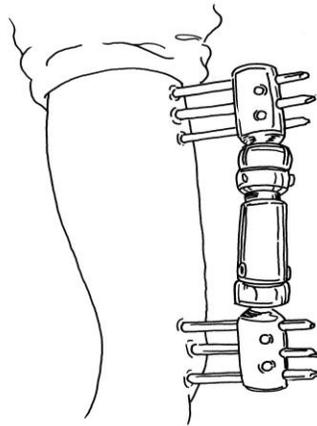


Patient and Family Education

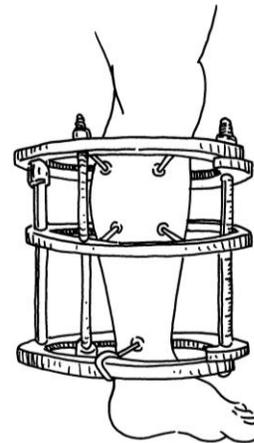
This teaching sheet contains general information only. Talk with your child's doctor or a member of your child's healthcare team about specific care of your child.

What is an external fixator?

There are 2 types of external fixators: the monolateral fixator and the ring fixator. Both are special devices that hold an arm or leg in place with pins or wires while the bone mends or lengthens. These devices help to straighten, lengthen or turn the bone.



Monolateral fixator



Ring fixator

Why is pin care important?

Pin care is needed to keep the fixator, pins, wound and skin clean.

- The device is fitted to the outside of the arm or leg. It is held in place with pins or wires that pass through the skin and into the bone.
- Germs live on the outside of the fixator, pins and skin. They can cause an infection at the pin site.
 - Infection can cause pain and swelling and prevent the bone from healing.
 - Infection at the pin site can also cause a deeper infection close to or in the bone itself.

What are the signs of infection?

With each pin site cleaning, check for signs of infection. Signs may include:

- Changes in skin color, increased redness or streaking of the skin around the pin
- Swelling
- Increased tenderness, pain or hardness at the pin site
- Increased drainage
- Change in color or smell of drainage
- Increased warmth to touch at the pin site
- Fever over 100.3°F (38°C) without other signs of illness

In case of an urgent concern or emergency, call 911 or go to the nearest emergency department right away.

Pin care, continued

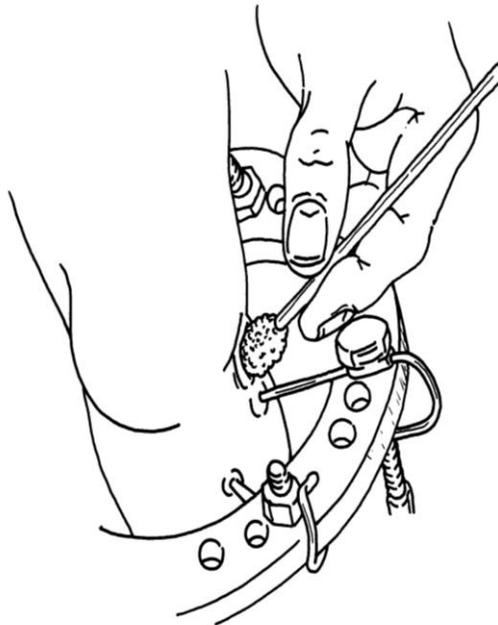
What supplies do I need to do pin care?

- Sterile saline (salt water)
- Clean cotton swabs
- 4 x 4 gauze pads, if there is drainage
- New, soft bristle toothbrush
- 2 clean, dry towels
- Foam sponges for ring fixator device, if ordered by your doctor
- Roll of surgical tape

How do I clean the pin sites and wound?

Clean your child's pin sites and wound as your doctor tells you. Some general guidelines include:

1. Gather all of the supplies.
2. Wash your hands well with soap and water for 20 seconds.
3. Place a clean, dry towel under the arm or leg.
4. Wipe any drainage or loose crust from around the pin with a clean cotton swab.
5. Dip a clean cotton swab into the sterile saline. Clean the skin around the pin in a circular motion. Push the skin down and away from the pin. This prevents the drainage from building up at the pin sites. It also keeps the skin from sticking to the pins. **Make sure no crust is left at the pin site or on the skin around the pin.**
6. Repeat these steps for each pin and wire site. Use a clean cotton swab for each pin site. Do not touch or use the same swab from one site to another.
7. If you have an incision or wound where the bone was cut:
 - Stitches or Steri-Strips may be used to close the wound.
 - Check the site closely for any signs of infection. Change the bandage only if there is excess drainage, if it has fallen off or as your doctor tells you.



**Use a cotton swab to
clean skin around pin site**

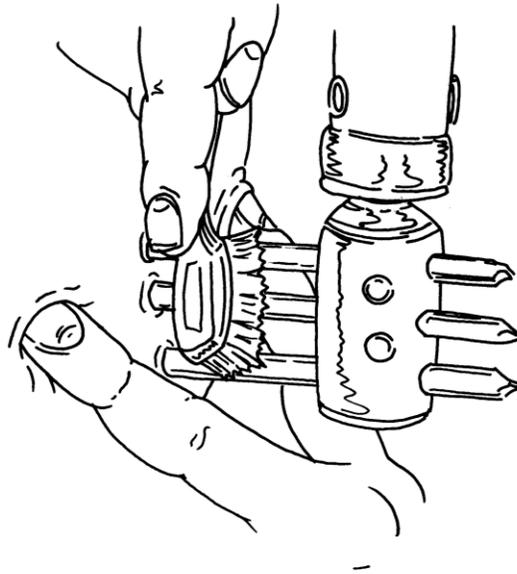
In case of an urgent concern or emergency, call 911 or go to the nearest emergency department right away.

