The Checklist Manifesto for Outdoor Programs

Dr. Al Wright
California State University Northridge

Wilderness Risk Management Conference 2017
Watch for the QRH – Quick Reference Handbook
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
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
Classic Approaches to Safety Management

• # 1. Good Judgement of field instructors

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
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
What’s a Checklist: Atul Gawande

https://www.youtube.com/watch?v=L3QkaS249Bc
What did you hear as important parts of the checklist process?
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
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”
Aviation’s use of emergency checklists?
(Engine fire on take-off)

https://www.youtube.com/watch?v=H2KoNE6A5UY
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’
<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Diversion may be required.</td>
</tr>
<tr>
<td>2</td>
<td>Oxygen masks (if required) On, 100%</td>
</tr>
<tr>
<td>3</td>
<td>Smoke goggles (if required) On</td>
</tr>
<tr>
<td>4</td>
<td>Crew and cabin communications Establish</td>
</tr>
<tr>
<td>5</td>
<td>Manufacturer's initial steps(^1) Accomplish</td>
</tr>
</tbody>
</table>

Any time smoke or fumes become the greatest threat, accomplish Smoke or Fumes Removal Checklist.

| 6 | Source is immediately obvious and can be extinguished quickly: |
|   | • 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: |
|   | • 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.] |

| 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: |
|    | • If yes, go to Step 16. |
|    | • If no, go to Step 12. |

| 12 | XX system actions 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. |
Outdoor Programs
an Example of a Checklist
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)
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
Outdoor Programs
- another example -
An emergency based checklist
Critical Incident Response – Medical Emergency Checklist

1. Do critical first aid
   • ABC - Airway/ Breathing/ Circulation
     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

Read – Do Checklist
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
   - 818-677-2211 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
Report your findings
A CHECKLIST FOR CHECKLISTS

Development

☐ Do you have clear, concise objectives for your checklist?
☒ Is each item:
☐ A critical safety step and in great danger of being missed?
☐ Not adequately checked by other mechanisms?
☐ Actionable, with a specific response required for each item?
☐ Designed to be read aloud as a verbal check?
☐ One that can be affected by the use of a checklist?

Have you considered:
☐ Adding items that will improve communication among team members?
☐ Involving all members of the team in the checklist creation process?

Drafting

Does the Checklist:
☐ Utilize natural breaks in workflow (pause points)?
☐ Use simple sentence structure and basic language?
☐ Have a title that reflects its objectives?
☐ Have a simple, uncluttered, and logical format?
☐ Fit on one page?
☒ Minimize the use of color?

Is the font:
☐ Sans serif?
☐ Upper and lower case text?
☐ Large enough to be read easily?
☐ Dark on a light background?

☐ Are there fewer than 10 items per pause point?
☐ Is the date of creation (or revision) clearly marked?

Validation

Have you:
☐ Tried the checklist with front line users (either in a real or simulated situation)?
☐ Modified the checklist in response to repeated trials?

Does the checklist:
☐ Fit the flow of work?
☐ Detect errors at a time when they can still be corrected?

☐ Can the checklist be completed in a reasonably brief period of time?
☐ 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
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.
- What is the experience of leadership in crisis situations in outdoor organization?
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?"