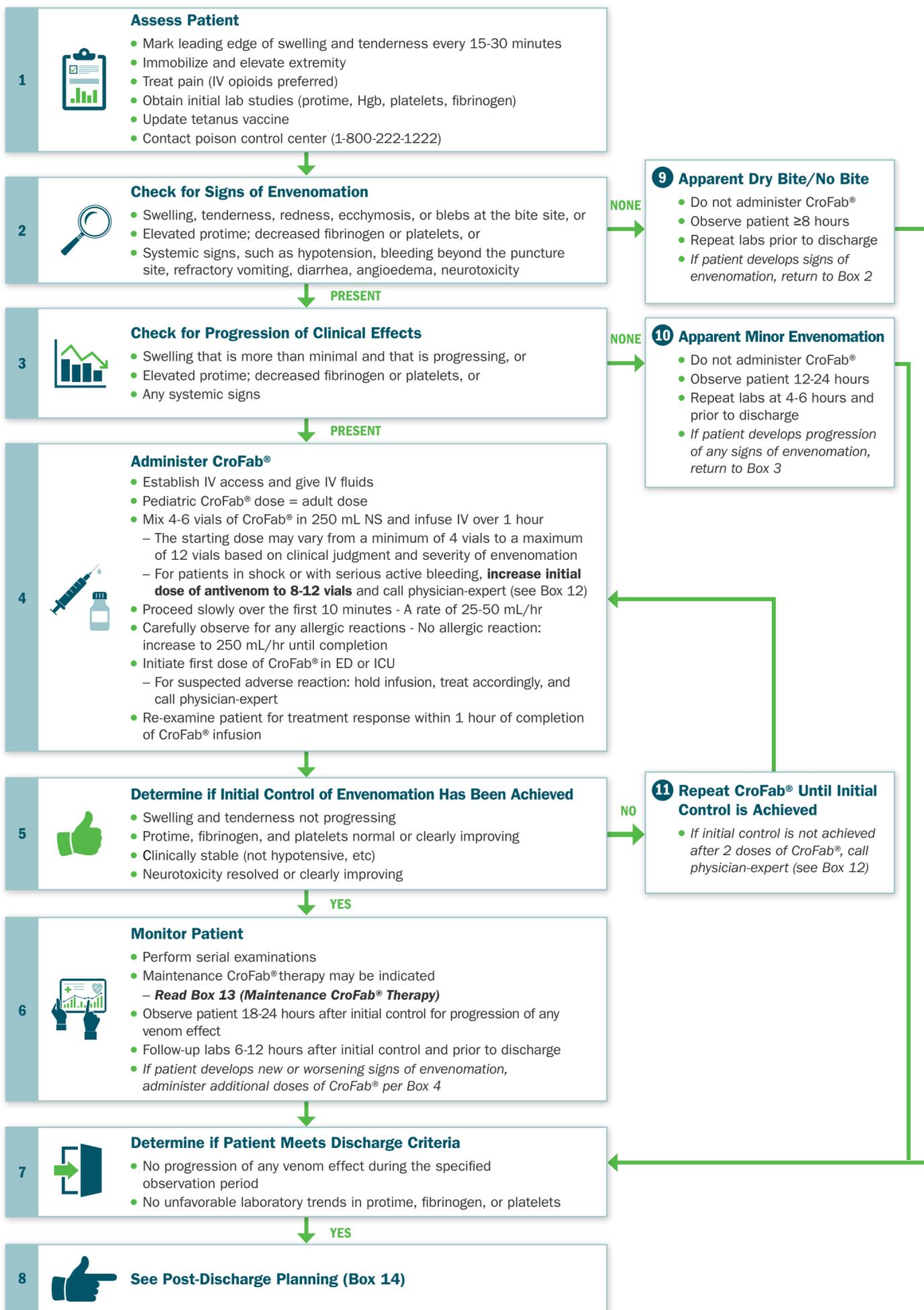


Management of North American Pit Viper Envenomation

Includes rattlesnakes, copperheads, and cottonmouths (water moccasins)



12 When to Call a Physician-Expert

Direct consultation with a physician-expert is recommended in certain high-risk clinical situations:

- Life-threatening envenomation**
 - Shock
 - Serious active bleeding
 - Facial or airway swelling
- Hard-to-control envenomation**
 - Envenomation that requires more than 2 doses of CroFab® for initial control
- Recurrence or delayed onset of venom effects**
 - Worsening swelling or abnormal labs (protime, fibrinogen, platelets, or hemoglobin) on follow-up visits
- Allergic reactions to CroFab®**
- If transfusion is considered**
- Uncommon clinical situations**
 - Bites to the head and neck
 - Suspected compartment syndrome
 - Rhabdomyolysis
 - Venom-induced hives and angioedema
- Complicated wound issues**

If no local expert is available, a physician-expert can be reached through a certified poison center (1-800-222-1222) or the BTG Specialty Solutions Center™ (1-844-293-0007).

