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Lacerations come in many shapes and flavours - big ones, little ones, simple ones, dirty ones, bloody ones, complicated ones - . . .you get it. As family physicians we tend to encounter accidental lacerations (as opposed to incisions of our own making) most often in emergency medicine or urgent care, but we will also see a lot of lacerations in follow up.

Lacerations are one of those topics where art, science and personal preference tend to collide. There is enormous practice variation between physicians - probably in part because there is an absence of evidence for and lot of dogma behind many common practices.

We will focus on the fundamentals for the CCFP exam – the things you need to know to put back together the most common lacerations you’ll encounter, and to identify those situations where referral might be necessary or when it’s best not to close things up at all!

There are some great links in the show notes you can reference with tips and tricks for repairing different types of lacerations and deep dives into the evidence.

Objective One

When managing a laceration, identify those that are more complicated and may require special skills for repair (e.g., a second- versus third-degree perineal tear, lip or eyelid lacerations involving margins, arterial lacerations).

Here we will go over some of the more common special case complicated lacerations that are more likely to show up on the exam. Check out the show notes for links to some useful resources that go into specifics considerations and closure techniques for many anatomical areas.

So what makes a laceration “complicated”?

One consideration is wound age - “When did this happen?” – because infection risk increases the older the laceration.

UpToDate states that simple, clean lacs with no signs of infection in otherwise health patients can be closed primarily up to 12 to 18 hours on any part of the body, without significant increased risk of infection.

On the face, this time frame extends to 24 hours. Older lacerations are at a higher risk for infection, and we will come back to these in objective four.



The next major consideration is anatomical location.

Lip Lacerations:

Lacerations near or involving the eyelids can be complicated because the eyes are cosmetically important, and because there are many tiny functionally important structures – muscles, nerves, ducts – that can be injured.

Injuries of the inner surface of the lid, lacrimal duct or that extend into the tarsal plate (those white connective tissue layers within the upper and lower eyelid), lacerations across the lid margins, and any lacerations causing ptosis should be referred to an ophthalmologist or oculoplastic surgeon

Lip lacerations can be complicated by involvement of the vermillion border, where the lip meets the skin. Our eyes spend a lot of time looking at people's mouths when they are talking, so even a slight misalignment at the border will stand out.

Lacerations at the vermillion border do not necessarily need referral but do require special attention. See the show notes for a link to a demonstration. ¹

Ear Injuries

Next, the ear! The ear is a complicated cartilaginous structure, many simple lacerations can be safely closed by yourself as long as bringing the skin together approximates the cartilage; larger lacerations may require layered closure of the cartilage first.

Exposed ear cartilage should be covered with skin – if you have a complicated repair or the overlying skin or a piece of the cartilage is missing, consult a specialist.

One of the most important steps in managing an ear laceration is the prevention of a perichondral hematoma, because pressure build up can damage the cartilage and cause deformity (this is sometimes called cauliflower ear).

After repair of an auricular lacerations, apply a pressure dressing and get the ear reassessed in 24 hours to ensure a hematoma has not formed.

Vascular Injuries

You also have to be able to identify larger vascular injuries. The most obvious sign of a vascular

¹ <https://lacerationrepair.com/techniques/anatomic-regions/lip-lacerations-part-ii/>



injury is probably pulsatile bleeding. If anyone describes “pumping” or “squirting blood” at any point, assume an arterial injury, even if it seems to have stopped by the time you evaluate it.

Pressure and tourniquets can slow flow and allow clots to form that can mask arterial injury, especially partial lacerations, even in vessels we classically think of as ‘large’ like the radial artery.

Other hard signs for vascular injury you might expect to see after a laceration include expanding hematoma, absent distal pulses or any of the other Ps of limb ischemia and compartment syndrome (so pallor, paresthesias, paralysis, and pain on passive extension). Some would also include bruits or thrills on this list.

Soft signs would include hypotension or shock, stable hematomas, and neurological deficits.²

Missed lacerations of smaller vessels may not cause a patient to bleed out, but can lead to serious complications down the road. When in doubt, consult a vascular surgeon.

This objective also mentions perineal tears, which you are unlikely to encounter often unless obstetrics are a part of your practice. At a minimum, all family doctors should be able to classify perineal tears. 1st-degree lacerations are injuries to the skin and subcutaneous tissues of the perineum and vaginal mucosa only, while 2nd-degree lacerations extend into the fascia and muscles of the perineum.

