Lightning Safety
Time to get Serious About It!

Lake County Athletic Officials Association
Sources Include
National Weather Service NOAA
NFHS and IHSAA Websites

Football News Searches
- 8/18/11 Annapolis MD, Navy FB forced to scramble inside during practice
- 8/17/11 Belen, NM Football Pep Rally Struck
  - 2 Minor Injuries
- 8/19/95 Forney TX, Lightning Strikes Football Team
  - 1 Critical Cardiac Arrest Revived/14 others Injured
- 9/12/78 Whitman MA, Football Coach Killed
  - 2nd Coach and 13 Students Injured
- 9/8/70 St. Petersburg, FL 2 HS Players Killed
  - 2 others Critically Injured, 18 others Non-Life Threatening
1998 Congo Africa:
Lightning kills football team

- 10/28/98 - All 11 members of a football team were killed by a bolt of lightning, a Congolese newspaper has reported.

- Thirty other people (fans) received burns at the match in the Democratic Republic of Congo.

- Kinshasa daily newspaper L'Avenir said local opinion - known to believe in charms and spells - was divided over whether someone had cursed the team.

- Source: www.news.bbc.co.uk

It will happen in NW Indiana like it happens here…
And here and here and here

Too much inconsistency by our Local Officials

- Recent Examples
  - This Saturday - 2 Football games at separate schools continued without interruption while cross country meet delayed for an hour. All three sites are within 1/2 mile radius.
  - This Spring - Softball game stopped for 30+ Minutes, Baseball game at same school stopped for 10 minutes.
  - For years… Inconsistent reports from neighboring schools happen way too frequently in ALL outdoor sports.
    - For Example… Munster, Griffith and Andrean have delays while games progress in Highland and at Calumet.
Lightning Safety

- Lightning is the nation's deadliest weather phenomena
  - More than Tornados, Hurricanes, Heat & Cold
- Summer - Peak Season
- Average of 55 Deaths per Year
  - 19 deaths this year as of 8/22/11
- Hundreds are PERMANENTLY Injured
  - Long Term debilitating effects

Lightning

- Static Electricity
  - Cloud to Cloud
  - Cloud to Ground
- Avg. of 6.6 Flashes of Lightning / sq. mile / year
  - 25 Million Flashes of Lightning per year
  - 3.79 Million Square Miles in US
- Air can be heated by lightning up to 50,000 degrees F.
Thunder

- Thunder can be heard from about 10 miles from a lightning strike.
- Lightning can strike outward 10 miles from a thunderstorm.
- **If you hear thunder, you are within striking distance!!!**
- Sound of thunder travels at 5 seconds per mile.
  - 10 seconds = 2 Miles
  - 30 seconds = 6 Miles

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Video

- NOAA from You Tube
- [http://www.youtube.com/watch?v=6OdL6Z7TAaY](http://www.youtube.com/watch?v=6OdL6Z7TAaY)
- [http://www.youtube.com/watch?v=MNJRP0ltfl](http://www.youtube.com/watch?v=MNJRP0ltfl)
Stop the Game

- If you hear thunder…
- If you see lightning…
  - Stop the Game
  - Have game management open shelters
- Wait… 30 Minutes from Last sound or Flash

Restart 30 Minute Clock

- Every time you see or hear Lightning or Thunder
- Remember… Game cannot restart less than 30 Minutes from LAST sign.
You may (probably will) be Pressured to Restart Early

- Delays are inconvenient
- Delays can be costly
- AD’s, Coaches, Fans, etc. will pressure you to “Get it in” or “Lets Go” or “It will be OK, I checked the internet!”

Do YOU want to accept that liability when the published rules are written as plainly as these?

You DO NOT need judgment!

