

Age 0 < 3 months

Include in pathway (Patients must have ALL of these):

- Patients age **less than 3 months**
- Patients with fever or other clinical signs of systemic illness without clear source (e.g. meningitis, UTI, pneumonia)
- Patients with stable vital signs

Exclude from the pathway (Patients with ANY of these):

- Patients **over 3 months old** (use the other rule-out sepsis pathway for patients ages 3-12 months)
- Unstable patients
- Prior hospitalization within 2 weeks for febrile illness
- Patients with known immunodeficiency or major chronic illness (congenital heart disease, cancer, chromosomal abnormality, etc.)
- Patients with marked alteration in level of consciousness
- Patients with respiratory distress or apnea

Patients should be considered for additional orders or removal from the pathway if:

(Nursing staff should contact MD if any of the following apply)

- Patient develops respiratory or hemodynamic instability.
- A primary source for infection requiring additional treatment becomes clear (urinary tract infection, meningitis, etc.).
- Unplanned transfer to higher level of care

Criteria for Admission:

- Patient **age 0 to 1 month** with a history of rectal temp $\geq 38.0^{\circ}$ C or 100.4° F
- Patient **age 1 month to 2 months** with a history of rectal temperature 38.3° C or 101° F
- Patient **2 months to 3 months** with fever ($\geq 38.3^{\circ}$ C or 101° F) **and** signs of systemic illness such as lethargy, irritability, refusal to feed or unstable social situation.
- Hypothermia (temp $< 36.1^{\circ}$ C or 97° F)

Criteria for Discharge:

- All cultures negative for 48 hours
- Clinically stable with no signs of sepsis
- Fever has improved or resolved
- Family educated regarding signs of serious illness and use of thermometer
- Safe and stable home environment

Background Information:

- Patients over 8 weeks of age with fever who appear well, have no source of infection, and have normal screening labs (CBC, Urinalysis, CSF, Stool Wrights and CXR if indicated) and a stable social situation may be safely managed as outpatients with IM Ceftriaxone and daily outpatient visits.
- The recommended first line therapy for febrile infants in the hospital setting would be:
 - **0-3 months** - Ampicillin and Gentamicin
 - **0-3 months** with indications of meningitis - Ampicillin and Cefotaxime
- In patients with occult bacteremia, over 98% of positive blood cultures will be positive within 48 hours. Therefore, 48 hours of hospitalization is adequate in most cases to rule out sepsis.
- The primary causes of occult bacteremia in patients under 3 months of age are Group B Strep and enteric gram negative organisms. There are also a small number of infants in this age group infected with Listeria, Enterococcus, and with respiratory tract flora such as Pneumococcus, Moraxella, and Hemophilus. Over 3 months of age, the primary cause of bacteremia is Pneumococcus, with a very small percentage of patients bacteremic with Staph Aureus and other organisms.
- Inpatients that are not clinically improving or are getting worse despite empiric antibacterial treatment on hospital day 2 or 3, LFT's and platelet count (thrombocytopenia) may be useful to evaluate for HSV.
- In infants < 4 weeks of age, properly taken axillary temperatures are adequate for on-going monitoring. (Adding 0.5° C or 1° F for approximate rectal equivalent)

Goals of Pathway:

- Reduce unnecessary use of broad spectrum cephalosporins
- Promote education of families regarding fever
- Reduce unnecessary hospitalizations beyond 48 hours for patients with negative cultures
- Reduce unnecessary monitoring of stable patients

Ishimine, P 2006. "Fever Without Source in Children 0-36 Months of Age" *Pediatric Clinic of North America* 53(2): 167-94

Weight:

Allergies:

Time/
Date:

ORDERS

General

- 1) Diagnosis: Rule out Sepsis (**age 0-3 mos**)
- 2) Estimated length of stay = 2 days
- 3) Condition: Stable
- 4) Vitals (including blood pressure): every 2 hrs times 2; then every 6 hrs and PRN
- 5) Pain Assessment: Upon admission, then every 6 hrs and PRN for pain
- 6) Activity: As tolerated for age
- 7) Initiate "Learning Assessment" and implement education
- 8) On admit, assess discharge needs and make appropriate referrals (see pediatric admission database)
- 9) Isolation: Standard precautions

Education

- 1) **BEGIN EDUCATION AT ADMISSION**
- 2) Review Patient Education Sheet with family.
 - Teach family to use a thermometer and have them do as much as possible during hospitalization.
 - Teach family how to recognize when an infant is ill (lethargy, irritability, poor feeding, etc.).
 - Review whom to contact for problems and reasons to call physician or return to ER.

