

NEWS FROM THE PIT

Arizona Poison and Drug Information Center



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Don't Get Easily Rattled This Snake Season

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The Diamondbacks are out and we are not just referring to our favorite baseball team. Rattlesnake season is upon us and there are some things you should know before it ramps up!

Encountering a Rattlesnake:

Similar to humans, snakes prefer temperatures that are not overly extreme. If it is too warm or cold outside, much like us, they prefer to stay home. And so much like humans, the amount and types of activities they are doing, will vary by season. Like the Arizona weather, rattlesnake activities during the Spring and Fall tend to be similar. As winter starts to fade away and things warm up for Spring (or later in the year cool down for Fall), the comfortable temperatures tend to be in the middle of the day. Whereas during the summer months comfortable temperatures are in the evenings. Despite this information on rattlesnake activity, most bites in the Spring, Summer, and Fall occur during the hours between 4 - 10 pm. On the other hand, during the Winter, comfortable temperatures are more likely to be in the middle of the day. This aligns with when we see most bites during the Winter months, which is 10 am - 4 pm.

NEWSLETTER HIGHLIGHTS

Don't Get Easily Rattled This Snake Season

Image 1: Western Diamond-backed Rattlesnake, *Crotalus atrox*; Pinal County, AZ

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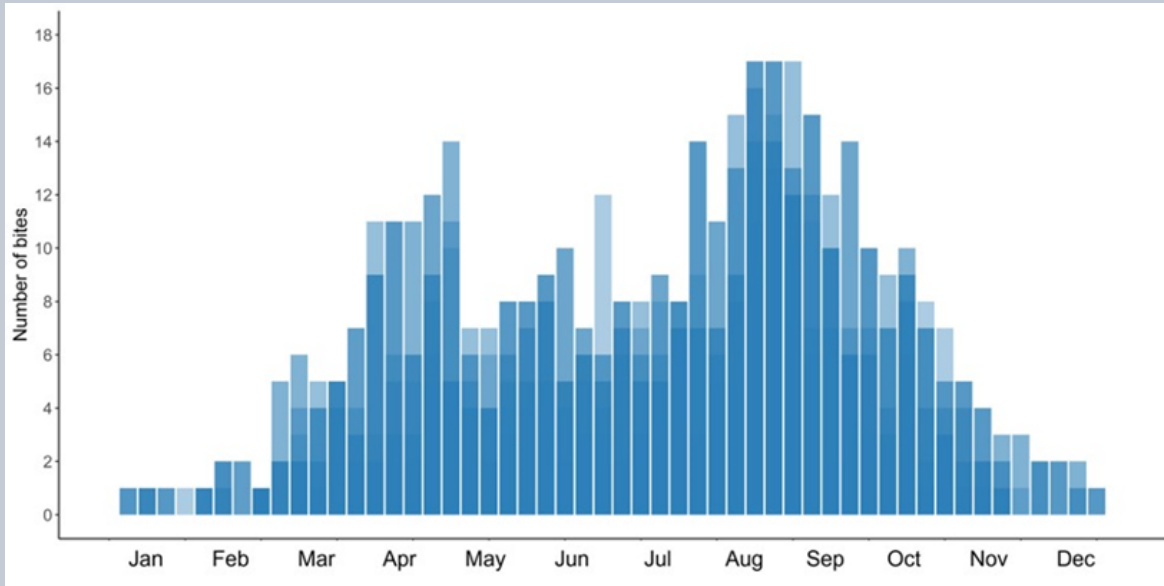


Figure 1: Plot of the weekly number of snakebite patients state-wide by year for 2017-2021 with years superimposed

Rattlesnakes and Venom:

Most snakes follow a chemical (scent) trail to find and consume their meal. Many rattlesnake species feed predominantly on rodents as adults. This creates a problem because rodents commonly have enormous incisor teeth (the pointy ones), that can do a lot of damage back to a would-be predator. For predators attempting to consume their prey alive, they will need to deal with the fact that their prey is going to fight back as their life depends on it. And when your first choice of prey comes armed with their own giant pointy teeth, it can create a bit of a problem. Venomous snakes, including our rattlesnakes, have evolved a method to chemically incapacitate their prey, without any of this troublesome issue of self injury or a skipped meal, should they not be able to hold onto it. Rattlesnakes strike, inject a lethal dose of venom, and release the prey animal in a fraction of a second. [Check out this video of a snake bite in action.](#)

What About Venom & Humans:

