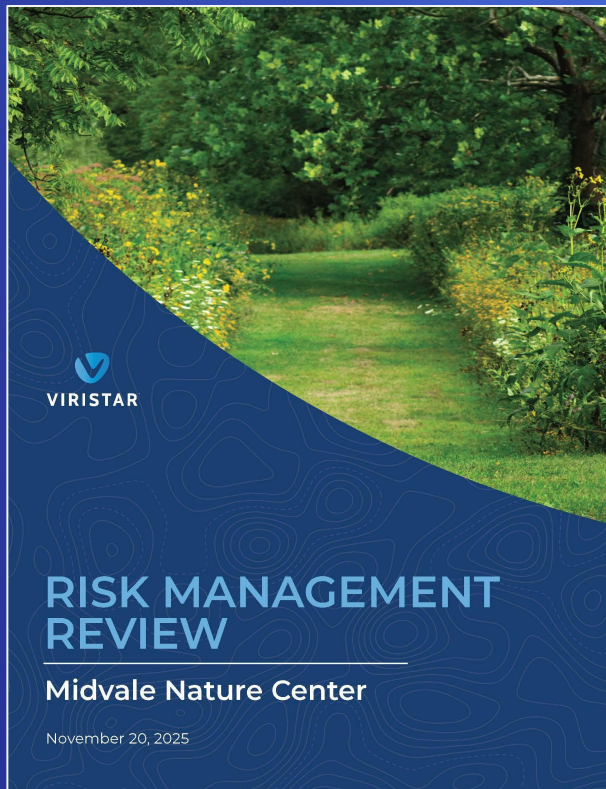
- Evaluate participants, staff for medical suitability
- Health history forms, follow-up forms, screening manual, trained screener
- Provide details to managers, leaders: meds, allergies, conditions, etc.
- Full or conditional acceptance, medical rejection

HEART DISEASE			
Related information to look for on Participant Medical Record pertaining to this condition			
Participant Medical Record – 6 Page; 4 Page; 2 Page Youth and Adult			Physician's Section Only
IDENTIFICATION	HISTORY	LIFESTYLE	PHYSICIAN FEEDBACK
History/current status: heart attack, angina. Related symptom(s): chest pain, abnormal cardiac rhythm	Surgery/procedures: angioplasty, stent placement, CABG Current medication(s) Hx, hospitalization/ER Tx	Smoker Height/Weight Activity Level	Assessment— Referral— Restriction(s)—
ACCEPTANCE CRITERIA:			
MANDATORY ACTION:			
RED FLAGS:			
<ul style="list-style-type: none"><li>• History of or continued chest pain/pressure, shortness of breath, heart palpitations, sweat or exertional dizziness or faint spells</li><li>• History of procedure (CABG, angioplasty, stent)</li><li>• History of a myocardial infarction (MI)</li><li>• Recent medication change</li><li>• History of risk factors</li><li>• Use of anti-coagulants (e.g. warfarin)</li></ul>			



# Risk Management Review

- Proactive safety audit, held periodically
- Internal or external auditors
  - Organizational Assessment, AAM Museum Assessment Program
  - Outdoor safety specialist



## Media Relations

- For newsworthy incidents (fatality, etc.)
- Manage story for fair, accurate reporting
- Plan messaging points in advance
- Aim for a short story
- Avoid falling for interview traps