Diet & Fluids

- 1) Diet: Age-appropriate
- 2) Accurate I's & O's
- 3) IV to saline lock
- 4) If IV comes out after more than 36 hours from time cultures drawn AND all cultures are negative AND patient is clinically stable, do not restart IV and hold IV medications. **Notify physician** before next dose of medication
- 5) If PO intake is consistently less than maintenance, begin IV fluids at maintenance.
- 6) Wean IV rate to maintain IV plus PO at maintenance. Saline lock IV when taking maintenance PO fluids.

Definition of Maintenance Fluids:

0-10	Kg	4 ml/kg/hr
11-20	Kg	40 ml/hr + (2 ml/kg/hr for each kg > 10)
>20	Kg	60 ml/hr + (1 ml/kg/hr for each kg > 20)

for children ≤ 15 Kg, use D5 1/4 NS; add 20 mEq KCl/L

for children > 15 Kg, use D5 1/2 NS; add 20 mEq KCl/L

Monitoring

- 1) CR monitor
- 2) Discontinue CR monitor if patient is stable for 24 hours.

Physician's Signature / ID Number: _____

Date: ___/___/___ Time: _____

Rule Out Sepsis (Age 0 < 3 mos)

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Patient Label



Physician's Order Sheet

Weight:

Allergies:

Time/ Date: **Diagnostic Tests**

- 1) Please confirm with lab that all of the following tests have been received. Initiate those that have not.
 - CBC, CRP
 - Urinalysis and **urine culture** obtained by catheterization
 - Blood culture
 - CSF cell count, gram stain, protein, glucose, and culture (if LP done)
 - If patient has diarrhea, stool for Wright's stain . If Wright's stain has moderate or many polys, obtain culture.
- 2) Check results of cultures daily and notify physician of positive results
- 3) If cultures are negative at 48 hours, contact physician to discharge patient.
- 4) If patient has respiratory distress or persistent tachypnea, notify physician and order CXR if requested.
- 5) If patient receives Gentamicin for greater than 48 hours, **call physician** to determine whether to get peak and trough levels.

If initiated in ER for ER use only	
initial	date/time

Medications

- 1) **Antibiotics:**
 - **Age 0 to 7 days**
 - Ampicillin 50 mg/kg/dose IV every 8 hours
 - Gentamicin 2.5 mg/kg/dose IV every 12 hours
 - If patient turns 8 days old, change dosage and frequency to the following (Must notify pharmacy):
 - **Age 8 days to 3 months**
 - Ampicillin 50 mg/kg/dose IV every 6 hours
 - Gentamicin 2.5 mg/kg/dose IV every 8 hours
 - (if patient is allergic to above antibiotics, notify physician for alternative choice.)
- 2) **Acetaminophen:** 15 mg/kg/dose PO/PR every 4 hrs PRN T>101°F or mild pain (max dose = 75 mg/kg/day, or 4 gm/day, whichever is less) **(Call physician for unrelieved pain or continued fever 2 hours after acetaminophen)**

If initiated in ER for ER use only	
initial	date/time

Follow-up

- 1) FAX discharge instructions (after signed by physician) to primary care physician

Physician's Signature / ID Number: _____

Date: ___/___/___ Time: _____

Rule Out Sepsis (Age 0 < 3 mos)

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Patient Label



Interdisciplinary Patient/Family Learning Evaluation

Initial Patient/Family Learner Assessment

A learning evaluation is done with each initial teaching intervention for each learner. Teaching interventions should be documented in an ongoing manner with ongoing assessment and evaluation of readiness to learn, barriers to learning, and learning outcomes. Use your department or topic specific Interdisciplinary Patient/Family Education Documentation forms for ongoing patient/parent/family education documentation. Use this form for the initial assessment of a learner and keep this form with the ongoing patient/family education documentation forms.

