



Appendectomy

Patient Label

DIAGNOSIS: Appendicitis		WT: kg	HT: cm
ALLERGIES:		Message Phone Number:	
Patients to include on pathway:		1. Patients with a diagnosis of probable appendicitis	
Patients to exclude from pathway:		1. Incidental Appendectomy 2. Patient with symptoms that require ICU level of care 3. Abscess appropriate for percutaneous drainage 4. Initial non-operative treatment (IV Antibiotics, followed by interval appendectomy) 5. Patient with complicating chronic condition	
Remove the patient from the pathway if the following occurs:		1. Significant post-operative complication such as: - Bowel obstruction requiring a second operation or prolonged TPN 2. Transfer to a higher level of care 3. Change in Diagnosis	
PHASE OF CARE:	Phase I: Emergency Room / Admission / Preoperative	Phase II: Postoperative / Discharge	SUPPLEMENTAL ORDERS AND CARE:
		<input type="checkbox"/> non-ruptured <input type="checkbox"/> gangrenous/ruptured	
INTERVENTION CATEGORIES	START DATE/TIME: BY:	START DATE/TIME: BY:	
ADMIT TO:	Acute care unit.		
ASSESSMENT & MONITORING:	- Routine VS, pain assessment -----> - Accurate I&O every shift -----> - Assess for developmental delays, regressed behavior, cultural or religious diversity, knowledge deficits, and language barriers ----->	-----> -----> - If no urine output in 8 hours, <u>without</u> bladder distention, give IV bolus of NS 20ml/kg x 1 (Max. = one liter); if no void within next 4 hours, notify physician ----->	
ACTIVITY / ENVIRONMENTAL:	- As tolerated	- OOB to chair in AM - Progress ambulation as tolerated to TID - May resume bathing/showering 48 hrs postop	
CONSULTS:	- Surgical consult: Abdominal pain, rule out appendicitis		
OPERATIVE / INVASIVE PROCEDURES:	- Surgery consent for "Appendectomy"; to be obtained after the surgeon/surgical resident has talked to the patient/family		
LABORATORY:	- CBC, if not done prior to surgery consult - Basic Metabolic Panel (BMP), if patient has been vomiting > 24 hrs & if not done prior to surgery consult - Urine pregnancy test per protocol - Avoid antecubitals for lab draws, if possible, in case PICC placement is needed.		
NUTRITION / I.V. THERAPY:	- NPO - NS 20 ml/kg IV (Max. = one liter) over 30 minutes ASAP, then: - NS IV at twice maintenance rate for weight _____ml/hr (not to exceed 125 ml/hr)	- Clear liquids PO if bowel sound present, no abdominal distention, no nausea/emesis; no carbonated beverages - Advance to regular diet as tolerated (Notify HUC) - IV D5 1/2 NS with 20 mEq KCl/L at 1 1/2 maintenance rate for weight _____ml/hr (not to exceed 125 ml/hr) - IV bag/tubing change every 96 hrs (noc) _____ - Saline lock IV if PO intake adequate PIV - IV site care per 2.3169 Intravenous Catheter Procedure and Management PICC - Dressing change within 48 hours after insertion, if gauze dressing placed beneath tegaderm; routine dressing/cap change every 7 days (days) _____	



DIAGNOSIS: Appendicitis

PHASE OF CARE:

Phase I: Emergency Room / Admission / Preoperative

Phase II: Postoperative / Discharge

SUPPLEMENTAL ORDERS AND CARE:

MEDICATIONS:

- **Cefotetan 40 mg/kg (max. = 2000 mg)**
IV every 12 hours

- For non-ruptured appendectomy:
Cefotetan 40 mg/kg (max. = 2000 mg) IV every 12 hours

- For ruptured or gangrenous appendectomy:

Piperacillin/tazobactam (Zosyn):

- Wt ≤ 40 kg: 100 mg/kg (piperacillin component) IV over 60 minutes every 8 hours
 - Wt > 40 kg: 3.375 gm (piperacillin 3 gm + tazobactam 0.375 gm) IV over 60 minutes every 6 hours
- (*Contact Pharmacy for dosing recommendations for patients with renal dysfunction)

- For all patients:

- **Ketorolac 0.5 mg/kg (max = 30 mg/dose)**

IV times 1 (loading dose) then,

- **Ketorolac 0.25 mg/kg (max = 15 mg/dose)** IV every 6 hrs times 7 doses;

- if patient is tolerating PO, discontinue Ketorolac and give:

- **Ibuprofen 10 mg/kg (Max = 600 mg/dose)** PO every 6 hrs for the remainder of the 7 doses, then every 6 hrs PRN moderate pain.