13 Maintenance CroFab® Therapy

- Maintenance therapy is additional CroFab® given after initial control to prevent recurrence of limb swelling
 - Maintenance therapy is 2 vials of CroFab® Q6H x 3 (given 6, 12, and 18 hours after initial control)
- Maintenance therapy may not be indicated in certain situations, such as
 - Minor envenomations
 - Facilities where close observation by a physician-expert is available
- Follow local protocol or contact a regional poison center or physician-expert for advice

14 Post-Discharge Planning

- Instruct patient to return for:
 - Worsening swelling that is not relieved by elevation
 - Abnormal bleeding (gums, easy bruising, melena, etc)
- Instruct patient where to seek care if symptoms of serum sickness (fever, rash, muscle/joint pains) develop
- Bleeding precautions (no contact sports, elective surgery, or dental work, etc) for 2 weeks in patients with:
 - Rattlesnake envenomation
 - Abnormal protime, fibrinogen, or platelet count at any time
- Follow-up visits
 - CroFab® not given:
 - PRN only
 - CroFab® given:
 - Copperhead victims: PRN only
 - Other snakes: follow up with labs (protime, fibrinogen, platelets, hemoglobin) twice (2-3 days and 5-7 days), then PRN

15 Treatments Not Proven to Be Beneficial in the Management of Pit Viper Envenomation

- Cutting and/or suctioning of the wound
- Ice
- NSAIDs
- Prophylactic antibiotics
- Prophylactic fasciotomy
- Routine use of blood products
- Shock therapy (electricity)
- Steroids (except for allergic phenomena)
- Tourniquets

16 Notes

- This worksheet is adapted from general advice from a panel of US snakebite experts convened in May 2010. No algorithm can anticipate all clinical situations. Other valid approaches exist, and deviations from this worksheet based on individual patient needs, local resources, local treatment guidelines, and patient preferences are expected. **This document is not intended to represent a standard of care.** For more information, please see the accompanying manuscript, available at www.biomedcentral.com.



The SnakeBite911™ App provides access to useful information, from snake safety and basic pit viper bite first aid, to bite management and treatment in the ER.

Get the app:



Apple App Store



Google Play

Adapted from: Lavonas EJ, Ruha A-M, Banner W, et al. Unified treatment algorithm for the management of crotaline snakebite in the United States: results of an evidence-informed consensus workshop. *BMC Emerg Med.* 2011;11:2.

ED = emergency department; ICU = intensive care unit; IV = intravenous; NS = normal saline; NSAID = nonsteroidal anti-inflammatory drug; PRN = as needed; Q6H = every 6 hours.

Indication

CroFab® Crotalidae Polyvalent Immune Fab (Ovine) is a sheep-derived antivenin indicated for the management of adult and pediatric patients with North American crotalid envenomation. The term crotalid is used to describe the Crotalinae subfamily (formerly known as Crotalidae) of venomous snakes which includes rattlesnakes, copperheads and cottonmouths/water moccasins.

Important Safety Information

CONTRAINDICATIONS

Do not administer CroFab® to patients with a known history of hypersensitivity to any of its components, or to papaya or papain unless the benefits outweigh the risks and appropriate management for anaphylactic reactions is readily available.

WARNINGS AND PRECAUTIONS

Coagulopathy: In clinical trials, recurrent coagulopathy (the return of a coagulation abnormality after it has been successfully treated with antivenin), characterized by decreased fibrinogen, decreased platelets, and elevated prothrombin time, occurred in approximately half of the patients studied; one patient required re-hospitalization and additional antivenin administration. Recurrent coagulopathy may persist for 1 to 2 weeks or more. Patients who experience coagulopathy due to snakebite should be monitored for recurrent coagulopathy for up to 1 week or longer. During this period, the physician should carefully assess the need for re-treatment with CroFab® and use of any type of anticoagulant or anti-platelet drug. **Hypersensitivity Reactions:** Severe hypersensitivity reactions may occur with CroFab®. In case of acute hypersensitivity reactions, including anaphylaxis and anaphylactoid reactions, discontinue infusion and institute appropriate emergency treatment. Patients allergic to papain, chymopapain, other papaya extracts, or the pineapple enzyme bromelain may also have an allergic reaction to CroFab®. Follow-up all patients for signs and symptoms of delayed allergic reactions or serum sickness (e.g., rash, fever, myalgia, arthralgia).

ADVERSE REACTIONS

The most common adverse reactions (incidence ≥ 5% of subjects) reported in the clinical studies were urticaria, rash, nausea, pruritus and back pain. Adverse reactions involving the skin and appendages (primarily rash, urticaria, and pruritus) were reported in 12 of the 42 patients. Two patients had a severe allergic reaction (severe hives and a severe rash and pruritus) following treatment and one patient discontinued CroFab® due to an allergic reaction. Recurrent coagulopathy due to envenomation and requiring additional treatment may occur.



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In the case of poisoning, please call Poison Help at 1-800-222-1222 immediately; while the American Association of Poison Control Centers and its members do not endorse any antivenom product over any other, the nation's poison experts stand ready to assist all in need of help.

24-Hour Medical Information: BTG Specialty Solutions Center™:
• 1-877-377-3784 • 1-844-293-0007