

Include in the pathway (Patients must be all of these):

- Patients with viral respiratory infection with wheezing and respiratory distress
- Patients under the age of one year old
- Patients with associated significant rhinitis
- Physician diagnosis of bronchiolitis

Exclude from the pathway (Patients may be any of these):

- Patients one year of age or older
- Patients with a prior history of significant respiratory condition including asthma, prior intubation, bronchopulmonary dysplasia
- Patients with significant co-morbid condition including congenital heart disease or significant neurologic impairment

Patients should be considered for removal from the pathway if;
(nursing staff should contact physician if any of the following apply)

- No improvement in clinical condition in 24 hours
- Significant deterioration
- Primary diagnosis seems questionable

Criteria for Admission

- SpO₂ < 92% on room air
- Marked respiratory distress
- Dehydration with inability to take PO fluids
- History of apnea with cyanosis

Criteria for Discharge

- SpO₂ ≥ 92% on room air
- Breathing comfortably
- Maintaining hydration
- No apnea or cyanosis for more than 24 hours
- Teaching complete
- Safe home environment

Background Information:

- The incidence of bacterial co-infection with RSV bronchiolitis or RSV pneumonia is low (about 5%). Thus, in a non-toxic appearing patient with bronchiolitis, even with infiltrate on CXR, it is generally appropriate NOT to treat with antibiotics.
- Several prospective studies and meta-analyses have raised doubt about efficacy of beta-agonists in patients with bronchiolitis. *
- Numerous studies have shown that systemic steroids provide no clinically significant benefit in bronchiolitis.
- Apnea, when seen, is most likely to occur during the first 48 hours of illness with RSV. It is most common in premature infants and infants < 1 month of age.
- In babies who are not vomiting but refusing to eat, use of NG feeds carries fewer risks, when compared with IV fluids, and has the benefit of providing appropriate nutrition.

Goals:

- Reduce unnecessary use of antibiotics.
- Reduce inappropriate use of steroids.
- Reduce unnecessary use of beta-agonists.
- Provide teaching for parents to allow home care of infants with bronchiolitis.
- Encourage use of NG feeds rather than IV fluids for babies refusing to feed.

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 Patel, H., et al. J. Peds.2002;141:818-824
 Dobson, et al. NEJM.1998;101:361-368
 Lozano, JM. Clin. Evid.2003:328-340
 Clinical Practice Guidelines, APP 118;:4 2006: vol 118: 4 pgs. 1774-1793

American Academy of Pediatrics Subcommittee on Diagnosis and Management of Bronchiolitis - *Pediatrics* - October 2006; 118(4): 1774-93

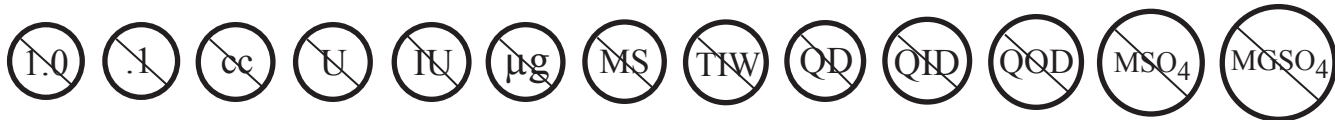
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Luo, Z., et al. Clin Microbiol Infect.2010.[Epub ahead of print]

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DRUG SENSITIVITY: _____ WT: _____ kg
ORDERS: GENERIC EQUIVELANT WILL BE DISPENSED UNLESS ORDER SPECIFIES "DO NOT SUBSTITUTE"

General

Admitting physician: _____
Attending physician: _____
Primary service: Hospitalist Team A Team B _____
Patient Status: Admit Observation
Admission Diagnosis: Bronchiolitis
Condition: Stable
Code status: Full Code or _____
Isolation: Contact Precautions + Droplet Precautions