Rattlesnakes are not aggressive, but will defend themselves if they believe their life is at risk. They do not jump, chase, or go out of their way to attack humans, but if they feel threatened or endangered, they will strike. As a defensive tool, rattlesnake venom does not work fast enough to protect the snake from being killed by larger predators like badgers, coyotes, hawks, owls, or humans. When a rattlesnake bites you, there is a very high chance it will inject some of its venom into you. The good news is, people in the United States do not commonly die from snake bites with proper medical care. The bad news is, this means that your life plans have just changed because you now need to seek out that medical care. Even when people are able to rapidly receive antivenom, there are a number of problems that can still occur. Part of the reason snakes inject venom into their prey is to help them digest it later on.

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When a snake bites a human, the same thing will happen, only to a lesser extent because we are much larger than their normal prey. Commonly, the first symptom most people experience is some rather severe pain at the bite site. The absence of this pain should not be reassuring though, a smaller percentage of people will not experience any pain until several hours later. Over the next few hours swelling, redness, and bruising will start to accompany that pain. For some people this may start within minutes of being bitten, and similar to the timing of pain onset, it may be delayed for several hours in other people. In addition to the timing of symptoms being variable, the final extent of these symptoms can vary dramatically. In the worst cases, tissue damage can spread throughout and beyond the bitten limb, into the chest and back, it will even spread into the other limbs for some people. Not only will the venom cause damage, some people develop mechanical injuries from the snake fang itself that can damage tendons. It is not uncommon in these situations that patients will end up needing surgical repairs to assist with recovery. Examples of some other, but less common symptoms are: becoming very light headed or feeling faint, developing an odd taste in their mouth, vomiting, or having diarrhea right after being bitten. While all of the symptoms described here are fairly easy to recognize, their absence does not mean someone is safe to stay at home. Even tiny amounts of venom in the blood can have profound effects on the way our blood clots. Anyone bitten by a rattlesnake in Arizona is believed to be at much higher risk of bleeding because their blood isn't able to clot like normal, and these effects may persist for the next 2-3 weeks or longer. The only way to identify if these complications are occurring, is through lab tests. When someone has incredibly "thin" (unable to clot) blood, they are at a much higher risk of spontaneously bleeding. If this bleeding were to start in a vital organ, such as your brain, this could easily progress to become fatal. All of these factors come together and are the basis for our recommendation that anyone bitten by a rattlesnake, regardless of their early symptoms, needs to be seen at their nearest hospital.

Absence of symptoms does not mean someone is safe to stay at home.



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Prevent The Bite:

Food, water, and shelter are the essentials for rattlesnake survival. Adult rattlesnakes feed mostly on rodents, causing some of them to linger around yards or near homes. Snakes are drawn to the scent of rodents and will typically hide in rodent holes. Therefore, filling up rodent holes in a yard will discourage snakes from moving in. Piles of wood and other debris are also great places for a snake to hide. Additionally, sheds are also an attractive hiding place for snakes. Therefore, limiting clutter in your yard and around outbuildings can reduce chances of getting bit.

The pattern and color of rattlesnakes allows them to easily blend in with their environment. Because of this, it's best to avoid walking too close to bushes or rodent holes. Avoid sticking your hand into places where a snake may be residing. Hand bites are usually the result of someone reaching into a bush or shrub. A few people each year will mistake a snake's rattle for the sound of water. They end up getting bitten when they reach down to turn off a hose or irrigation system. Similarly, children under the age of 12 will frequently mistake a snake for a stick, rock, or toy resulting in a bite. Another common thing we see is people were not wearing shoes or had open toed shoes on. Wearing closed toed shoes while gardening, walking the dog, hiking, or playing outside could potentially decrease the risk of a more serious bite.

Some people are bitten every year because they choose to interact with a rattlesnake they have encountered. This can include trying to catch or kill snakes, making them rattle or strike, or trying to get a photo. Giving rattlesnakes a wide berth and leaving them alone is the safest course of action. Your local fire department will come and remove a rattlesnake for you.

It is not uncommon for people encountering rattlesnakes to see rattlesnakes again, after they just had one removed. It is possible that it is the same snake making its way back home, or it could simply be another snake. If features persist that may attract rattlesnakes, such as food, water, and shelter opportunities, future encounters are likely. If one snake likes what your home has to offer, others likely will as well. Take steps to learn from the encounter and consider making changes to make the property less useful to rattlesnakes and their prey. Services exist that use a more scientific approach at keeping snakes off of your property, although these services are not free of charge like your local fire department. Rattlesnake Solutions is an example of one such company, who has recently started working with the AZPDIC to improve our understanding of rattlesnake behavior.