Initial Learner Evaluation (assess one or multiple learners)			
1. _____ Date _____ (Pt./Primary care giver)	2. _____ Date _____ learner	3. _____ Date _____ learner	4. _____ Date _____ learner
Prior Knowledge of Plan of Care or care needs: <input type="checkbox"/> Comprehensive <input type="checkbox"/> Good <input type="checkbox"/> Limited <input type="checkbox"/> None <input type="checkbox"/> Other _____	Prior Knowledge of Plan of Care or care needs: <input type="checkbox"/> Comprehensive <input type="checkbox"/> Good <input type="checkbox"/> Limited <input type="checkbox"/> None <input type="checkbox"/> Other _____	Prior Knowledge of Plan of Care or care needs: <input type="checkbox"/> Comprehensive <input type="checkbox"/> Good <input type="checkbox"/> Limited <input type="checkbox"/> None <input type="checkbox"/> Other _____	Prior Knowledge of Plan of Care or care needs: <input type="checkbox"/> Comprehensive <input type="checkbox"/> Good <input type="checkbox"/> Limited <input type="checkbox"/> None <input type="checkbox"/> Other _____
Primary Language: check <input type="checkbox"/> English <input type="checkbox"/> Spanish <input type="checkbox"/> Hmong Other _____ <input type="checkbox"/> Writes <input type="checkbox"/> Reads	Primary Language: check <input type="checkbox"/> English <input type="checkbox"/> Spanish <input type="checkbox"/> Hmong Other _____ <input type="checkbox"/> Writes <input type="checkbox"/> Reads	Primary Language: check <input type="checkbox"/> English <input type="checkbox"/> Spanish <input type="checkbox"/> Hmong Other _____ <input type="checkbox"/> Writes <input type="checkbox"/> Reads	Primary Language: check <input type="checkbox"/> English <input type="checkbox"/> Spanish <input type="checkbox"/> Hmong Other _____ <input type="checkbox"/> Writes <input type="checkbox"/> Reads
Readiness to learn: check <input type="checkbox"/> Asking pertinent questions <input type="checkbox"/> Actively Listening <input type="checkbox"/> Unreceptive <input type="checkbox"/> No interest demonstrated <input type="checkbox"/> Distracted	Readiness to learn: check <input type="checkbox"/> Asking pertinent questions <input type="checkbox"/> Actively Listening <input type="checkbox"/> Unreceptive <input type="checkbox"/> No interest demonstrated <input type="checkbox"/> Distracted	Readiness to learn: check <input type="checkbox"/> Asking pertinent questions <input type="checkbox"/> Actively Listening <input type="checkbox"/> Unreceptive <input type="checkbox"/> No interest demonstrated <input type="checkbox"/> Distracted	Readiness to learn: check <input type="checkbox"/> Asking pertinent questions <input type="checkbox"/> Actively Listening <input type="checkbox"/> Unreceptive <input type="checkbox"/> No interest demonstrated <input type="checkbox"/> Distracted
Barriers to learning: check <input type="checkbox"/> No barriers <input type="checkbox"/> Low literacy or Edu level <input type="checkbox"/> Cultural <input type="checkbox"/> Language <input type="checkbox"/> Visual, hearing, speaking <input type="checkbox"/> Religious, spiritual <input type="checkbox"/> Cognitive <input type="checkbox"/> Emotional <input type="checkbox"/> Motivation <input type="checkbox"/> Pain or fatigue <input type="checkbox"/> Other _____ Accommodation: <input type="checkbox"/> Interpreter <input type="checkbox"/> Audio <input type="checkbox"/> Visuals <input type="checkbox"/> Handouts <input type="checkbox"/> Explanations <input type="checkbox"/> Demonstrations <input type="checkbox"/> Other	Barriers to learning: check <input type="checkbox"/> No barriers <input type="checkbox"/> Low literacy or Edu level <input type="checkbox"/> Cultural <input type="checkbox"/> Language <input type="checkbox"/> Visual, hearing, speaking <input type="checkbox"/> Religious, spiritual <input type="checkbox"/> Cognitive <input type="checkbox"/> Emotional <input type="checkbox"/> Motivation <input type="checkbox"/> Pain or fatigue <input type="checkbox"/> Other _____ Accommodation: <input type="checkbox"/> Interpreter <input type="checkbox"/> Audio <input type="checkbox"/> Visuals <input type="checkbox"/> Handouts <input type="checkbox"/> Explanations <input type="checkbox"/> Demonstrations <input type="checkbox"/> Other	Barriers to learning: check <input type="checkbox"/> No barriers <input type="checkbox"/> Low literacy or Edu level <input type="checkbox"/> Cultural <input type="checkbox"/> Language <input type="checkbox"/> Visual, hearing, speaking <input type="checkbox"/> Religious, spiritual <input type="checkbox"/> Cognitive <input type="checkbox"/> Emotional <input type="checkbox"/> Motivation <input type="checkbox"/> Pain or fatigue <input type="checkbox"/> Other _____ Accommodation: <input type="checkbox"/> Interpreter <input type="checkbox"/> Audio <input type="checkbox"/> Visuals <input type="checkbox"/> Handouts <input type="checkbox"/> Explanations <input type="checkbox"/> Demonstrations <input type="checkbox"/> Other	Barriers to learning: check <input type="checkbox"/> No barriers <input type="checkbox"/> Low literacy or Edu level <input type="checkbox"/> Cultural <input type="checkbox"/> Language <input type="checkbox"/> Visual, hearing, speaking <input type="checkbox"/> Religious, spiritual <input type="checkbox"/> Cognitive <input type="checkbox"/> Emotional <input type="checkbox"/> Motivation <input type="checkbox"/> Pain or fatigue <input type="checkbox"/> Other _____ Accommodation: <input type="checkbox"/> Interpreter <input type="checkbox"/> Audio <input type="checkbox"/> Visuals <input type="checkbox"/> Handouts <input type="checkbox"/> Explanations <input type="checkbox"/> Demonstrations <input type="checkbox"/> Other
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Signature _____ Date _____	Signature _____ Date _____	Signature _____ Date _____	Signature _____ Date _____

