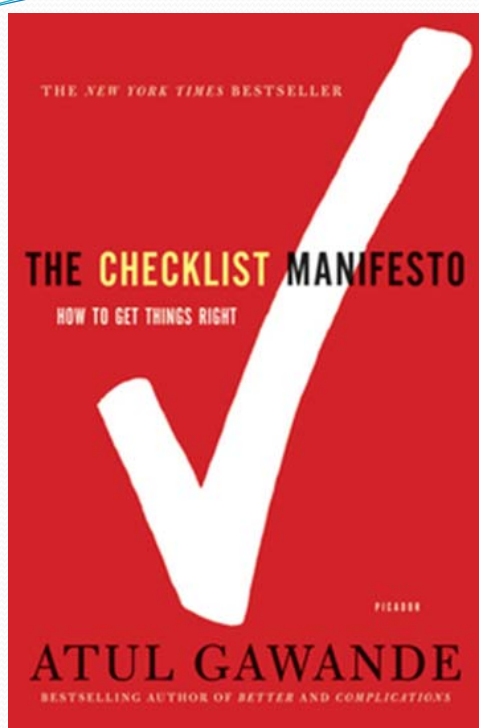


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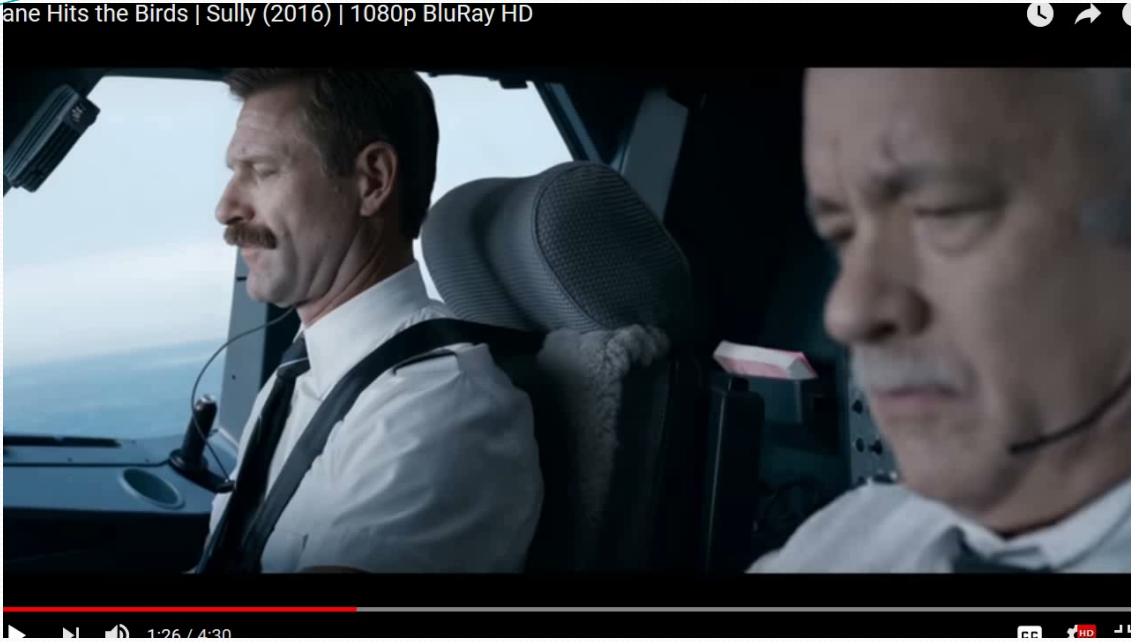


The Checklist Manifesto for Outdoor Programs

Dr. Al Wright
California State University
Northridge

Wilderness Risk Management
Conference 2017

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ane Hits the Birds | Sully (2016) | 1080p BluRay HD

1:26 / 4:30

Watch for the QRH – Quick Reference Handbook

The image shows a video player interface. At the top, there is a blue decorative wave. Below it, the video player has a title bar that reads "ane Hits the Birds | Sully (2016) | 1080p BluRay HD". The video content shows two pilots in a cockpit. The pilot on the left is seen in profile, looking out the window. The pilot on the right is shown in a close-up, looking down with a serious expression. At the bottom of the video player, there is a progress bar and a timestamp "1:26 / 4:30".

