and to detect the number of additional CT scans required in young polytrauma patients.

Methods: 19 consecutive polytrauma patients aged <16 years undergoing LS imaging were included in this prospective analysis. To compare our results, we formulated an age, size, injury type and ISS matched group of young patients screened with Conventional Pediatric Radiology (CPR). Entrance and effective doses, mean time of diagnostic imaging and the number of additional CT scans were recorded for both groups.

Results: Effective and entrance doses were ($p < 0.001$) higher in the LS group compared to the paediatric CR group. This might be partly contributable to the higher radiation dose necessary for lateral LS spine imaging and that with conventional radiography only selected parts of the spine are imaged in comparison to the standard full spinal LS view. Diagnostic imaging required less time in the LS group ($p = 0.117$). No statistical significant difference between the two groups, as far as the total number of CT scans performed, was detected ($p = 0.784$).

Conclusion: LS scanning can probably look forward to a variety of new paediatric clinical indications in the future. But only the future will show whether LS will survive in the face of low-dose radiation CT scanners and magnetic resonance imaging devices that may eventually completely replace conventional radiography.

doi:10.1016/j.injury.2010.07.416

1A.3

Are there protective and risk factors in horse riding? A case–control study

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Objective: Analyse injury patterns, protective factors and risk factors in horse riding as well as has groups of safer riders and groups at greater risk.

Desing: A retrospective and prospective controlled survey.

Setting: A tertiary trauma centre in Bern, Switzerland.

Methods: Injured equestrians admitted to a tertiary trauma centre in Bern between July 2000 and June 2006 were classified by injury pattern and neurological symptoms. Injured equestrians admitted from July to December 2008 were surveyed using a questionnaire with 17 parameters. The same questionnaire was applied in non-injured controls. Multiple logistic regression was performed, combined risk factors were calculated using inference trees.

Results: *Retrospective survey*: 365 injured equestrians. Injury pattern: extremity injuries (32%), head (24%), spine (14%), thorax (9%), face (9%), abdomen (2%), pelvis (7%). 80% of head injuries were mild. Neurological symptoms occurred in 14 patients. Two accidents were fatal. One case resulted in tetraplegia, one in paraplegia. *Case–control survey*: 61 patients and 102 controls (patients: 72% female, 28% male; controls: 63% female, 37% male). Falls from the horse were most frequent (65%), followed by horse kicks (19%) and horse bites (2%). Parameters significant for controls in multiple logistic regression: Older age (OR 1.03, CI 1.01–1.06; $p = 0.015$), male (OR 2.54, CI 1.04–6.21; $p = 0.04$), diploma in horse riding (OR 0.27, CI 0.11–0.65; $p = 0.004$). Inference trees revealed typical groups less and more likely to suffer injury.

Conclusions: Experience with horse riding and having passed a diploma in horse riding are protective factors. Educational levels and injury risk should be graded within an educational level-injury risk index.

doi:10.1016/j.injury.2010.07.417

1A.4

Are there risk factors in snowboarding? A case–control multicentre study

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Objective: Although there are many reports in the literature on the epidemiology and injury patterns of ski and snowboarding injuries and data on risk factors are limited. The large number of snow sports-related injuries and the rising costs of healthcare prompted our institution to explore ways of cooperating with other trauma centres to increase the efficiency of injury prevention measures by identifying risk factors in skiing and snowboarding.

Materials and methods: A case–control multicentre survey of injured and non-injured alpine skiers and snowboarders. One tertiary and two secondary trauma centres participated. All injured skiers and snowboarders completed a questionnaire incorporating 15 variables. The same questionnaire was distributed to non-injured controls. Multiple logistic regression was performed. Patterns of combined risk factors were calculated by inference trees.

Results: 306 patients and 253 controls were interviewed. Variables significant for the patients: Low speed (OR 0.20, 95% CI: 0.06–0.64, $p = 0.0037$), bad weather/visibility (OR 19.06, 95% CI: 2.70–134.73, $p = 0.0031$), and old snow (OR 0.11, 95% CI: 0.02–0.68, $p = 0.0323$). Not wearing a helmet and riding on icy slopes emerged as a combination of risk factors associated with injury.

Conclusions: It is likely that multiple factors are responsible for injuries, rather than single ones. Future research should be aimed at identifying risk groups and developing recommendations or educational intervention programs specific to these groups. In general snowboarders should be made more aware of snow and weather conditions at valley stations. Training should include as a focus the ability to gauge slope conditions and adapt the speed of the descent accordingly. The importance of protective equipment and the avoidance of drugs should be stressed.

doi:10.1016/j.injury.2010.07.418

1A.5

Ankle fractures: impact of swelling on timing of surgery, length of hospital stay and the economic burden

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Introduction: Ankle fractures are among the commonest orthopaedic injuries. A delay in operating is often due to the swelling associated with such fractures. On the other hand, the delay in operative fixation beyond 24 h from injury is associated with lengthening of hospital stay which costs approximately £225 per patient per day for an acute trauma bed.

Objectives: The aim of this study was to analyse the relationship between the delay in surgical intervention of ankle fractures from