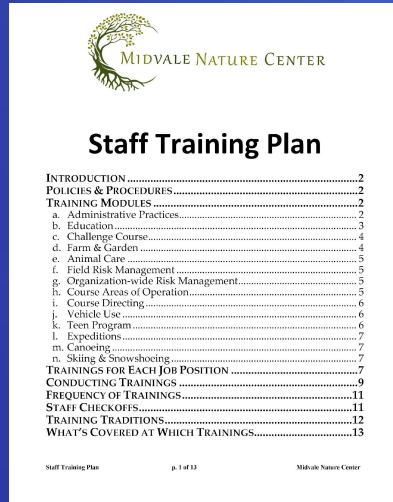
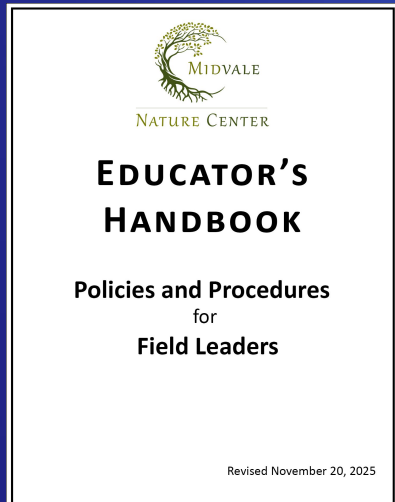
### Sample Pre-Established Message Points

1. Our primary concern is for our participants.
2. Our Situation Response Plan worked as designed, and participants received medical care.
3. We are working with the authorities to determine the facts and cause.



# Documentation

- Helps people know what should be done
- Provides evidence of what has been done
- E.g. SOPs, plans, SOAP notes, incident reports
- May be scrutinized by adversaries if incident



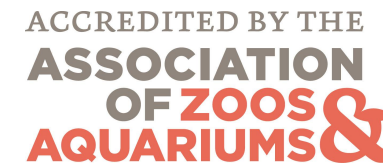
# Accreditation

- Formal recognition of standards conformance
- By impartial, qualified independent body
- More effective than self-regulation
- Can boost safety, quality, reputation

## Examples:

- American Alliance of Museums
- Association of Zoos & Aquariums
- American Camp Association; other camp associations
- NAEYC Early Learning Program
- ACCT International (challenge course, zipline)
- National Recreation & Park Association CAPRA
- Viristar Adventure Safety Accreditation
- Academic accreditation (formal education programs)

Accreditation usually differs from government licensure



## Seeing Systems

- Major incidents arise from multiple risk factors, which combine in unpredictable ways
- Treating each risk in isolation ineffective
- Build multi-layered, resilient systems with redundancy, extra capacity