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Workshop Goals

- Introduce Gawande's Checklist Manifesto book
 - Review the Checklist approach
 - Provide evidence of success in other fields
- Apply the Checklist approach to safety management in outdoor programs
 - Provide some examples already implemented
 - Create and/or analyze some examples with you during the workshop
- If time mention CRM's impact on Checklist implementation in organizational culture

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Presenter's Disclaimers

- Checklist approach is not totally new to our industry
- Checklist approach is misunderstood by some
- Checklist is under-utilized in our industry

- The Checklist approach
 - Still part of my learning curve
 - Have implemented some examples in our outdoor SOP and believe there is significant potential in this approach

Safety Management

- Risk Management is a systemic approach geared to protecting the total organization's best interests.
 - Organizational Survival & Protection
- Safety Management is a systematic approach focused on the health and safety of the program participant's interests
 - People's Survival & Protection

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Classic Approaches to Safety Management

- # 1. Good Judgement of field instructors



Remember to ski and snowboard responsibly. www.boeritusa.com

boeri
it's your head

**Good judgment comes from experience!
Good experience comes from poor
judgment.**

Classic Approaches to Safety Management

- # 1. Good Judgement of field instructors
 - Good Judgement is learned from direct personal experience and technical skills sets
 - Good Judgement is critical thinking skills generally
 - Good Judgement is a knowledge base beyond your personal experience (other's stories and learning)
 - Good Judgement is a knowledge & experience base of 'reading people' and how attitudes & vitality affect safety
 - "Thinking about safety" - Jim Udall - Camping Magazine, 1983

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Classic Approaches to Safety Management

- Good Judgement approach to Safety
- **The Protocols approach to Safety**
 - SOP – Standard Operating Procedures
or AKA Safety Protocols
 - Policy and Procedures for Specific Activities
 - PFD use/ Climb Site Management/ Etc.
 - Policy and Procedures for All Activities – General SOPs
 - Trip planning/ Weather/ Etc.
 - Policy & Procedures for adverse but anticipated conditions
 - Medical Emergencies
 - Lost Students

Classic Approaches to Safety Management

- # 1. Good Judgement approach to Safety
- # 2. The Protocols approach to Safety
- # 3. **The Check List approach to Safety**
 - More than just protocols
 - Integration of 'select protocols' into the specific conduct of an activity
 - A checklist can be replicated across multiple staff resulting in less mistakes & a higher record of safety.
 - A checklist is a systemic response to solve a complex problem

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What's a Checklist: Atul Gawande



<https://www.youtube.com/watch?v=L3QkaS249Bc>

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What did you hear as important parts of the checklist process?

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Guidelines for Building Checklists

- Gwande Summary (Video) – Need to Think in Systems
 - Identify Problems /Recognize Success & Failure (data)
 - Accidents? Near Misses?
 - Build a Checklist
 - Pause Points
 - Critical Items (Keep it Simple)
 - Confront a new set of values
 - Humility/ Teamwork/ Self-reflection

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What are our “operating rooms”?

- What are the routine but complex outdoor settings where ‘safety checks’ are/should happen and that could benefit from a Checklist?
- Activity with significant risks? (i.e. safety management)

Types of Checklists

- **Do – Confirm Checklists**
 - Do the steps from memory and then pause to check
 - Often a repeated behavior that becomes familiar
 - E.g. A Pre-flight Checklist
- **Read - Do Checklists**
 - Critical steps
 - Often less experience with the situation
 - Especially suited for emergency responses
 - E.g. A 'Engine on Fire' on take off
 - Often done as a 'team' – a “reader”; a “doer/checker”

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Aviation's use of emergency checklists? (Engine fire on take-off)



<https://www.youtube.com/watch?v=H2KoNE6A5UY>

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What did you hear and see?

