

A comparison of avalanche survival patterns in Canada and Switzerland

Pascal Haegeli^{1,6} Markus Falk² Hermann Brugger³ Hans-Jürg Etter⁴ Jeff Boyd⁵

1. Avisualanche Consulting, Vancouver, BC, Canada; 2. Inova Q, Bruneck/Brunico, Italy; 3. EURAC Institute of Mountain Emergency Medicine, Bozen/Bolzano, Italy; 4. WSL Swiss Federal Institute for Snow and Avalanche Research SLF, Davos, Switzerland; 5. Emergency Department, Mineral Springs Hospital, Banff, AB, Canada; 6. Simon Fraser University, Burnaby, BC, Canada

The survival pattern of completely buried individuals in open terrain has been depicted in the avalanche survival curve, which displays probability of survival as a function of burial time (Falk et al., 1994). The characteristics of this original survival curve, based solely on data from Switzerland, have provided important conceptual background for the effective medical management of avalanche victims in the field (Brugger et al., 2001) and the use of avalanche safety devices (Brugger et al., 2007). However, a recent review of Canadian avalanche fatalities by Boyd et al. (2009) has shown that there are considerable differences in the causes of death between Canada and Europe (Hohlrieder et al., 2007), which questions the universal validity of the existing survival curve and the derived recommendations. In this first ever comparative study of avalanche survival we show that there are significant differences between the survival curves of Switzerland and Canada, which are associated with differences in the prevalence of trauma, variations in snow climate, and in the characteristics of local rescue regimes. The results of our study strongly highlight the potential influence of local conditions on avalanche survival in general and provide useful background information for the management of avalanche victims in Canada. Despite advances in avalanche rescue equipment and medical treatment of avalanche victims, the best approach for the prevention of avalanche fatalities remains through the promotion of awareness, education and caution.