Patient Label



pathway

Patient/Family Learner Assessment

Sepsis

What is sepsis?

Sepsis is a condition that happens from a severe infection. It may occur in the blood or in other parts of the body. The cause of sepsis is not always known.

How did my child get an infection that caused sepsis?

Babies can get an infection from the mother during her pregnancy/delivery or from contact with infected people or objects after birth.

What are the signs of sepsis?

Signs of sepsis can be different with each baby. Your baby may have some of the following:

- Crying more than usual and can't be comforted.
- Sleepy and less interested in play
- Irritability (fussy for long periods of time)
- Not eating well, not sucking well
- Fever of 101.5 F or higher rectally
- Rash
- An area of redness, swelling, warmth or pain
- Trouble breathing (fast or slow breathing, coughing, wheezing)
- Nasal congestion/drainage
- Watery stools (diarrhea)
- Vomiting (throwing up)
- Decreased urination (Not as many wet diapers as usual)

Why is sepsis a concern?

Babies have trouble fighting off infections. This can make sepsis a life or death situation.

How do I keep my child from getting sick?

- By being aware of the signs for sepsis and watching for infection.
- WASH YOUR HANDS frequently throughout the day
- It is best to keep your child away from others who are sick (kissing can spread respiratory germs)
- Do not share drinks or food.
- Clean drinking and eating utensils well after use

Even if all this is done your baby can still get sick.

Call your doctor if any signs above occur. Early treatment is important to keep the infection from leading to sepsis and overwhelming your baby's body.

How does the doctor know if my baby has sepsis?

