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**LOG OF MEETING
DIRECTORATE FOR ENGINEERING SCIENCES**

1998 JUL 14 A 11:50

SUBJECT: Skiing Injuries
DATE OF MEETING: June 30, 1998
PLACE OF MEETING: CPSC Headquarters, Room 612
LOG ENTRY SOURCE: Erlinda M. Edwards, Engineering Sciences *EME*

COMMISSION ATTENDEES:

Mary Donaldson, EC	Suad Nakamura, EHHS
Erlinda Edwards, ES	George Rutherford, EHHA
Scott Heh, ESME	Terry Van Houten, ESHF
Sue Kyle, EHHA	

NON-COMMISSION ATTENDEES:

Michael Berry, President, National Ski Areas Association (NSAA)
Geraldine Hughes, Director of Public Policy, NSAA
Dr. Jasper Shealy, Rochester Institute of Technology

SUMMARY OF MEETING:

CPSC staff explained that the current project is to develop technical information that will be used by CPSC to make a decision as to whether to recommend the use of ski helmets to reduce the risk of head injury associated with skiing and snowboarding. The project was initiated following the deaths of Michael Kennedy and Sonny Bono this past winter, which increased awareness of the potential hazards. It was pointed out that one of CPSC's goals, as part of the Government Performance and Results Act, is to reduce the number of head injuries to consumers, and particularly to children. CPSC has also monitored standards development efforts for many recreational-use helmets, including ski/snowboard helmets, for some time.

Mr. Berry gave an overview of the National Ski Areas Association (NSAA) and its safety programs. NSAA is a trade association for the ski resort industry and serves 350 members of the 510 ski areas in the US (down from 700 resorts 20 years ago). It is a relatively small industry (\$2.5-\$3 billion per year) with about 15 million participants. The industry is comprised of large and small resorts; however, 80 percent of the 53 million skier visits are to the top 50 ski areas. Parity between the number of skiers and the number of snowboarders is expected in 5 to 6 years.

Mr. Berry explained that skiing is a risk sport with a low fatality and injury rate. A ski helmet is an important safety appliance that needs to be considered, but it is a second line of defense. NSAA promotes education as the primary way to achieve safety. The "Responsibility Code," a 25-year code of conduct, is advertised in posters, trail maps, coffee cups, etc. Educating young people is a principal goal. (With more children entering



kindergarten than ever before, a growth in the industry is expected over the next 10 to 15 years.) An educational video targeted at kids, prepared by NSAA and the US Forest Service, was shown.

Mr. Berry discussed how the classic ski injury has changed from a broken leg (mid-shaft tibial fracture) to a knee injury (rupture of the anterior cruciate ligament, or ACL). There are 20,000 ACL injuries per year. Ms. Hughes showed a videotape demonstrating actual knee injury incidents, the elements of a fall which result in ACL rupture, and how a skier should respond to avoid this injury.

Dr. Shealy presented an overview of a skiing study which he has conducted over the past 26 years at Sugarbush, VT. The study includes 6 million skier visits. Through this study, ACL injuries were identified as a major contributor to knee injuries in the early 1980s. Midshaft tibial fractures have been reduced by 95 percent. During the last four years of this study, there has been a trend toward increased helmet usage. Dr. Shealy felt that skiers who wear helmets may have an enhanced sense of security which could lead to offsetting behavior.

Dr. Shealy compared the injuries from alpine skiing and snowboarding, which has been around for approximately 10 years. While the injury rates are about the same, the injury patterns are not -- the fall mechanism is different, and snowboarders generally do not collide with fixed objects. Injuries for snowboarders tend to involve wrists and ankles.

Dr. Shealy stated that radar studies of skiers on an intermediate trail showed that 25 percent skied under 25 mph, 50 percent between 25 and 40 mph, and 25 percent over 40 mph. He also pointed out helmets are only tested to approximately 12 mph and, therefore, may not be effective at the higher speeds. CPSC staff explained that studies have demonstrated the effectiveness of bicycle and motorcycle helmets, which are tested in approximately the same range.

CPSC staff gave a brief overview of the skiing/snowboarding head injury study that was conducted this past February-March. There were about 130 cases in that period, and questionnaires were completed on 75 of those cases. However, analysis of the data and conclusions of the study were not yet available.

Mr. Berry discussed the role of the ski patrol, who are employees of the ski resorts. Most ski areas have a core of professional ski patrol, augmented by volunteer ski patrol. (Major resorts may use only professional ski patrol). He went on to explain how the death and injury data are gathered through ski patrol accident reports. For deaths and medically-significant injuries that occur within ski area boundaries, statistics are reported by NSAA as a compilation of data collected by the four providers of liability insurance for ski areas. A standard accident report form is filled out by ski patrol everytime there is a request for assistance (or a form is signed by participants who decline assistance). Not included in the data are injuries to participants who seek medical attention at a later date away from the ski resort, and deaths and injuries sustained outside of ski area boundaries. Under-reporting of medically-significant injuries is estimated at 15 percent. NSAA representatives suggested that if their data could be combined with CPSC's, a more comprehensive picture of skiing and snowboarding deaths and injuries might be developed.

Finally, Mr. Berry gave a brief description of racing programs sponsored by the US Ski Association and why, for some types of races, helmet use was mandatory. It was explained that the exposure to risk is different for competitive skiers than it is for recreational skiers and that the helmet adds a level of protection competitors need.