What are our 'emergencies in flight'?

- What situations are “not routine” but require a complex response when they do occur?

An experience with SFF

- A little story . . .
- The Flight Safety Foundation sponsored this international industry initiative to improve checklist procedures for airline pilots confronting smoke, fire, or fumes.
- It also published the Smoke/Fire/Fumes Philosophy and Definitions, which was used to construct the SFF checklist template. Here are the key components of this philosophy.

General Principles for SFF

- The entire crew must be part of the solution.
- For any SFF event, time is critical.
- The SFF checklist template does not address multiple events.
- Includes thoughts to support decisions for immediate landing.
- Systematically identifies and eliminates an unknown SFF source.
- At the beginning of an SFF event, the crew should consider:
 - Protecting themselves (e.g., oxygen masks, smoke goggles).
 - Communication (e.g., crew, air traffic control).
 - Diversion.
 - Assessing the SFF situation and available resources.

Other topics to consider for SFF

- Source Elimination
- Timing for diversion/landing
- Smoke or fumes removal
- Additional steps for source elimination
- Source:
http://www.boeing.com/commercial/aeromagazine/articles/qtr_01_09/article_03_2.html
- **Take aways**
 - A checklist creation *begins* with big topic discussion of guidelines and issues
 - A checklist product *ends* with specific action steps
 - Outdoor industry might benefit from 'SFF guidelines'

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Step	Action
1	Diversion may be required.
2	Oxygen masks (if required) On, 100%
3	Smoke goggles (if required) On
4	Crew and cabin communications Establish
5	Manufacturer's initial steps ¹ Accomplish
Any time smoke or fumes become the greatest threat, accomplish <i>Smoke or Fumes Removal Checklist</i> .	
6	Source is immediately obvious and can be extinguished quickly: <ul style="list-style-type: none"> • If yes, go to Step 7. • If no, go to Step 9.
7	Extinguish the source. If possible, remove power from affected equipment by switch or circuit breaker on the flight deck or in the cabin.
8	Source is visually confirmed to be extinguished: <ul style="list-style-type: none"> • If yes, consider reversing manufacturer's initial steps. Go to Step 17. • If no, go to Step 9.
9	Remaining minimal essential manufacturer's action steps Accomplish [These are steps that do not meet the "initial steps" criteria but are probable sources.] ²
10	Initiate a diversion to the nearest suitable airport while continuing the checklist.
Warning: If the smoke/fire/fumes situation becomes unmanageable, consider an immediate landing.	
11	Landing is imminent: <ul style="list-style-type: none"> • If yes, go to Step 16. • If no, go to Step 12.
12	XX system actions ³ Accomplish [Further actions to control/extinguish source.] If dissipating, go to Step 16 .
13	YY system actions Accomplish [Further actions to control/extinguish source.] If dissipating, go to Step 16 .
14	ZZ system actions Accomplish [Further actions to control/extinguish source.] If dissipating, go to Step 16 .
15	Smoke/fire/fumes continue after all system-related steps are accomplished: Consider landing immediately. Go to Step 16 .

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Outdoor Programs an Example of a Checklist

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The SHARK Test

A Checklist Example: Ropes Course

- **S** - Stuff (No loose stuff)
- **H₂** - Helmet & Harness (Proper fit)
- **A** - Attitude (Are you ready?)
- **R₂** - Rope(s) (Check from end to end)
- **K** - Karabiner (Squeeze Test)



www.shutterstock.com - 87004450

Do . . . Confirm



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The SHARK Test

A Checklist versus a Protocol



- Checklist is systemic & operational – TO DO
- Implemented at a 'pause' point(s)
- Assumes implementation of previous training
 - E.g. harness fit/ rope clear; but does not describe them
 - NOT a cookbook list on how to fly the plane!
- Assumes action steps are defined as a site specific protocol and consistent with national standards
 - What knots, what gear, what staff –
- Is SHARK a Read/Do or Do/Confirm?
- The strength of 2 person checklists

A few more tips on checklist design

- Location of the list
 - Signs/ Flip Books/ First Aid Kit Cards
- Communication is critical component
 - Important in complex environments
 - Identify communication loops or confirmations
- Test the List
 - Adapt
 - Improve
 - Implement

Would it make a difference?