The takeaway from all of this, is that being bitten would have been preventable, with a little bit of understanding beforehand. For some simple and practical advice, look where you are walking, don't put your hands or feet in places that you can't see, keep the doors of your house closed, and don't interact with a rattlesnake should you find one.



Western Diamond-backed Rattlesnake, *Crotalus atrox*; Pinal County, AZ

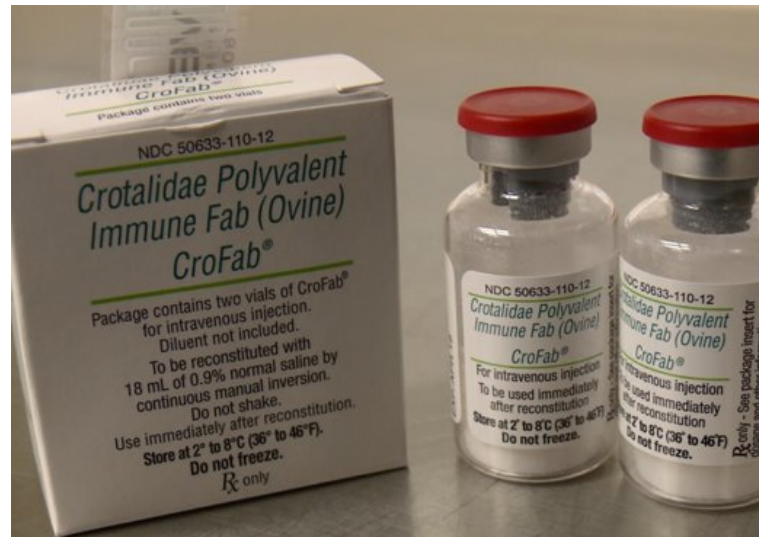
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Too Late, Just Got Bitten:

If bitten, move away from the snake to prevent a second bite. Do not try to capture the snake, more venom will equal worse symptoms because snakes do not use all of their venom with a single bite. Knowing the species of the snake is not necessary for treatment purposes and interacting with it further only increases your chance of a subsequent bite. Try to remain calm, remember that death after a snake bite in the U.S. is very rare. Call 911 immediately or have someone drive you to the nearest hospital. Only drive yourself if absolutely necessary. During transport to the hospital, try to loosen or remove any jewelry or constricting clothing on the bitten limb. In the situation where you are in the wilderness and out of cell phone range, it is best to start calmly walking towards your vehicle. If someone is able to run ahead to an area with cell service and call 911, it is possible that Emergency Medical Services (EMS) will arrive earlier and meet you somewhere on the path back to the road. Unfortunately, reality is not quite as wonderful as the Hollywood movies portray it, and most folks bitten while out in the wilderness are going to need to walk back to the road on their own even after EMS arrives. Which means that if you are bitten in the wild, you should not sit and wait while your friends go find help. As long as you are steady on your feet and able to walk, you should calmly start the walk before symptoms get worse.

The only medical treatment for a rattlesnake bite is antivenom, which is only available in a hospital. Antivenom can neutralize venom and prevent it from causing damage, but it cannot repair any damage that has already occurred. Proceeding rapidly but safely to the nearest hospital is important, you do not want to wait until a lot of damage has occurred to realize that antivenom would have been a good idea. The amount of venom injected during a bite varies considerably and it is impossible to know how much venom was delivered by the snake. As mentioned above, some effects of venom will not be obvious, but they may be very serious, such as changing the way your blood forms clots. Because of this, determining the seriousness of the bite should be done by a medical professional in a hospital setting. Waiting around to see how bad it gets on the other hand, is a very bad idea.



Remain calm, remember that death after a snake bite in the U.S. is very rare.

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First Aid:

- Call 911 as quickly as possible by any available means. Do not “wait and see”.
 - If you are unable to call 911, use a satellite device such as Garmin InReach or SPOT.
- Most first aid is not helpful after a snakebite and may waste time getting to a hospital.
- Remove jewelry and tight clothing near the bite while enroute to the hospital.
- Do not try to cut or suck out the venom.
- Do not use tourniquets or tight bandages. This isolates the venom to the affected limb and results in further damage to the surrounding tissue.
- Do not apply ice, electric shock, or herbal remedies to the bite site. These will only increase damage and in some cases result in an amputation.