1st and 2nd degree lacerations can often be closed in the delivery room by those experienced with their repair. 3rd and 4th degree lacerations are those that involve the anal sphincters and anal mucosa, and require specialist consultation.

Objective Two

When managing a laceration, look for complications (e.g. flexor tendon lacerations, open fractures, bites to hands or face, neurovascular injury, foreign bodies) requiring more than simple suturing.

² EMRAP Core Compendium. Vascular Injury In Extremity Trauma
<https://www.emrap.org/episode/vascularinjury/vascularinjury>



When examining a laceration, make sure your patient is calm and well positioned, and that you have adequate lighting so that you can see what you need to. You may need to anesthetize the area to make patients comfortable before you can properly examine it.

To see what you're doing you also need hemostasis. Tiny oozers can often be controlled with direct pressure, and this should be your first step. If that fails, 1% lidocaine with epinephrine can reduce bleeding through vasoconstriction.

Contrary to common dogma, epinephrine with lidocaine can safely be used in most areas of the body, including digital blocks and in fingers, ears, noses and toes. There is also evidence to suggest epinephrine is probably safe in patients with cardiovascular risk factors that we would classically consider high risk.

That said, as one resource we looked at put it, it would not be unreasonable to consider holding the epinephrine in the diabetic patient with bilateral below knee amputations who smokes 2 packs a day.³

If the lido+epi doesn't do it, tourniquets can be used for a short time. You can use a blood pressure cuff proximal to the injury and inflated above systolic pressure as a short term tourniquet. And the same simple orange tourniquets used with blood draws and IVs work can be used for finger tourniquets. Just do not leave tourniquets on longer than 20 to 30 minutes.

Once you can see what you're doing, make sure you evaluate the laceration at neutral, through the full range of motion, and in the position the injury occurred.

Wounds over joints or tendons need to be carefully explored. A complete laceration of a tendon may retract into the wound and be difficult to find.

Sometimes tendon injuries are obvious because a patient can no longer straighten or bend their finger. But don't be fooled just because strength and range of motion appear intact – collateral structures sometimes mask these injuries, so you need to have a high degree of suspicion. Ensure you are also testing for motor function and sensation. If you do find or suspect injury to tendons, muscles or nerves, consult a specialist on how to proceed.

Assume there is an open fracture until proven otherwise any time you have an open wound close to a fracture site. This is a particularly common complication with crush injuries or bites to

³ <https://rebelem.com/more-dogma-epinephrine-in-digital-nerve-blocks/>



the hands and feet, where bones are very close to the surface. We will talk more about bites in objective four.

For injuries near the fingernails and toenails, have a high suspicion for nail bed lacerations. Look for subungual hematomas. These often need to be decompressed, especially if they are more than half the nail in size. Injuries where a large part of the nail or bed has avulsed are especially high risk for poor outcomes.

Repair needs to optimize the chances of nail regeneration, and usually involves sewing the nail back on or splinting the epycondial fold open with some inert material. See the show notes for some links on nail bed injuries. When in doubt, consult a hand surgeon for guidance.

Objective Three

Given a deep or contaminated laceration, thoroughly clean with copious irrigation and debride when appropriate, before closing.

Irrigation to clean wounds seems like common sense, and will be a good common sense answer on your CCFP exam. That said, the practice of irrigation does not have as much evidence as you might expect. See the show notes for a link to a recent EM Cases podcast that goes into this in detail⁴.

This isn't to say that we shouldn't irrigate wounds at all. Irrigation makes sense in visibly dirty wounds or those caused by dirty implements (like a manure covered pitchfork). Patients also tend to expect it. But it may not need to be as big a priority in clean, simple wounds where you might want to avoid unnecessary steps, like a small facial laceration on a screaming, miserable child.

When you do irrigate, make sure you have adequate analgesia and anesthetic on board. There does not seem to be any good evidence to guide volume for irrigation, and the data on pressure is also fairly limited. Given those limitations, some might say that the right amount of irrigation is whatever removes any visible contamination.