- You DO NOT need to estimate how far away it is.
- You DO NOT need to quantify if it was a big flash or a little flash
- You DO NOT need a portable lightning detector
- You DO NOT need an IPhone or Blackberry with internet
- If It’s there…. Stop the Game!
Don’t let this become you because of lightning!
NFHS Sports Medicine Handbook Guidelines for Lightning Safety

The following 15 Slides repeat (with emphasis provided) the information presented on www.IHSAA.org http://www.ihsaa.org/dnn/Officials/OfficialsEducation/GuidelinesforLightningSafety/tabid/837/Default.aspx

Recognition

Coaches, certified athletic trainers, athletes, and administrators should be educated regarding the signs indicating thunderstorm development. Since the average distance between successive lightning flashes is approximately 2-3 miles, **anytime that lightning can be seen or thunder heard, the risk is already present.**
Weather can be monitored using the following methods:

- **Monitor Weather Patterns**
  - Be aware of potential thunderstorms by monitoring local weather forecasts the day before and morning of the practice or competition, and by scanning the sky for signs of potential thunderstorm activity.

- **Flash to Bang**
  - This method is used to assess how far away lightning is striking. It is determined by counting the number of seconds it takes to hear a clap of thunder after witnessing a flash of lightning. The number of seconds is then divided by five to get the distance, in miles, to the lightning flash. Generally a 30-second or less flash-to-bang count suggests removal of the athletes from the field to a safe shelter is advisable.

Weather can be monitored using the following methods:

- **National Weather Service (NWS)**
  - Weather can also be monitored using small, portable weather radios from the NWS. The NWS uses a system of severe storm watches and warnings. A watch indicates conditions are favorable for severe weather to develop in an area; a warning indicates that severe weather has been reported in an area and for everyone to take proper precautions.
Management

- **Evacuation** - If lightning is imminent or a thunderstorm is approaching, all personnel, athletes, and spectators should evacuate to available safe structures or shelters. A list of the closest safe structures should be announced and displayed on placards at all athletic venues.

- **Thirty-minute rule** - Once lightning has been recognized, it is recommended to wait at least 30 minutes after the last flash of lightning is witnessed or thunder is heard. Given the average rates of thunderstorm travel, the storm should move 10-12 miles away from the area. This significantly reduces the risk of local lightning flashes. *Any subsequent lightning or thunder after the beginning of the 30-minute count should reset the clock and another count should begin.*

Prevention

- In order to prevent lightning-related injuries, it is important to formulate and implement a proactive, comprehensive lightning emergency plan. The plan should include:
  - Advance planning
  - A systematic approach for monitoring local weather conditions
  - Education of staff to recognize signs of nearby lightning activity
  - Criteria for suspension and resumption of play
  - Evacuation plan including nearby safe shelters
  - Periodic review and practice of the plan by appropriate high school personnel
Significance

Lightning is one of the most consistent and underrated causes of weather-related deaths or injury in the United States. According to the National Severe Storms Laboratory, approximately 100 fatalities and hundreds more injuries requiring medical attention occur in the United States each year. Lightning-related injuries are of particular concern during the late spring and summer months, and during daytime hours. Nearly all lightning-related injuries occur between the months of May and September, and the greatest number of lightning casualties occurs between the hours of 10 A.M. and 7 P.M., with the greatest risk concentrated between 2 P.M. and 6 P.M. Therefore, the risk of lightning-related injuries appear to be of greatest concern during some of the most active periods of outdoor scholastic activities.

Establishing a Lighting Safety Plan

A thorough, documented lightning safety plan is the most effective way for high schools to prevent lightning-related casualties in their athletic programs. The plan should include advanced planning, a systematic plan for monitoring weather, education on lightning awareness, criteria for suspension and resumption of activity, and an evacuation plan. Moreover, the information included in the plan must be disseminated to the correct, qualified personnel and practiced on a routine basis.
Advance Planning

In advance of the activity, a documented plan should be in place and the persons in position of responsibility for monitoring weather activity and deciding when to suspend activity should be identified. Responsible persons must be intimately familiar with all aspects of the lightning policy. In the days prior to an event, it is also important to be aware of the potential for thunderstorm activity through early monitoring of local weather forecasts. In some areas and seasons, characteristic patterns of thunderstorm activity may be noted and should be considered.

