

CANADIAN AVALANCHE CENTER (CAC) COMMISSIONED REPORT CONFIRMS UTTL ET AL. CRITICISM OF THE AVALUATOR AVALANCHE ACCIDENT PREVENTION CARD

Recently,, we have become aware that Canadian Avalanche Centre had commissioned an “independent” review of the Obvious Clues method prepared by Dr. James Floyer (CAC Floyer Report). At the request of the CAC, Dr. Floyer attempted to replicate Drs. Haegeli and McCammon’s findings and the prevention values published in the Avaluator (Haegeli & McCammon, 2006). Confirming our prior findings, the CAC Floyer Report failed to replicate the prevention values published in the Avaluator.

Moreover, the CAC Floyer Report largely confirms our criticism of the Avaluator’s Obvious Clues method and the Obvious Clues prevention values published in the Avaluator.

We have pointed out that Drs. Haegeli and McCammon have repeatedly refused access to their data used to derive the prevention values of the obvious clues. Dr. Floyer confirms this. He had no access to Drs. Haegeli and McCammon’s coded data either: “The interpreted [coded] data set extracted from the raw data records [avalanche accident records]... was not made available for the purposes of this review.” (CAC Floyer Report, p. 7). However, the fundamental tenets of scientific methodology demand that the data are available for inspection and for verification of scientific claims. If there are no data, there is no evidence, and there is no science. We continue to believe that Canadian Government avalanche prevention initiatives and strategies should not be based on data that no one can examine and that are not subject to public or scientific scrutiny.

Following our lead, Dr. Floyer independently failed to replicate the prevention values of the Obvious Clues published in the Avaluator and concluded that the prevention values published in the Avaluator are inflated, as we had originally demonstrated. Dr. Floyer stated: “The difference between the prevention value distribution from this study and that published in the Avaluator is quite considerable.” (CAC Floyer Report, p. 15). According to the CAC Floyer Report, the prevention value for 4 or fewer clues is only 47% rather than the 77% stated in the Avaluator (CAC Floyer Report, Figure 2b). Thus, the CAC Floyer Report replicated our earlier findings showing that the the obvious clues prevention values published in the Avaluator are inflated. Dr. Floyer’s results are remarkable because the actual prevention values are still much lower than he reports as, following Drs. Haegeli and McCammon’s lead, he also inappropriately (see below) eliminated all accidents with missing values prior to these analyses – 71% of his sample in all.

We have stated that the inflated prevention values provide users with a false sense of security and Dr. Floyer again agrees with us: “Uttl and others support their supposition that the Avaluator card provides people with a false sense of security by providing a mechanism of how accident prevention values published in the Avaluator booklet might be optimistic. That mechanism is supported by the results of this study... [CAC Floyer Report]” (CAC Floyer Report, p. 22).

Dr. Floyer even discovered yet another inconsistency between the Avaluator and Dr. McCammon’s earlier writings that we missed. Dr. Floyer notes that “McCammon (2004a) reported far fewer seven-clue cases compared to the number reported in the Avaluator booklet.” (CAC Floyer Report, p. ii)

Dr. Floyer independently confirmed our earlier criticism that Drs. McCammon and Haegeli failed to consider and establish inter-rater reliability of the Obvious Clues coding (i.e., the degree to which two independent coders would agree in their coding of the Obvious Clues). Dr. Floyer wrote: “Consideration of inter-operator [inter-rater] variability has not been addressed in the OCM [Obvious Clues Method] literature.” (CAC Floyer Report, p. ii) Surprisingly, Dr. Floyer himself reports no inter-rater reliability data on the accuracy of his coding.

Dr. Floyer independently confirmed our criticism that the Avaluator prevention values are based on US-only data and that US-only data need not be representative of Canadian avalanche accidents. Dr. Floyer wrote: “the use of the U.S. Data set as a Canadian surrogate in the development of the OCM has almost certainly contributed to overstating the accuracy of the prevention values for the Canadian case.” (CAC Floyer Report, p. ii)

Dr. Floyer further recommends that “A beneficial long-term goal should be to compute accident prevention values

directly from the Canadian avalanche incident database. This analysis would remove the uncertainty associated with using U.S. Data set as a Canadian surrogate and better achieve the original stated aim of the ADFAR project to develop a 'made-in-Canada' decision support tool." (CAC Floyer Report, p. iii) Again, we fully agree with Dr. Floyer.

Dr. Floyer recommends: "In light of evidence that suggests the errors associated with the prevention values may be considerable, it may not be appropriate to include these values in the Avaluator booklet." He continues: "I recommend removal of the accident prevention values" (CAC Floyer Report, p. 29) We agree with Dr. Floyer's recommendation.

Consistent with our earlier criticism and our recommendation that the Avaluator be recalled due to the inflated prevention values of the Obvious Clues, Dr. Floyer recommended that:

1. "students [in Avalanche Skills Training courses] be counseled not to place undue emphasis on the numerical prevention values in the Avaluator booklet." (Floyer Report, p. iii) We agree with Dr. Floyer.
2. "future versions of the Avaluator booklet not be printed with the accident prevention values listed for each obvious clue threshold." (CAC Floyer Report, p. iii) We agree with Dr. Floyer.