Pin care, continued

How do I clean the pins and wires?

Clean your child's pin sites and wound as your doctor tells you. Some general guidelines include:

1. Dip a clean cotton swab and soft bristle toothbrush into the sterile saline. Clean the exposed metal parts of each pin and wire all the way up to the fixator and down to the skin. **Remove all crust, dried blood and scabs from the pins and wires.**
2. If the crust is hard to remove with the cotton swab, gently scrub the pins and wires with the soft bristle toothbrush. Wipe clean with a new cotton swab.
3. Extra cleaning may be needed on pins with threads or screw lines.
4. Rinse the toothbrush and container with sterile saline after each cleaning. Wipe them dry, and store them in a clean area.



Use a toothbrush to clean pins and wires

How do I clean the external fixator device?

1. Use a clean cotton swab or clean washcloth soaked with sterile saline to clean the device. Remove all dust or dirt.
2. Dry with a clean towel.
3. Once your doctor says it is OK, you may shower or bathe.
 - In the shower or tub, gently clean the fixator with soap and water. Dry with a clean towel.
 - Also, clean the pin sites and pins as you have been taught. Use a clean, soft bristle toothbrush to remove crust, dried blood and scabs if needed.
 - If your doctor says it is OK, you may add a little baking soda to the bath water to help soften the crust around the pins.

How do I make sterile saline?

You may buy sterile saline (salt water) in the drug store, or you can make your own at home. To make your own:

1. Wash your hands well with soap and water for 20 seconds.
2. Add one-quarter ($\frac{1}{4}$) level teaspoon of salt to 1 cup of clean tap water. Do not use iodized salt. Mix well with a spoon.

In case of an urgent concern or emergency, call 911 or go to the nearest emergency department right away.

Pin care, continued

3. Pour this mixture into a clean glass jar. Screw the lid on **loosely**.
4. Place the jar in a pan of water. Make sure the water level in the pan is at least three-quarters ($\frac{3}{4}$) of the height of the jar.
5. Put a lid on the pan. Bring the water to a boil. Boil for 25 minutes.
6. Allow to cool. Remove the jar, and tighten the lid.
7. Label the jar with the date and time. Store it in the refrigerator.
8. After 3 days, throw away the saline, and make a new batch. Also throw away the saline if it becomes discolored or cloudy.

How can I protect the pin sites, bandages and dressings?

- Right after the surgery, the pin sites and wires are wrapped in 4 x 4 gauze bandages.
- Apply clean 4 x 4 gauze bandages after each cleaning if there is drainage from the pin site.
 - Unfold the gauze square, making it long (4 x 8). Make small lengthwise folds so it is about 1 x 8.
 - Wrap the longer, thicker gauze around the pin site.
 - Secure with a small piece of surgical tape.
- As you heal, the drainage from the pin sites decreases, and you may not need the gauze dressings. Your doctor can tell you when dressings are no longer needed.
- Drainage may increase after exercise, walking, increased activity and pin care. Do not worry – this is normal.

How can I manage pain?

- Your doctor may give you a prescription for pain medicine to use at home. If you need a refill, call your doctor. You should need less pain medicine over time.
- You may use acetaminophen (Tylenol or less costly store brand) or ibuprofen (Motrin, Advil or less costly store brand) for pain once you no longer need your prescription pain medicine. Follow the directions on the box carefully, or ask your child's doctor how much medicine to give.

DO NOT:

- Give your child more than 5 doses of acetaminophen in a 24-hour period.
- Give acetaminophen to babies younger than 3 months old without talking with your child's doctor.
- Give ibuprofen to babies younger than 6 months old without talking with your child's doctor.
- Give acetaminophen and ibuprofen together.
- Alternate these medicines.
- Raise the fixator arm or leg on pillows to help decrease swelling. This should help lessen pain.
- Other things that can help:
 - Play a favorite game.
 - Watch TV or DVD, or listen to music.
 - Relax and “float” in your mind.
 - Massage gently around the fixator area with your fingers.
 - Imagine doing your favorite thing in a faraway place, like the beach.
 - Talk with friends.

In case of an urgent concern or emergency, call 911 or go to the nearest emergency department right away.

Pin care, continued

When should I call the doctor?

Call your doctor **right away** if you notice any of these changes at the pin or wound sites:

- Changes in skin color, increased redness or streaking of the skin around the pin
- Swelling that does not go away when your arm or leg is raised
- Increased tenderness, pain or hardness at the pin site
- Increased drainage
- Change in color or smell of drainage
- Increased warmth to touch at the pin site
- Fever over 100.3°F (38°C) without other signs of illness
- Numbness (feeling like the area is “asleep”) at the site or in the arm or leg
- Loose parts, pins or screws
- Changes in movement or walking
- Problems with turning the device to lengthen the bone
- Uncontrolled pain

Also, call the doctor if you have any questions or concerns about how your child looks or feels.

Your checklist

This list can help you keep track of what you need to know about your child’s pin care before your child goes home. Ask your child’s nurse, therapist or doctor for help if you need more details.

Before your child goes home, make sure you know:

- Why your child needs pin care.
- How to wash your hands before and after doing your child’s pin care.
- What to use to clean your child’s skin and pins.
- How to clean your child’s skin and pins.
- How to apply a dressing to the area if needed.
- How to clean your child’s equipment.
- How to obtain supplies.
- When to call the doctor or healthcare provider with questions or problems.

Notes: _____

In case of an urgent concern or emergency, call 911 or go to the nearest emergency department right away.