Sterile saline is a common choice of fluid for irrigation. There is good evidence that tap water does is no worse than saline when it comes to infections rates. Practically tap water makes the

⁴ Helman, A. Morgenstern, J. Cochrane, H. Journal Jam 21 Laceration Management – Does Timing of Closure, Irrigation, Glove Type, Eversion Matter?. Emergency Medicine Cases. December, 2022. <https://emergencymedicinescases.com/laceration-management-timing-closure-irrigation-gloves-eversion>. Accessed December 18, 2022



most sense in situations where the patient can wash their own wound at the sink, and has the benefit of much larger volumes than you can get from those tiny squeeze bottles of saline.⁵

The other step to consider when cleaning a wound is debridement. Devitalized tissues increase the infection risk and lead to a worse cosmetic result. Debridement is usually recommended for any devitalized tissue or foreign bodies that cannot be washed away, with specialist consultation if significant excision or modifications to the wound are needed.

Objective Four

Identify wounds at high risk of infection (e.g., puncture wounds, some bites, some contaminated wounds), and do not close them.

As we discussed in objective one, lacerations older than 12 hours (or 24 hours on the face) are at a higher risk of infection. This is particularly true of large wounds (> 5cm), those with heavy contamination or retained foreign bodies, and deep wounds with a lot of tissue trauma.

Patient risk factors that could affect healing, such as diabetes or immunosuppression, also need to be considered. Such cases may require delayed primary closure or closure by secondary intention, which often means consultation with specialists and close follow up.

Puncture wounds tend to be small, and are at infection because of microbes and foreign bodies that are tracked deep inside. They often do not need closure for hemostasis, and in many cases should be left open to reduce the risk of infection.

Retained foreign bodies will increase infection risk. The history will give you clues – patients may describe pulling a piece of glass or sudden pain after stepping down or the sensation of retained material.

Don't probe blindly for foreign bodies with an instrument (and especially not your fingers!). If you are suspicious for a foreign body but can't see it, get imaging. XR is a good choice for inorganic matter like metal and glass, and CT will pick up most materials that XR misses. You can also see many materials, including wood, on bedside ultrasound.

If you can easily remove a foreign body, remove it!. It is *sometimes* reasonable to extend a laceration to get to a buried foreign body, such as in situations where you can clearly feel it. But be careful about going fishing - it can do more harm than good.

⁵ <https://www.cochranelibrary.com/cdsr/doi/10.1002/14651858.CD003861.pub3/abstract>



Inert foreign bodies like glass and metal that cannot easily be removed and are not causing pain or infection can often just be left in place, and the wound closed if necessary.

Contaminated or organic materials like wood may need to be surgically removed, although small bits like splinters are often left to work their way out on their own. If you're not sure (and we might be repeating ourselves only a little bit here) consult a specialist.

There is no proven benefit of antibiotic prophylaxis for most puncture wounds. Exceptions where prophylaxis might be appropriate are patients at particularly high risk for infection, such as plantar punctures in diabetics or through athletic shoes, or with a known contaminated organic foreign bodies.

Bites are a special form of puncture wound. Primary closure is often considered on simple, low-risk bites, which include dog bites to the face, trunk, arms or legs, and cat bites to the face. Bites to the face seem to be at a lower risk of infection to start with, and are often closed primarily because the face is a cosmetically important area.

In high-risk bites primary closure should be avoided. The wound should be cleaned and debrided as appropriate, and then re-evaluated at 24-48 hours. In some cases these can undergo delayed primary closure, which often requires specialist referral or experience.

What makes a wound high risk varies – classic examples include:

- human bites,
- cat bites and
- deep dog bites on areas other than the face,
- any bites to the hands, feet or genitals,
- bites resulting in a lot of tissue trauma and requiring a lot of debridement, and
- bites in immunocompromised patients.

Prophylactic antibiotics are usually recommended for human bites and for high risk bites, as well as for low-risk bites that have undergone closure. ⁶

Human bites, particularly 'fight bites' and closed fist injuries, are especially high risk for infection. 'Fight bite' is the colloquial term for a lac to the hand that occurs when your patient has punched another human in the face. Even when relatively benign appearing, these bites can be at high risk for infection because the human mouth is *disgusting*...

⁶ UpToDate. Animal bites (dogs, cats and other animals): Evaluation and management.



and it is easy for microbes to spread into joints and along the paths of tendons. These injuries often require close monitoring and antibiotics, and may even require surgical management.

Some especially common pathogens that might be relative to list include:

For dog and cat bites? *Pasteurella Multocida*

for human bites? Anaerobes

diabetics feet: think polymicrobial, including *Pseudomonas*, MRSA, gram negatives & anaerobes'

injection drug use? *Staph aureus*, including MRSA

Cover mammalian bites with Amox-Clav. And know your antibiotics for soft-tissue infections, including coverage for strep, staph and MRSA. Check out the show notes for a comprehensive list.