The doctor may do any of the following tests:

- Blood
- Urine
- Stool
- spinal fluid (A procedure called a lumbar puncture is needed to sample this fluid)
- x-rays

It can take 1-3 days to get results from tests. Some tests can take as long as 21 days to get the results.

What is the treatment for sepsis?

Your baby may receive the following:

- antibiotics
- non-aspirin pain reliever like Tylenol for fever or pain
- intravenous (IV) for fluids or medicines

When should I call my doctor?

Call your baby's doctor if you see any of the signs listed above.

Call 911, if your child

- **Makes a grunting noise when breathing**
- **Turns blue or gray in color**
- **Passes out**
- **Stops breathing**

Start CPR if needed.

Checking Your Child's Temperature

Why should I check my child's temperature?

- Your child's temperature will change depending on his/her age, activity, and the time of day.
- When your child's temperature is higher than normal, this is called a fever.
- A child's normal temperature depends on where in the body the temperature is taken:

Method	Under 6 months	6 months to 3 years	Over 3 years
Rectal (bottom)	100.2 °F	100.4°F	100°F
Oral (mouth)	Do not use	99.5°F	99
Axillary (armpit)	99°F	99°F	99°F
Tympanic (Ear)	Do not use	100.4°F (in rectal mode)	100.4°F (in rectal mode)
Tympanic (Ear)	Do not use	99.5°F (in oral mode)	99.5°F (in oral mode)

What can it mean if my child has a fever?

- Your child may feel hot to touch and not have a fever. The only way to know for sure is to check your child's temperature with a thermometer.
- Fever is usually a sign that your child has an infection.

When should I check my child's temperature?

- Take a temperature anytime that your child is acting "sick" such as:
 - Sleeping a lot
 - More fussy than usual
 - Breathing hard
 - Cold symptoms (runny nose, cough, sneezing)
 - Skin feeling hot to touch.
- Using a thermometer in the smaller child takes a lot of practice and patience. The best way to get practice in taking a temperature is to do so when your child is not sick. This will help you and your child be more comfortable with the process.
- Be sure to take your child's temperature before calling the doctor. This is important information that your doctor will want to know.
- When you tell your doctor or nurse what your child's temperature is, it is important to tell them where on the body you took the temperature and which type of thermometer you used.

What type of thermometer do I use?

- Glass-mercury thermometers are no longer the best choice when taking your child's temperature. The American Academy of Pediatrics (AAP) asks parents to

not use them because of worry about mercury poisoning. Also, a child could become injured by a glass thermometer breaking.

- Forehead thermometers (small plastic strips that you press against your child's head) and pacifier thermometers are not always right and should not be used.
- The AAP asks parents to use a digital thermometer in the mouth (oral), under the armpit (axillary), or in the bottom (rectum).
- Once you use a thermometer in the bottom, continue to use it in that way. Label the thermometer to remind you that it is for use in the bottom only. Do not put this thermometer in the mouth.
- If your child is a preemie, has a heart problem, or has rectal bleeding, check with your doctor for the method to take your child's temperature.

How do I take my child's temperature using a digital thermometer?

Be sure to read the paper that comes with your thermometer to find out how to use it.

Rectal Temperature

- You can put a special plastic cover (probe cover) over the tip of the thermometer before taking the temperature. Put a water-based jelly (like K-Y jelly) on the tip of the thermometer or plastic cover. This will help the thermometer slide in easily. Do not use Vaseline or petroleum jelly.
- Lay your child belly-down on your lap, changing table or a bed.
- Put the tip of the thermometer no more than ½ inch into the rectum. If you have trouble getting the thermometer in the bottom, stop. Don't force the thermometer in. Call your doctor for advice.
- Hold your child still and keep the thermometer in place. Do not let him/her roll over onto the thermometer.
- Wait for about a minute. The thermometer should beep when it is ready.
- Take the thermometer out of the rectum and read the display.
- Throw the plastic cover away if you used one.
- Clean the thermometer. (Read the directions that came with your thermometer about how to do this.)