- “The investigation found no indications of a mechanical failure of the swing, equipment or safety gear; no evidence that Olivia in any way contributed to her own death; and that her harness was not attached to the swing when it was deployed”.
- Was there a ‘checklist’?
- If there was, how do you get staff compliance?
 - Training? Posting Lists?
 - Interactive Participant Checklist

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**Outdoor Programs
- another example -
An emergency based checklist**

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Critical Incident Response – Medical Emergency Checklist

- 1. **Do critical first aid**
- ABC - Airway/ Breathing/ Circulation **Read – Do Checklist**
- Rapid Assessment – Necessary Responses
- 2. **EMS Activation** if Critical Category
 - If Urban – Dial 911 with Location Determined and Report of Condition
 - If Wilderness – Assuming No Immediate Phone Access
 - a) **Runners** – 2 or 3 Together: Check
 - b) **Route Review:** Check
 - c) **Gear Check for Runners**
 - **Weather /Water/Food:** Check
 - **Maps:** Check
 - **Vehicle Keys:** Check
 - **Phone Access:** Check
 - **Incident Location Coordinates/Route:** Check
 - **Medical Notes:** Check
 - d) **Next Communication/ Reconnection**
 - e) **Send Runners**

Medical Emergency Checklist: Ropes Course

Critical Medical Emergency Checklist at Ropes

- 1. Dial 911
 - Report brief medical summary
 - Report location – **Corner of Halsted Street and Lindley Avenue, Northridge**
 - Need of paramedic assistance ASAP
- 2. Provide immediate stabilization and ABC
 - Do not move from fall injury
 - Airway/Breathing/Circulation
- 3. Contact Campus Police Services Dispatch at
 - 818-677-2111 to report the 911 call already placed.
- 4. Activate the Admin Call List

Create A Checklist

- Group of 4-8 people: Assign a Checklist Issue
- Part A - (use some newsprint)
 - Identify the 'guidelines' that must be included
 - Identify 'critical steps or checks' in danger of being missed.
 - Is there **evidence** or data to confirm items should be in the list
 - National Standards/ Experiential Knowledge
 - Actionable Steps – “specific response required for each item” – can you say “Check”
 - **Work On The List (7-10 minutes)**

Critique A Checklist

- Part B – (use the packet information)
 - Review the Checklist Provided and Critique/Improve
 - Were your ‘lists’ the same as those outlined here
 - Ask the ‘pause point’ question
 - Within the list
 - When do we implement this list
 - Is our list more a **Read-Do** or a **Do-Confirm** Checklist
 - Where does the list reside? (Accessible)
 - Read out loud? (Two Person Check)
 - Will a mnemonic help? (Hands free Do-Confirm Cklist)
 - How will we test and adapt the list