Risk factor	Associated pathogens
Dog bite	<i>Pasteurella multocida</i> , <i>Streptococcus</i> spp., <i>Staph. aureus</i> , <i>Fusobacterium</i> spp., <i>Bacteroides</i> spp., <i>Capnocytophaga</i> (may cause overwhelming sepsis in susceptible patients)
Cat bite	<i>Pasteurella multocida</i> , <i>Streptococcus</i> spp., <i>Fusobacterium</i> spp., <i>Bartonella henselae</i> (cat scratch disease)
Human bites	<i>Eikenella corrodens</i> , <i>Fusobacterium</i> spp., <i>Streptococcus anginosum</i> , <i>Staph. aureus</i>
Fresh or salt water exposure	<i>Vibrio vulnificus</i> , <i>Aeromonas hydrophila</i> , <i>Erysipelothrix rhusiopathiae</i> , <i>Mycobacterium marinum</i> , others
Diabetic foot infection (Sugandhi 2014)	Often polymicrobial. <i>Staph. aureus</i> (including MRSA), β -hemolytic streptococcal spp., <i>Pseudomonas aeruginosa</i> , <i>Enterococcus</i> spp., <i>Escherichia coli</i> , and other <i>Enterobacteriaceae</i> , <i>Clostridium</i> spp.
Injection drug use	<i>Staph. aureus</i> (including MRSA), oral (α -hemolytic) streptococcal spp., β -hemolytic streptococcal spp., <i>Clostridium</i> spp.
Perianal, perirectal abscess	<i>Staph. aureus</i> , <i>Streptococcus</i> spp., <i>E. coli</i> and other <i>Enterobacteriaceae</i> , <i>Bacteroides fragilis</i> , other anaerobic species
Immunosuppression	<i>Strep. pneumoniae</i> , <i>E. coli</i> , <i>Mycobacterium tuberculosis</i> , <i>Cryptococcus</i> spp., others
Abbreviation: MRSA (methicillin-resistant <i>Staphylococcus aureus</i>)	



• Coverage for MRSA	Coverage for MSSA
<ul style="list-style-type: none"> ○ Trimethoprim-sulfamethoxazole 160 mg/800 mg 1-2 tablets PO q12h for 5-10 d (first-line choice). ○ Doxycycline 100 mg PO q12h for 5-10 d. ○ Clindamycin 300 mg PO q8h for 5-10 d (second-line choice). ○ Vancomycin loading dose 25-30 mg/kg IV followed by 15-20 mg/kg q12h IV. 	<ul style="list-style-type: none"> ○ Cephalexin 500 mg PO q6h for 5 d; extend duration if slow clinical response ○ Dicloxacillin 500 mg PO q6h for 5 d; extend duration if slow response ○ Clindamycin 300 mg PO q8h for 5 d (second-line except for cases of a true penicillin allergy) ○ Cefazolin 1 g q8h IV ○ Nafcillin 2 g q4h IV

Tables replicated from EM:RAP.org Core Compendium Approach to Skin and Soft Tissue Infections

And don't forget to consider the possibility of rabies in animals bites, and viruses such as HIV or Hepatitis in human bites. If your patient has been bitten by a wild or uncommon animal, look up specific recommendations and consult an infectious disease specialist as needed.

Finally, for patients with all types of lacerations, with or without prophylactic antibiotics, infection is *always* potential complication. Make sure you educate your patients about the signs and symptoms of infection so that they know when to return for further treatment.

Objective Five

When repairing lacerations in children, ensure appropriate analgesia (e.g., topical anesthesia) and/or sedation (e.g., procedural sedation) to avoid physical restraints.

Appropriate analgesia is important for all patients, not just kiddos. But whereas in adults you can often get away with local or regional aesthetic alone, pediatric patients are sometimes just too wriggly or too scared to sit still.

With pediatric patients over 1 month of age, topical anesthetics like LET (that's Lidocaine-Epinephrine-Tetracaine) can be applied to most simple, open lacerations. LET alone can be sufficient to allow for closing simple lacs – if you do need to add additional freezing, stay below the combined maximum safe dosages of your anesthetics.



To reduce the pain associated with injecting freezing, you can buffer with bicarbonate, which brings the low acidic pH of the anesthetic back to neutral and reduces the “burn”.