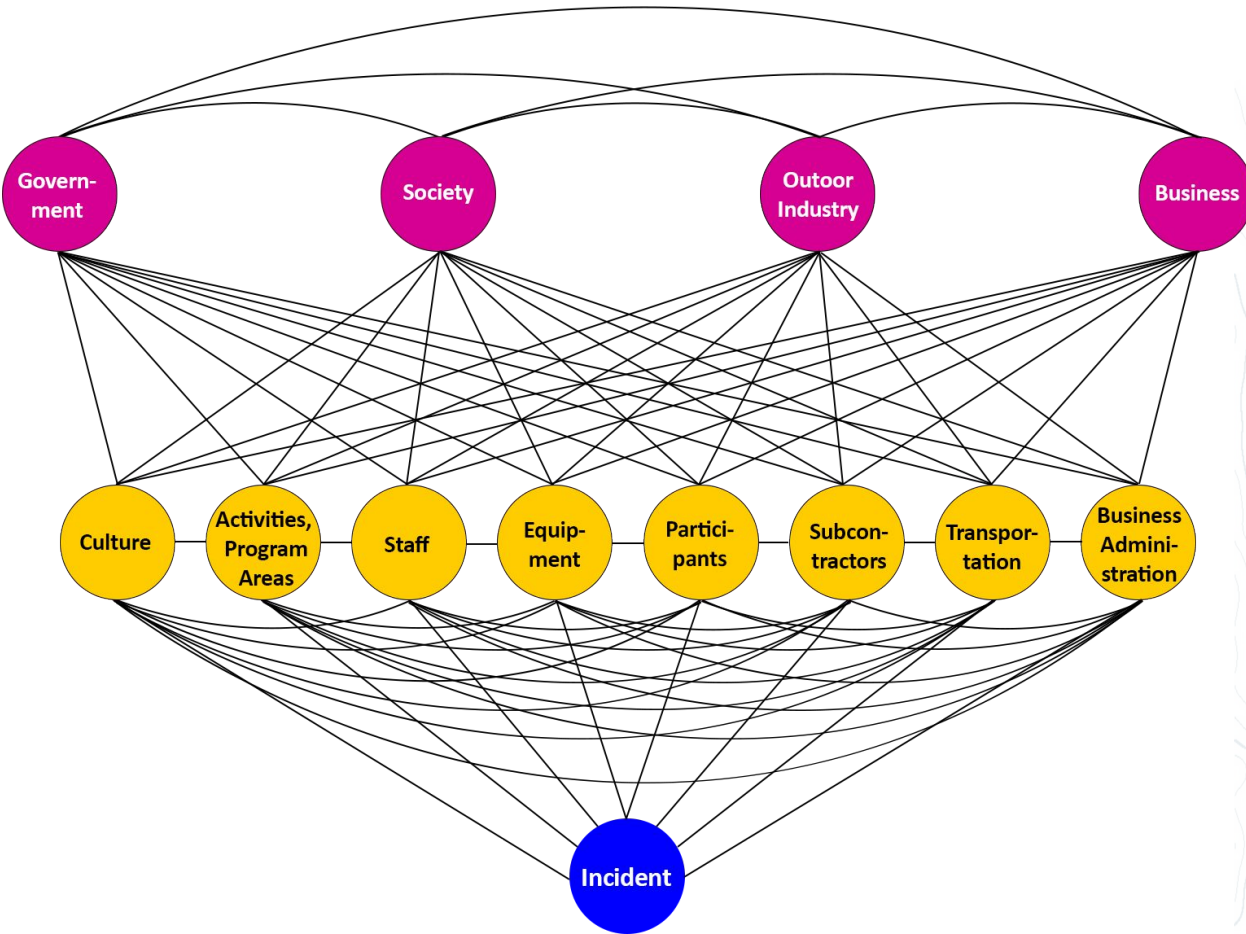


# Seeing Systems

- Indian Creek Nature Center, Iowa, 2002
- Child with a rental group wanders outside off nature center property
- Fatally hit by train
- Nature center was sued
- Tragedy highlights complexity, unpredictability of incident causation



# Risk Domains Model



*Institute policies, procedures, values and systems to reduce risks so far as is reasonably practicable*