Dr. Floyer recognized the danger in misleading the Avaluator users. Unfortunately, he did not go as far in his report as to recommend that users who have already purchased the Avaluator or that users who buy the Avaluator off the shelf without the benefit of an AST instructor telling them "not to place undue emphasis on the numerical prevention values" be similarly informed through the CAA and Government of Canada advisory, or a recall of the ~20,000 Avaluators purchased by these two groups of users over the past 2 years.

Despite the above findings, conclusions, and recommendations, Dr. Floyer concludes that "No evidence has so far been observed that demonstrates that using the OCM is unsafe, or that more accidents would occur as a result of its use." (CAC Floyer Report, p. ii). It is certainly true that no evidence yet exists that someone has died as a direct result of using the Avaluator. However, it is self evident, and Dr. Floyer agrees, that the inflated prevention values (77% for 4 or fewer clues) published in the Avaluator confer a false sense of security and that users are more likely to cross slopes than if they were told that the prevention value of the 4 or fewer clues may be as low as only 4% (Uttl et al., 2008; the most conservative), or perhaps 20% (McCammon, 2004, Uttl et al., 2008; more liberal), or even only 47% (CAC Floyer Report). The CAC Floyer Report's 47% is a whopping 30% lower than the Avaluator's prevention values (even with the inappropriate exclusion of 71% of the data)

Thus, two attempts to replicate the inflated prevention values in the Avaluator have failed. Criticisms that we had originally raised against the Obvious Clues prevention values published in the Avaluator have been largely confirmed by Floyer Report commissioned by the CAC.

According to the CAC Floyer Report and the CAC, we should wait 3 to 5 years to see if use of the Avaluator decreases or increases the number of avalanche accidents. However, it is unethical to experiment on humans to see if something saves them or kills them without full informed consent (Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans, Government of Canada; <http://www.pre.ethics.gc.ca/english/policystatement/section1.cfm>). That full informed consent must include any and all relevant information that would allow participants – in this case Avaluator users – to make full and informed decisions whether to participate, whether to use the Avaluator, and whether to take the risks, so that the CAC can find out if the Avaluator prevents or facilitates accidents. The CAC's continued failure to inform all users about the inflated prevention values and its intent to analyze the data in 3 to 5 years time to see if someone was saved or died is tantamount to the running of an experimental study on human participants without their full informed consent. As a member of Red Deer College Research Ethics Board, I would never approve continued deception of participants for such a study.

We reiterate our earlier recommendations that the Avaluator be pulled from the market, and a recall be issued for those already purchased, due to the inflated prevention values of the Obvious Clues in the Avaluator booklet. Similarly, the CAC Floyer Report has independently recommended that future versions of the Avaluator should be published without the inflated obvious clues prevention values and that current avalanche safety training

students should be told not to take them seriously.

Users who have already purchased the Avaluator, or who have purchased it off the shelf without the benefit of the verbal warning about the inflated prevention values (e.g., in Mountain Equipment Co-op), deserve this information. They deserve to know that the prevention values in the Avaluator are inflated. They deserve to know that two separate attempts have failed to replicate them. They should not be participants in a CAC “experiment” without their full and informed consent that discloses that the prevention values have twice not been replicated and that the original coded data forming the basis of the Avaluator have never been made public and are held in secrecy.

Bob Uttl, Ph.D., Calgary, AB
Jan Uttl, AST Instructor, Cochrane, AB

Email: uttlbob@gmail.com
Web: www.docbob.ca & www.avidata.ca

January 10, 2009

REFERENCES

- Floyer, J.F. (2008, September 18). Review of the Obvious Clue Method. Report prepared for Canadian Avalanche Center. (<http://www.avalanche.ca/adx/asp/adxGetMedia.aspx?DocID=365.53.22.1,Documents&MediaID=681&Filename=OCM+Review+Floyer+FINAL.pdf>, retrieved January 8, 2009)
- Uttl, B., Henry, M., & Uttl, J. (2008). The Avaluator's Obvious Clues Accident Prevention Values: Are They Replicable? Proceedings of International Snow Science Workshop, September 21-27, Whistler, BC. (http://www.docbob.ca/pubs/Uttl_2008_TheAvaluatorsObviousCluesReplicable.pdf)
- Uttl, B., Henry, M., & Uttl, J. (2008, September). The Avaluator's Obvious Clues Accident Prevention Values: Are They Replicable? International Snow Science Workshop, Whistler, BC. (http://www.docbob.ca/pubs/UttlHenryUttl_TheAvaluatorsObviousCluesReplicable_ISSW2008.pdf)
- Uttl, B., Henry, M., & Uttl, J. (2008). Pitfalls in the Analyses of Accident Records: The Avaluator Example. Canadian Society for Brain, Behavior, and Cognitive Science, June 19-21, London, ON. (http://www.docbob.ca/pubs/20080618_UttlHenryUttl_Pitfalls_4x4.pdf)
- Uttl, B., Henry, M., & Uttl, J. (2008). Decision Making in Avalanche Avoidance and Survival. Canadian Society for Brain, Behavior, and Cognitive Science, June 19-21, London, ON. (http://www.docbob.ca/pubs/20080618_UttlHenryUttl_HumanFactors.pdf)
- Uttl, B., Uttl, J., & Henry, M. (2008). The Avaluator Avalanche Accident Prevention Card; Facts, Fictions, and Controversies. Proceedings of International Snow Science Workshop, September 21-27, Whistler, BC. (http://www.docbob.ca/pubs/Uttl_2008_TheAvaluatorFactsFictionsControversies.pdf)