The traditional recipe for buffered lidocaine is 10 parts 1% lidocaine to one part bicarb. But a 2020 study found a ratio of 3 parts lido to 1 part bicarb is significantly less painful than 10:1, without interfering with the length or quality of the anesthetic effect.⁷

When faced with a child (or really ANY patient) with a laceration, you also want to ask– “does this really need sutures?”. Because many lacs can be closed quite successfully just using adhesives like steristrips or Dermabond.⁸

Suitable lacerations for adhesives are usually superficial, less than 4-5cm, have low tension and pretty straight edges. Tissue adhesives tend to work well on facial areas like the forehead, scalp and skin, and can also work for some low-tension lacs on the torso or extremities. They do not work on high mobility or high-tension areas and should not be used on mucosa or margins (like the lip and eyelid).

On the scalp, liquid adhesives work well with a hair apposition technique, where you twist together strands of hair from either side of the laceration and then secure the bundles down with the adhesive (see the show notes for a link to a great demonstration of this).⁹

You don’t need to provide topical anesthesia to apply adhesives, but some liquid adhesives (I’m looking at you Dermabond) can cause a strong burning sensation for about 10 to 30 seconds, which it is kind to warn patients about. Counsel that skin glues are fairly waterproof, but will break down prematurely if soaked in water or if exposed to ointments or creams like polysporin. Skin glue flakes off on its own after 5-10 days.

The evidence suggests that the rate of infection and dehiscence, as well as cosmetic outcomes, are generally about the same for tissue adhesives as for other methods of closure. See the

⁷ Vent A, Surber C, Graf Johansen NT, et al. Buffered lidocaine 1%/epinephrine 1:100,000 with sodium bicarbonate (sodium hydrogen carbonate) in a 3:1 ratio is less painful than a 9:1 ratio: A double-blind, randomized, placebo-controlled crossover trial. *J Am Acad Dermatol* 2020;83(1):159-165.

⁸ Adl, H. Henkelman, E. Goldman, RD. Topical skin adhesives for laceration repair in children. *Canadian Family Physician* Apr 2021, 67 (4) 260-262; DOI: 10.46747/cfp.6704260

⁹ <https://www.youtube.com/watch?v=Aj9chhWJfPo> AND <https://lacerationrepair.com/techniques/alternative-wound-closure/hair-apposition-technique/>



show notes for some useful links on how to apply skin glue, including tips for using tegaderm to create a shield near sensitive areas¹⁰.

If these methods don't cut it, then strongly consider employing procedural sedation. When used in the appropriate circumstances, procedural sedation can significantly improve your ability to accurately assess a wound, clean it, and close it, and can provide a much better experience for everyone involved.

Objective Six

When repairing a laceration, allow for and take adequate time to use techniques that will achieve good cosmetic results (e.g., layer closure, revision if necessary, use of regional rather than local anesthesia).

If you follow the recommendations for the previous objectives, you will already be on the right path to achieving good cosmetic results. In this objective we will talk about a few finer points to ensure lacerations look as good as they can.

Start with choosing the most appropriate size and type of suture for the injury. Finer suture material (those are higher gauges like 5-0 or 6-0) are useful in low tension areas where you want to minimize scarring. Thicker sutures (lower gauges like 3-0 and 4-0) are a good choice where you need more tensile strength, like the scalp or extremities.

Generally non-absorbable sutures are recommended for closing skin, and absorbable sutures are used for buried closure of deeper structures. Classically the teaching was not to use absorbable sutures on skin due to increased risks of infection and dehiscence. But there is increasing evidence for their use in certain situations, such as for pediatric facial lacs or patients with poor follow-up. Check out the show notes for more resources on choosing suture material.¹¹

Part of achieving a good cosmetic result is avoiding infection. But it turns out that there is no good evidence that sterile gloves reduce the risk of infection in laceration repairs compared to clean gloves from the box. The main benefit of sterile gloves, in my experience, is that they fit tighter and can make it easier to handle your instruments when doing careful work.

¹⁰ <https://lacerationrepair.com/techniques/anatomic-regions/lacerations-around-the-eye/>

¹¹ <https://lacerationrepair.com/wound-blog/absorbable-sutures/> and <https://coreem.net/core/suture-materials/>



It is important to consider whether injecting local anesthetic will distort the anatomy, which can make it more difficult to achieve a good cosmetic result. In larger lacerations you may also be limited by the amount of anesthetic you can use before you start to reach toxic doses. In these cases consider a regional block.