- Fax order to pharmacy indicating: "Patient tolerating PO, please change Ketorolac to Ibuprofen per Appendectomy Pathway / RN signature.

- **Morphine sulfate 0.05 mg/kg (max. = 4 mg/dose, OR max. dose of ____ mg)** IV every 2 hrs, PRN moderate to severe pain.

- **Morphine sulfate 0.1 mg/kg (max. = 8 mg/dose OR max. dose of ____ mg)** IV every 2 hrs, PRN severe pain, if pain is unrelieved by lower dose.

NOTE: Total daily acetaminophen dose not to exceed 75 mg/kg/day or 4000mg/day, whichever is lower. Include all sources of acetaminophen.

• **Acetaminophen with hydrocodone** (500 mg/5 mg) ____ tab(s) PO every 4 hrs, PRN moderate pain, if tolerating oral fluids (**max 8 tabs/24 hrs**)

• **Acetaminophen with hydrocodone** elixir (167 mg/2.5 mg/5 ml) ____ ml(s) every 4 hrs PRN moderate pain if tolerating oral fluids.

- **Acetaminophen 15 mg/kg (max = 650mg/dose)**

PO/PR every 4 hrs, PRN mild pain or temperature > 101.5°F (oral)

- **Ondansetron 0.1 mg/kg (max. = 4 mg)** IV every 6 hours PRN nausea/vomiting

- **Morphine sulfate 0.05 mg/kg (max. = 4 mg/dose, OR max. dose of ____ mg)** IV every 2 hrs, PRN moderate to severe pain.

- **Morphine sulfate 0.1 mg/kg (max. = 8 mg/dose, OR max. dose of ____ mg)** IV every 2 hrs, PRN severe pain, if pain is unrelieved by lower dose.

- **Acetaminophen 15mg/kg (max = 650 mg/dose)**

PR or PO (with sip of water only) every 4 hrs, PRN mild pain or temperature > 101.5°F (oral)

THERAPIES:

- Give oxygen per nasal cannula to maintain O₂ saturation ≥92%.

- Pulse oximetry, if patient is receiving oxygen

- Wean to room air as tolerated

- Incentive spirometry every 1 hr x 24 hours, while awake, then every 6 hrs, while awake

PATIENT / FAMILY TEACHING:

- Explain diagnostic studies
- Provide patient/family with a copy of the Appendicitis/Appendectomy Teaching Handout
- Initiate "Teaching Plan for Appendectomy"
- Initiate "Teaching Plan for Surgical Patient" as indicated

- Continue "Teaching Plan for Appendectomy"
- Continue "Teaching Plan for Surgical Patient"
- Explain discharge criteria

EXPECTED OUTCOMES:	- Implement Phase II orders when patient demonstrates the following: 1. Arrival in PACU following appendectomy	- Notify physician when patient demonstrates all of the following criteria for discharge: 1. Temp < 100°F (oral) for 24 hours 2. Tolerating regular diet 3. Pain relief with oral analgesics 4. Ambulating with minimal assistance, as age appropriate	
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HUC: Initiated order for clinical pathway in meditech Date: ___/___/___ Time: _____ Signature: _____

PHYSICIAN'S SIGNATURE: Date: ___/___/___ Time: _____ Signature: _____ MD

Phase I Orders Initiated on: Date: ___/___/___ Time: _____ Signature: _____

Phase II Orders Initiated on: Date: ___/___/___ Time: _____ Signature: _____

Reviewed Days: ___/___/___ Time: _____ Signature: _____ Reviewed Nights: ___/___/___ Time: _____ Signature: _____

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What is the appendix?

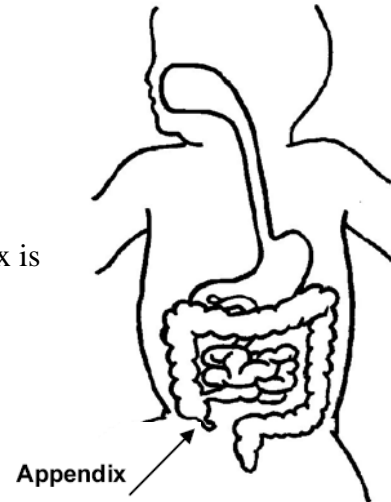
The appendix is a small finger-shaped pouch found on the large intestine in the lower right side of the abdomen.

What is appendicitis?