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Report your findings

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A CHECKLIST FOR CHECKLISTS		
Development	Drafting	Validation
<ul style="list-style-type: none"> <input type="checkbox"/> Do you have clear, concise objectives for your checklist? <p>Is each item:</p> <ul style="list-style-type: none"> <input type="checkbox"/> A critical safety step and in great danger of being missed? <input type="checkbox"/> Not adequately checked by other mechanisms? <input type="checkbox"/> Actionable, with a specific response required for each item? <input type="checkbox"/> Designed to be read aloud as a verbal check? <input type="checkbox"/> One that can be affected by the use of a checklist? <p>Have you considered:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Adding items that will improve communication among team members? <input type="checkbox"/> Involving all members of the team in the checklist creation process? 	<p>Does the Checklist:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Utilize natural breaks in workflow (pause points)? <input type="checkbox"/> Use simple sentence structure and basic language? <input type="checkbox"/> Have a title that reflects its objectives? <input type="checkbox"/> Have a simple, uncluttered, and logical format? <input type="checkbox"/> Fit on one page? <input type="checkbox"/> Minimize the use of color? <p>Is the font:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Sans serif? <input type="checkbox"/> Upper and lower case text? <input type="checkbox"/> Large enough to be read easily? <input type="checkbox"/> Dark on a light background? <ul style="list-style-type: none"> <input type="checkbox"/> Are there fewer than 10 items per pause point? <ul style="list-style-type: none"> <input type="checkbox"/> Is the date of creation (or revision) clearly marked? 	<p>Have you:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Tried the checklist with front line users (either in a real or simulated situation)? <input type="checkbox"/> Modified the checklist in response to repeated trials? <p>Does the checklist:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Fit the flow of work? <input type="checkbox"/> Detect errors at a time when they can still be corrected? <ul style="list-style-type: none"> <input type="checkbox"/> Can the checklist be completed in a reasonably brief period of time? <input type="checkbox"/> Have you made plans for future review and revision of the checklist?
Please note: A checklist is NOT a teaching tool or an algorithm		Last updated 1/14/10

Critiques of Checklists

- Critique: Restrict freedom and creativity. Checklists are too rigid.
- Response: Checklists liberate our brains to focus on the hard stuff, where problem solving, courage & creativity are needed most.

- Critique: Does not recognize staff's ability, skill, and determination.
- Response: Checklists assume ability & skill. People make mistakes due to distraction or stress leaving critical steps out in a complex process.

- Critique: I don't need a checklist because I'm already OCD.
- Response: Create a culture of teamwork (not self-sufficiency) to reinforce a personal culture of discipline.

Action Steps

- Schedule a meeting with supervisors and key staff to discuss the role of checklists in your safety management systems.
- Review your risk related activity and determine if a checklist would enhance safety
 - Is there evidence that a 'missed step' has resulted in injury or a critical near miss in your organization or others
- Evaluate existing checklists against the Gawande' principles to improve their effectiveness

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Final Questions and Resources

- Questions and Applications
- Dr. Atul Gawande , The Checklist Manifesto: How to Get Things Right (Paperback – 2011)

CRM: Crew Resource Management

- While retaining a command hierarchy, the concept was intended to foster a less authoritarian cockpit culture, where co-pilots were encouraged to question captains if they observed them making mistakes.
- History – 1973 United Airline – Major airline accident involving plane crash short of runway. Captain did not listen to co-pilot and engineer. A culture of authority and control.
- What is the experience of leadership in crisis situations in outdoor organization?

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Organizational Culture

- What are the 'artifacts' of relationship style of leaders (Shein – Organizational Culture and Leadership)
 - Communication – open vs. closed, titles,
 - Decision making sequence – consult, feedback loops
 - Student input discounted or included as part of the system.

Communication Training

- **Opening or attention getter** - Address the individual: "Hey Chief," or "Captain Smith," or "Bob," or whatever name or title will get the person's attention.
- **State your concern** - Express your analysis of the situation in a direct manner while owning your emotions about it. "I'm concerned that we may not have enough fuel to fly around this storm system," or "I'm worried that the decision to stay the night rather than evacuate might have a negative outcome."

Communication Training

- **State the problem as you see it** - "We're showing only 40 minutes of fuel left," or "I think the condition of the student is more critical than our initial conclusion."
- **State a solution** - "Let's divert to another airport and refuel," or "I think we should re-assess our decision to evacuate"
- **Obtain agreement (or buy-in)** - "Does that sound good to you, Captain?" What do you think about a call to base for additional input?