Useful blocks for family medicine are digital blocks for freezing fingers and toes. For facial lacerations you can use a mental block for the lower lip and face, an infraorbital block for the mid face, and an ophthalmic nerve block for the upper face. You can also do a field block around the ear. Check out the show notes for some links on how to perform each of these.¹²

Eversion of skin edges is another one of those *must do* things we learned in medical school. But in researching this episode I was surprised to learn that there is only ONE clinical trial in the derm literature comparing everted to flat edges closed with interrupted sutures, and there was no cosmetic difference at 3-6 months.

Logically, it makes sense that in order to achieve a good cosmetic result you should take steps reduce tension across the wound and ensuring edges are well approximated. This might mean making small revisions of the wound edges to remove dog ears or funky edges. But there is minimal data to support using one specific technique over another to get there.¹³

Layered closure is useful for deeper lacerations where you want to bring together the underlying layers to reduce tension and close dead space. A good example of this is a through and through laceration on the lip, which has 3 layers to close: you can use buried absorbable sutures to approximate the dermis and subcutaneous tissue, close the skin with interrupted non-absorbable sutures, and then close the mucosa with absorbable sutures.

Once the laceration is closed, the next steps are up to the patient. So ensure you provide patients education about wound care and follow up to ensure the best outcomes possible.

High-risk wounds should be re-evaluated in 24-48 hours. Most wounds can be cleaned with soap and water after 8-12 hours, and should be examined daily for signs of infection. And don't forget to give patients instructions about pain management – it's easy to forget that the temporary relief they get from freezing for closure will wear off after they go home.

Instructing patients to have sutures removed at the appropriate interval will also improve cosmetic results. Some simple rules of thumb are removal within 3-5 days for facial sutures, and

¹² <https://lacerationrepair.com/other-topics/blocks/>

¹³ <https://emergencymedicinescases.com/laceration-management-timing-closure-irrigation-gloves-eversion/>



up to 10-14 days in high tension or mobile areas like hands or joints that are at higher risk of dehiscence. For most other areas of the body somewhere in between 7-10 days is usually about right.

Finally, set reasonable expectations. Inform your patients that all lacs are likely to result in some amount of scarring. Wounds across areas of higher tension like joints, and those perpendicular to lines of skin tension, will tend to have more prominent scars.

Objective Seven

In treating a patient with a laceration: a) Ask about immunization status for tetanus, b) Immunize the patient appropriately.

Clostridium Tetani is an anaerobe widely found around the world in soils and in the intestinal tracts of animals (and their poop). Tetanus can occur when *C. tetani* gets into a wound and starts to grow and produce tetanospasmin toxins.

In Canada, vaccination against tetanus is part of the standard vaccine schedule for all infants and children. Full immunity to tetanus requires a minimum of 3 doses, and a booster is required every 10 years to maintain immunity.

After the initial series of childhood vaccines, most children receive a booster in grade 9 at approximately age 15. After this, many adults fall behind on their boosters unless they sustain an injury or are required to have their tetanus updated for work or travel. Many visitors or newcomers to Canada may have no history of vaccination, or an incomplete series. So it is important to ask everyone with a laceration about their tetanus immunization status.

For clean and minor wounds, tetanus toxoid-containing vaccines should be administered for anyone who has less than 3 doses of vaccines, and those who have had at least 3 doses but the last dose was 10 or more years prior.

In all other wounds, it's the same, except that in those with at least three 3 doses of vaccines a booster should be given if their last dose was more than *5 years* prior. Human tetanus immune globulin is also recommended for such wounds when a patient has had less than 3 doses of vaccine in their lifetime.

If patients are unsure about their immunization status, it is generally recommended you treat them as if they are unvaccinated.

The incubation period for tetanus is anywhere from 3 to 21 days. Tetanus prophylaxis should be given as soon as possible, including to patients who present to care late. In most cases there is



little benefit to providing immune globulin more than about a week after injury. But in patients with no history of tetanus vaccination, giving immune globulin is probably appropriate for up to 21 days. And of course those patients should receive a first dose of the vaccine.

Referenced Works

Tintinalli's Emergency Medicine: A comprehensive Study Guide. *Section 6: Wound Management.*

UpToDate. Skin laceration repair with sutures

<https://lacerationrepair.com/techniques/anatomic-regions/lip-lacerations-part-ii/>

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