Oral Temperature

- You can take a temperature by mouth when your child can keep the thermometer under the tongue with the mouth closed.
- Wash the tip of the thermometer with soap and warm (not hot) water. Do not put the whole thermometer in water.
- Do not let your child drink anything for 15 minutes before taking a temperature. (It is only when an oral temperature is being checked that the time between drinking and the temperature being taken is important.)
- Turn the thermometer on and put it under your child's tongue. Have your child close the lips around the thermometer.
- Stay with your child while the thermometer is in the mouth. You can hold it in place.
- Wait for about a minute. The thermometer should beep when it is ready.

- Take the thermometer out of the mouth and read the display.
- Clean the thermometer. (Read the directions that came with your thermometer about how to do this.)

Axillary Temperature

- Taking an axillary temperature may not give you the right reading. Make sure to tell your doctor if you take your child’s temperature this way.
- Use a towel to dry under your child’s arm. Then put the tip of the thermometer in the center of the armpit.
- Hold your child’s elbow against the body.
- Wait for about a minute. The thermometer should beep when it is ready.
- Take the thermometer out from under the armpit and read the display.
- If the temperature is over 99°F, take it again by the rectum or mouth, depending on your child’s age.
- Clean the thermometer. (Read the directions that came with your thermometer about how to do this.)

What about using a tympanic (ear) thermometer?

Although many people now use ear thermometers, readings are not always right. Whenever in doubt, check your child’s temperature using the oral or rectal method, depending on the child’s age.

When do I call the doctor?

Age of Child	When to call the doctor	Should you give Tylenol before calling doctor?
Less than 2 months	100.2°F	NO
2 months to 6 months	101°F	YES
6 months or older	103°F	YES

- Always call your doctor for a temperature lasting more than 48 hours. An older child who has a fever but is otherwise acting ok and is drinking enough liquids can often be treated at home.
- Call your doctor for any fever that you are concerned about.

What can I do at home if my child has a fever?

- Give your child lots of fluids to drink.
- Give your child Acetaminophen (Tylenol). Use as directed on the package.
- Check with your doctor to see if Ibuprofen (Pediaprofen) should be used.
- Do not give Aspirin to children younger than 18 years of age unless your doctor tells you it is okay.
- Don’t overdress or wrap your baby in blankets.

- If your child's temperature is higher than 102°F, sponge him/her with tap water. Do not put your child in cool bath water – SPONGE with cool (NOT cold) tap water. Do not use rubbing alcohol, only cool tap water.

When does my child need to go to the Emergency Department? When should I call 911?

- If your child's temperature is 105⁰ or higher, take your child to the nearest Emergency Department *immediately*.
- Call 911 if your child:
 - Makes a grunting noise when breathing
 - Turns blue or gray in color
 - Passes out
 - Stops breathing.
- Start CPR if needed.

Discharge Sheet

For Hospital Use Only

Dictation: 1-800-411-1001 (#963)

D/S Job #: _____

Discharge sheet FAXed to PCP _____
initial/date

Follow-up appointment SCHEDULED with PCP _____
initial/date

Patient's Name: _____

Discharge Date _____

Dx: 1) Fever without source 2) Sepsis ruled out 3) _____

Hospital Course

- Patient admitted for fever without source to rule out sepsis.
- Cultures obtained from: blood urine CSF stool
- CRP result(s) _____
- Treated with Ampicillin and Gentamicin until cultures negative at 48 hours

Complications during hospitalization: Patient demonstrated no clinical signs of sepsis

Discharge Condition: _____

Discharge Weight: _____

Instruction to Patient

Activity: As tolerated

Diet: Regular

Medications: See Medication Reconciliation Form

Additional Instructions: Call primary doctor if fever returns or your baby becomes sleepy, lethargic, irritable or will not eat.

Reference: Patient Education Sheet

Signed: _____ M.D.

Signature of Parent or Guardian

Attending Physician

Attending Resident

Primary Care Physician

City

Rule Out Sepsis (Age 0 < 3 mos)



Patient Label

Discharge Instructions