Systematic Plan for Monitoring Weather

A person should be designated prior to the practice or event to monitor the weather and notify the person in authority to initiate the evacuation process when appropriate. This person is responsible for monitoring local weather forecasts and scanning the sky for signs of potentially dangerous local thunderstorms. Ideally, this should not be a coach or official, as they may get so caught up in the game or activity that they fail to adequately monitor weather activity. To assist with weather monitoring, small, portable weather radios from the NOAA and the NWS, and the Weather Channel provide good information on general storm movement and strength. This general information should be combined with specific local weather patterns witnessed while scanning the sky to provide the person in authority with adequate information to determine the safety for its athletic participants.
Education on Lightning Danger

- Coaches, athletic trainers, officials, administrators, as well as athletes, should be educated regarding the signs indicating nearby thunderstorm development. Generally speaking, it is felt that anytime that can be seen, or thunder heard, risk is already present. Assessing how far away lightning is striking can be accomplished utilizing the flash-to-bang method. The flash-to-bang method is derived from the fact that light travels significantly faster than sound. Light travels approximately 186,000 miles/second, and sound travels approximately 740 miles/hour, which translates to a speed of one mile every five seconds. The flash-to-bang method is used by counting the number of seconds it takes to hear the clap of thunder after witnessing a flash of lightning. Divide the number of seconds by five to get the distance, in miles, to the lightning flash. For example, if the designated weather monitor counts to 30 between the time he/she witnessed the lightning flash to the time he/she hears the thunder, the lightning flash occurred approximately six miles from the weather monitor’s position (30 sec x 1 mile/5 sec = 6 miles).

Criteria for Suspension and Resumption of Activity

- A 30-second flash-to-bang count corresponds to a distance of six miles, which should provide ample opportunity to remove any athletes from the playing field, and get them into a safe shelter.

- After the suspension, the plan should include strict, documented criteria for the resumption of activities. It is recommended to wait at least 30 minutes after the last flash of lightning is witnessed or thunder is heard. Any subsequent lightning or thunder after the beginning of the 30-minute count should reset the clock and another count should begin. The combination of the 30-second flash-to-bang count to suspend activity and the 30-minute delay after the last lightning flash to resume activity is commonly referred to as the “30-30 rule.”
Evacuation Plan

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Safe Structures

- The most ideal safe structure is a fully enclosed, substantial building with plumbing, electrical wiring and telephone service, which aids in grounding the structure. A fully enclosed automobile with a hard metal roof and rolled up windows is also a reasonable choice. School buses are an excellent lightning shelter that can be utilized for large groups of people. However, it is important to avoid contact with any metal while inside the vehicle.
Safe Structures

- Avoid using shower facilities for safe shelter and do not use showers or plumbing facilities during a thunderstorm as the current from the local lightning strike can enter the building via the plumbing pipelines or electrical connections. It is also considered unsafe to stand near utilities, use corded telephones or headsets during a thunderstorm, due to the danger of electrical current traveling through the telephone line. Cellular or cordless phones are considered reasonably safe, and can be used to summon help during a thunderstorm.

If caught without shelter...

- When caught in a thunderstorm without availability or time to reach safe structures, you can minimize the risk of lightning-related injury by following a few basic guidelines:
  - Avoid being the highest object. Seek a thick grove of small trees or bushes surrounded by taller trees or a dry ditch.
  - Avoid contact with anything that would be attractive to lightning. Stay away from freestanding trees, poles, antennas, towers, bleachers, baseball dugouts, metal fences, standing pools of water, and golf carts.
  - Crouch down with legs together, the weight on the balls of the feet, arms wrapped around knees, and head down with ears covered.