

## Lightening Safety Guidelines

### Safer Locations during Thunderstorms and Locations to Avoid

- No place is completely safe from the lightning danger.
- Large, enclosed structures (substantially constructed buildings) are safer than smaller or open structures.
- The risk for lightning injury depends on whether the structure incorporates lightning protection, the construction materials used, and the size of the structure.
- Fully enclosed metal vehicles such as cars, trucks, buses, vans, fully enclosed farm vehicles, etc. with the windows rolled up provide good shelter from lightning.
- Avoid contact with metal or conducting surfaces outside or inside a vehicle.

### Avoid being in or near:

High places, open spaces, sports fields, isolated trees, unprotected small structures, rain or picnic shelters, baseball dugouts, communications towers, flagpoles, light poles, bleachers (metal or wood), metal fences, open topped vehicles, golf carts, water (ocean, lakes, swimming pools, rivers, etc.).

### When inside a building avoid:

Use of a telephone, contact with water or any conductive surfaces with exposure to the outside such as metal door or window frames, electrical wiring, telephone wiring, cable TV wiring, plumbing, etc.

### Safety Guidelines for Individuals

If an individual can see lightning or hear thunder, they are at risk. Louder or more frequent thunder indicates that lightning activity is approaching, increasing the risk for lightning injury or death. If the time delay between seeing the flash (lightning) and hearing the bang (thunder) is less than 30 seconds, the individual should be in, or seek a safer location. *This method has severe limitations due to the difficulty of associating thunder to the corresponding flash.*

High winds, rainfall, and cloud cover act as precursors to actual cloud-to-ground strikes notifying individuals to act. Many lightning casualties occur as the storm approaches. Many lightning casualties occur after the perceived threat has passed. Lightning threat persists for more than 30 minutes after the last sound of thunder. When thunderstorms are in the area but not overhead, the lightning threat can exist even when it is sunny, not raining, or when clear sky is visible.

Pay attention to weather warning devices such as weather radio and/or credible lightning detection systems but do not let this information override common sense.

## **Considerations for Small Groups and/or when the Evacuation Time is less than Ten minutes**

An action plan must be known in advance by all Event Staff.

Local weather forecasts, weather radio, or appropriate channel should be monitored prior to the event to ascertain if thunderstorms are in the forecast. Event Staff should monitor forecasted weather and observe on-site developments to keep everyone informed when potential threats develop.

Observation of lightning may be insufficient and information such as a lightning detection system or weather information may be required to ensure consistency, accuracy, and advance warning.

Technology and instrumentation are effective but cannot guarantee safety. Instrumentation can be used to enhance warning during the initial stages of the storm by detecting lightning proximity to the racecourse. Advance notification of the storm's arrival should be used to warn people and instruct them to seek safety. Detectors are also a valuable tool to determine the "All Clear" (last occurrence of lightning within a specified range), providing a time reference for safe resumption of activities.

## **Safety Guidelines for Large Groups and/or when the Evacuation Time is more than Ten minutes**

When larger groups (at TAs, start and finish) are involved, the time needed for evacuation increases. Extending the threat range also decreases the chance that a localized cell or thunderstorm can reach the area giving the erroneous impression of a "false alarm".

Lightning is always generated and connected to a thundercloud but may strike many miles from the edge of the thunderstorm cell. Acceptable downtime (time of alert state) has to be balanced with the risk posed by lightning. Accepting responsibility for larger groups of people requires more sophistication and diligence to assure that all possibilities are considered.

## **Important Components of an Action Plan**

Monitoring should begin several days ahead of an event.

A protocol needs to be in place to notify all people at risk from the lightning threat. Depending on the number of individuals involved, a team of people may be needed to coordinate the evacuation plan.

Safer sites must be identified beforehand, along with a means to route the people to those locations. Vehicles provide excellent lightning shelters that can be provided (strategically placed around various locations) by organisers.

The "All Clear" signal must be identified and should be considerably different than the "Warning" signal.

The Action Plan must be periodically reviewed.

Include lightning safety tips and the action plan in event programmes, flyers, etc., and place lightning safety placards in areas where lightning strikes is a risk.

## **First Aid Recommendations for Lightning Victims**

Most lightning victims can survive a strike with prompt medical treatment. Individuals struck by lightning do not carry a charge and it is safe to touch them to render medical treatment. Follow these steps to try to save the life of a lightning victim:

1. Call emergency services to provide directions and information about the likely number of victims.
2. Make no more casualties. If the area where the victim is located is high-risk (mountain top, isolated tree, open field, etc.) with a continuing thunderstorm, the rescuers may be placing themselves in danger.
3. In an active thunderstorm, rescuers need to choose whether evacuation from very high-risk areas to an area of lower risk and should move the victim rapidly if necessary. Rescuers should minimize their exposure to lightning.
4. It is unusual for lightning strike survivors to have major fractures that would cause paralysis or major bleeding unless they have suffered a fall or been thrown by the strike.
5. Resuscitation: Alert on-site emergency medical responders and follow current CPR and resuscitation procedures.