## Risk Management Instruments



Risk Transfer



Incident Management



Incident Reporting



Incident Reviews



Risk Management Committee



Medical Screening



Risk Management Reviews



Media Relations



Documentation



Accreditation



Seeing Systems



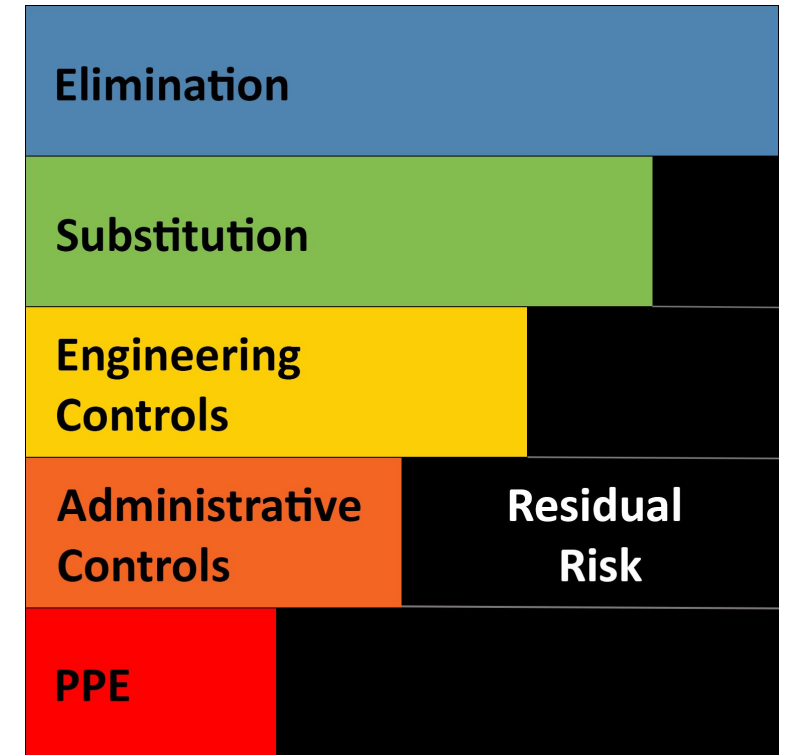
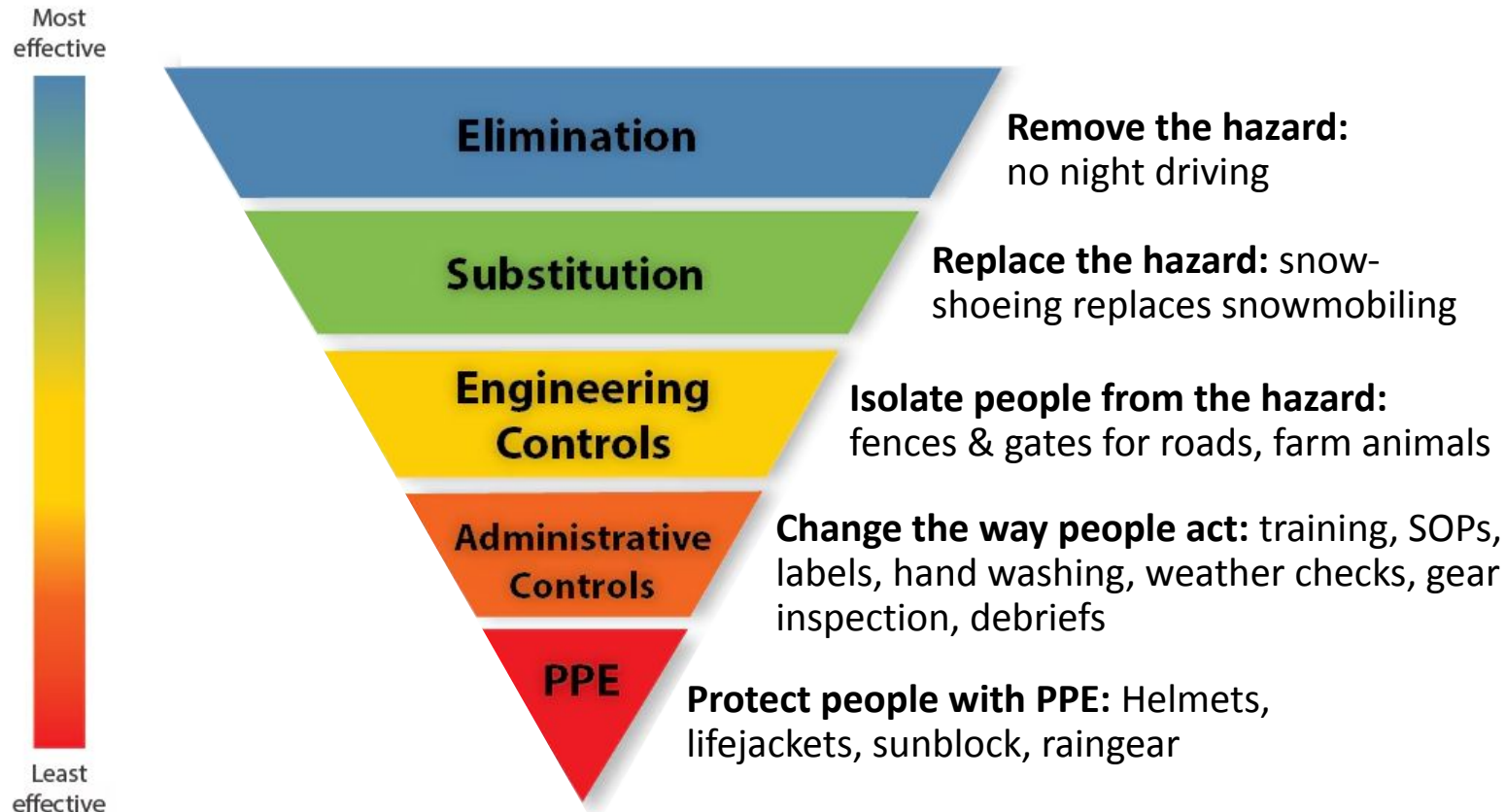
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# Outline

