Laser Safety Stats and Facts

FACTS

1. The components of the eye most susceptible to laser damage are the cornea, retina, and lens.
2. Eyes are the most susceptible to damage from lasers. Different parts of the eyes are susceptible to different wavelengths. Damage can occur from heating, photochemical reactions and explosive rupture. Appropriate controls are essential to prevent ocular damage
3. Skin is less at risk from damage caused by lasers, but exposure to lasers still need to be managed appropriately to minimize the potential for skin burns
4. In addition to laser radiation, there are additional hazards such as collateral radiation, electrical shock, fire, cryogenics, mechanical hazards, vapours and chemicals, which all need to be considered when completing a risk assessment
5. Exposure to the beam or a reflection of the beam will cause immediate injury to the eye and skin.
6. Most eye injuries have occurred in research and engineering laboratories.
7. Many laboratory accidents result from unexpected upward reflections.

STATS

- 48.1% of Canadians aged 12 or older (an estimated 14.5 million) reported using or being exposed to beams from a laser device in the previous 12 months.
- A higher prevalence of exposure was also reported in each age group compared with the 45 or older age group.
- Among Canadians who reported using a laser product, 1.1% reported experiencing discomfort or injury within the past 12 months. This included skin injuries such as rash, itch or pain and eye injuries such as itchiness, pain, visible

floating objects, blurred vision, burn, flash blindness, excessive watering or loss of sight

- Approximately 44.9% of the respondents who reported an injury indicated it occurred only once in the past 12 months, while 49.5% indicated at least two occurrences in the past 12 months
- Among those who reported an injury from a laser product, 41.3%E declared the injury or discomfort occurred to their skin, while 59.1% reported an injury to the eyes.
- Among those who reported harm caused by a laser device, 63.9% indicated that the discomfort or injury lasted two days or less, while 34.0%E of individuals reported that the injury lasted more than two days (Table 3).
- When recalling their discomfort or injury, respondents were asked what type of laser product, excluding medical devices, caused the harm.
- Laser pointers accounted for 26.3%E of injuries, while survey tools, lasers for entertainment, lasers for materials processing, laser barcode scanners and other laser products not identified in this survey accounted for the remaining 34.1%E of injuries.
- Validated data were available from 903 respondents, where 157 (17.4%) reported encountering at least 1 eye injury from a handheld laser.