Appendicitis is an inflammation or infection of the appendix. It happens if the opening between the large intestine and the appendix is blocked, or after an infection in the digestive tract. Sometimes the appendix can rupture (break open) and spread its infection to the abdomen. This is called a ruptured appendix.

How is appendicitis treated?

Appendicitis is treated by an operation to take out the appendix. This surgery is called an **appendectomy**.



Since the appendix has no purpose, your child can live a normal life without it. Surgery to remove an inflamed appendix is an urgent procedure to hopefully prevent it from rupturing (breaking open).

The most common way used to take the appendix is through a “laparoscopic appendectomy”. Three very small incisions (openings), ¼” to ½” long are made in different places on the abdomen. This allows the surgeon to place a small camera through one incision and instruments through the other two incisions to remove the appendix.

For children who aren’t able to have a laparoscopic appendectomy, another type of surgery called an “open appendectomy” may be done. In this type of surgery, a single incision (2” to 3” long) is made in the right lower abdomen to take out the appendix. The surgeon will explain more about this type of surgery if it is needed for your child.

If the appendix has ruptured, your child’s doctor will talk to you about treatment.

What happens after surgery?

After surgery, your child:

- will be given IV fluids until he is able to drink liquids and eat food on his own.
- may look puffy after surgery. This is because some of the fluid can move from the bloodstream into the tissues. This is normal, especially if your child’s appendix was ruptured, it will go away after a couple days.
- will be given pain medicine and antibiotics as needed.
- will have a small piece of paper tape called a steri-strip over the incision.
- may have a small amount of drainage from the incision right after surgery. If this happens the incisions may be covered with a dressing that can be taken off after 24 hours.
- can get out of bed and start walking soon after surgery with help from a nurse or other hospital staff member.

What are the possible complications?

If your child's appendix was ruptured, there is a chance that an abscess (pus collection) will develop inside the abdomen. If this happens, it may take longer for your child to recover from surgery and they may need some additional treatment.

Signs of infection and/or abscess may include:

- a fever greater than 101.5° F for more than 24 hours.
- Pain
- Bloated stomach
- Decrease or absence of stools (poop)
- Blood test that shows an increase in white blood cells
- Need to urinate (pee) more often or pain when urinating (peeing)
- Feeling very tired.

When can my child leave the hospital?

How long your child stays in the hospital will depend on how well he is doing after surgery. If the appendix was not ruptured, your child may go home in 1-2 days. If the appendix was ruptured, your child may have to stay in the hospital for about one week to receive IV antibiotics and make sure he is healing.

What happens after my child leaves the hospital?

You will be given discharge instructions for any special care that is needed at home, including:

What should my child eat or drink?

Your child can have regular food at home and should drink a lot of liquids.

When can my child go back to normal activities?

- Your child can go back to normal activity, avoiding rough play
- Most children are usually able to go back to school within two weeks after surgery.
- It is important to give the abdominal muscles enough time to heal. Your child should not do any Physical Education (P.E.) at school or sports for at least two weeks after surgery.

How should we care for the incision after we get home?

- Leave the incisions uncovered and open to air. The steri-strips will begin to peel back at the edges. Do not take them off. Let them fall off on their own.
- It is okay for your child to take a shower, after your child is done bathing, pat the incisions dry with a towel. Your child may take a bath one week after being discharged from the hospital. Do not soak the incisions under water in the bath for 1 week after surgery.
- Watch for signs of infection. Signs of infection may include any one or all of the following:
 - redness around the surgery site
 - drainage at the surgery sites
 - a fever greater than 101.5° F for more than 24 hours.



What type of pain medicines can my child take?

By the time your child goes home, over-the-counter pain medicines, such as acetaminophen (Tylenol) or ibuprofen (Motrin) are usually all that are needed.

When is our follow-up appointment?

Usually about 10 – 14 days after surgery. Usually the appointment is scheduled before your child leaves the hospital. If you don't know when your child's follow-up appointment is, call (559) 353-7290.

When should I call the doctor?

Call your child's surgeon if you have any questions or concerns about how your child is doing after leaving the hospital, or if your child has:

- Fever, with temperature greater than 101.5° F for more than 24 hours.
- An increase in redness, swelling or soreness at the surgery sites
- Any discharge or drainage from the surgery sites
- Pain that does not go away after taking acetaminophen (Tylenol) or ibuprofen (Motrin)
- Nausea (feeling sick to your stomach) or vomiting (throwing up)
- Problems with urinating (making pee), diarrhea (watery poop) or constipation (no poop)