- Basic Concepts
- Incident Prevention Models
- Risk Domains model
  - Risk Domains
  - Risk Management Instruments
- Safety by Design
- Standards
- Laws
- Additional Resources



# Safety by Design: Hierarchy of Controls



More effective measures don't require human action or judgment

Application of HoC required by safety regulation in some jurisdictions, e.g. Yukon, New Zealand

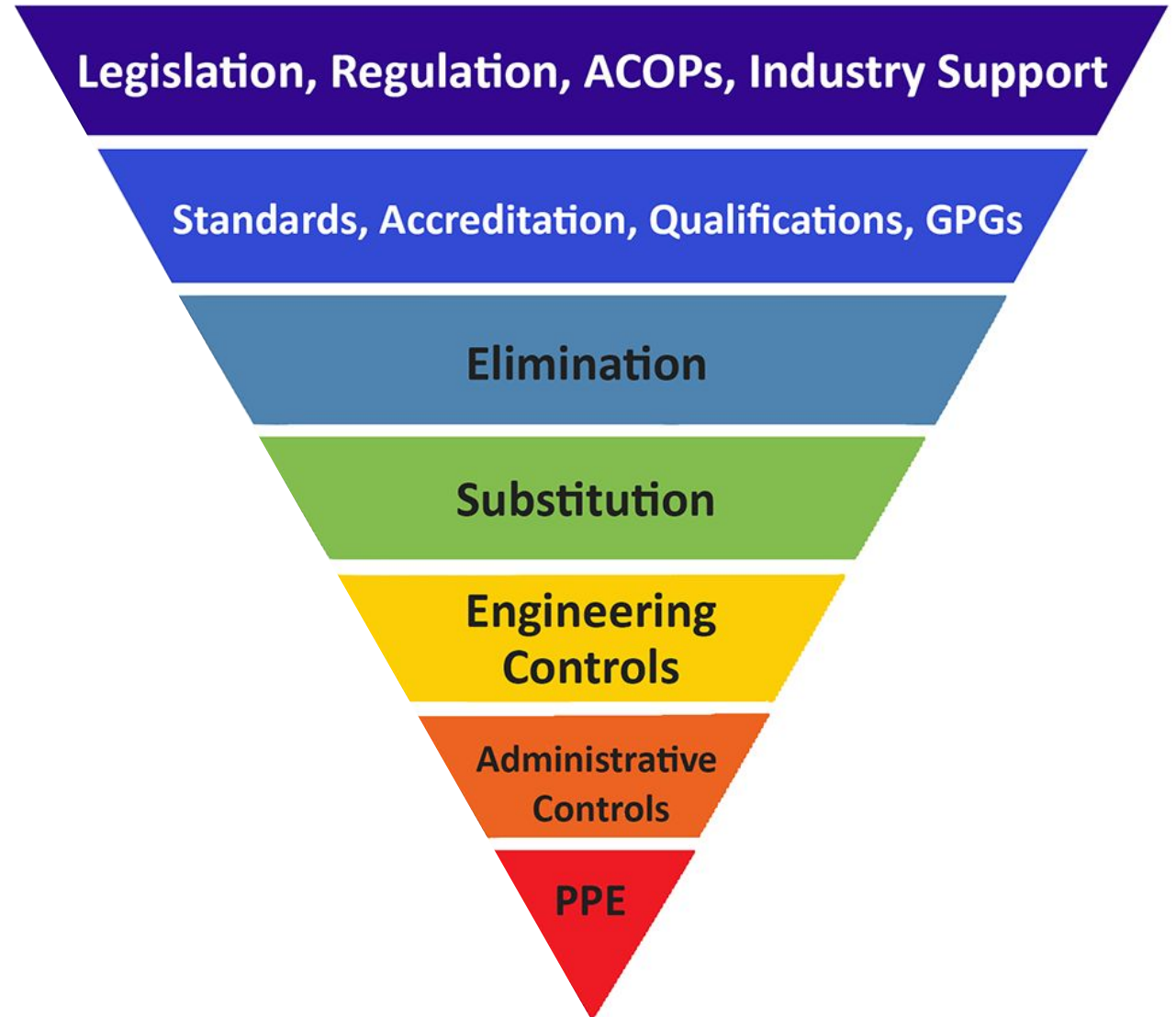
# Systems-Informed Hierarchy of Controls

## Government

## Industry Bodies

(associations & federations,  
governing/peak bodies, training centers)

## Operators



# Standards

## Scope

- Can provide valuable guidance regarding good safety practice
- Typically conformance is voluntary
- Safety standards may be combined with program, operations standards

## Application

- Used alongside any regulatory & licensing requirements
- Self-assessment or third-party conformance assessment
- Centers may be held to written or unwritten standards

## Limits

- Standards vary in rigor, depth, other characteristics
- Not all standards are applicable to all nature centers
- Conformance does not guarantee safety or eliminate liability
- Conformance takes ongoing investment and commitment



# Standards

## Examples:

- **NAAEE** Environmental Educator Knowledge and Skills: Guidelines for Excellence
- **NAEYC** Early Learning Program Quality Assessment and Accreditation: Assessment Items
- **ACCT** Challenge Courses & Canopy/Zip Line Tours Standards
- **Viristar** Adventure Safety Accreditation Standards
- **AZA** Accreditation Standards
- **AAM** Core Standards for Museums: Facilities & Risk Management
- **NRPA** CAPRA National Accreditation Standards
- **Natural Start Alliance** Nature-Based Preschool Professional Practices
- **Am. Camp Association** Accreditation Standards
- **ISO, NFPA, ASTM** subject-specific standards



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# Laws

(USA-focused)

## Law

- General OH&S law
- Topic-specific law (e.g. employment, civil rights, privacy, confidentiality, liability release/waiver, etc.)
- Negligence (duty of care, breach of duty, damages, causation)

## Regulatory context

- Permits (e.g. public land use, conditional use)
- Licenses (e.g. camp, amusement rides/devices, outdoor nature-based child care/education (“forest school,” “nature preschool,” “forest kindergarten”))
- Zoning, building codes
- Activity-specific (e.g. USCG maritime regulations, food/beverage)
- Some countries have adventure safety regulations

## Approved Code of Practice

- Outdoor Adventure Education Code of Practice, Singapore



# Laws

- Law varies widely by jurisdiction
- Rule of law uneven globally
- Generally, law represents the minimum, not industry good practice
- Laws are ever-changing
- Relevant associations may have guidance
- Maintain evidence of compliance
- **Consult a qualified attorney**



# Conclusion

- Nature center risks are generally low
- Apply results of safety science research
- Use suitable theoretical model of incident prevention
- Meet legal requirements
- Consider industry good practice standards



Falling tree nature center  
incident, Michigan

Inherent risk exists in nature  
center activities

But risk management based on  
safety science and good practice  
standards can minimize risks and  
foster positive, enriching  
connections to nature



## Additional Resources

Links to this slide presentation and other resources:

[viristar.com/post/nature-center-safety](https://viristar.com/post/nature-center-safety)



# Risk Management for Nature Centers

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**Jeff Baierlein, Director, Viristar**