Dietary

Regular diet for age

IVF

- RN Communication, IVF: Do not start I.V. unless patient requires I.V. fluids. If already in place, saline lock PIV and do not restart if I.V. infiltrates.
- RN Communication, Feedings: Criteria for supplemental feedings or I.V. fluids:
 - Oral intake consistently inadequate (< 75% of maintenance for > 24 hours; *see below for definition of maintenance)
 - Severe retractions or consistent respiratory rate > 70
 - Dehydration
- If Then, Feedings: NG feeds are preferred for inadequate intake or mild dehydration. I.V. fluids are preferred for respiratory distress. Nurse may initiate NG feedings or I.V. fluids based on the above guidelines and using clinical judgement.
 - For NG feedings, place NG tube and initiate feedings using age-appropriate formula at 10-15ml/kg every 3 hours. Obtain nutrition consult and adjust feedings per nutrition recommendations. D/C NG tube when able to resume feedings.
 - If I.V. fluids are required, place I.V. and begin maintenance I.V. fluids (see below). When able to resume feedings, saline lock and do not restart if I.V. infiltrates. (Nurse to call pharmacy if I.V. fluid needed)
 - 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

Bronchiolitis

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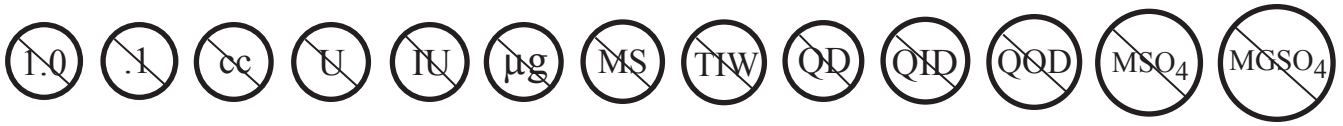
Patient Label

0032



pathway 11/2011

Physician's Order Sheet



DRUG SENSITIVITY: _____ WT: _____ kg
ORDERS: GENERIC EQUIVELANT WILL BE DISPENSED UNLESS ORDER SPECIFIES "DO NOT SUBSTITUTE"

Monitoring & Vitals

- If Then, Miscellaneous: If < 6 months of age, order continuous bedside CR monitor. Bag and mask @ bedside for patients < 4 weeks of age.
- If Then, VS RR: If on a monitor and no apnea or bradycardia for 24 hours, then discontinue monitor.

Medications

Treatment with hypertonic saline (3% NaCl) inhalation solution, mixed with a bronchodilator, may help reduce airway obstruction and has been demonstrated to reduce hospital length of stay among infants with moderate to severe viral bronchiolitis. Hypertonic saline therapy may not be necessary in patients with mild disease. High flow nasal cannula O2 not recommended if patient receiving respiratory treatments.

- 3% sodium chloride inhalation solution 4 mL mixed with racemic epinephrine 2.25% standardized dose and nebulized every 8 hours
- Acetaminophen 15 mg/kg (max = 650 mg) PO every 4 hours PRN T > 38.0° C – 38.9° C or mild pain (max. dose = 75 mg/kg/day or 4000 mg/day, whichever is less). If patient's temperature remains above 38.0° C one hour after administration, then give Ibuprofen
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- Ibuprofen 10 mg/kg/ (max = 400 mg) PO every 6 hours PRN T > 38.9° C or moderate pain. If patient's temperature remains above 38.0° C one hour after administration, then give acetaminophen

Nursing Care

- RN Communication: all children are presumed RSV positive during RSV season.
- Activity: No restrictions.
- Notify MD if, Fever: Notify physician if patient is less than 4 weeks and temperature is > 38.0° C
- Suctioning: Bulb suction or BBG suction with normal saline PRN for congestion. Suction with catheter and saline only for airway obstruction causing significant respiratory compromise. Do not use suction catheter for congestion alone.
- If Then Respiratory: If patient has severe retractions or consistent respiratory rate > 70, Then hold feeds.

Oxygen/Ventilation

- O2 as needed to keep sats > 92%, or for severe respiratory distress.

Bronchiolitis

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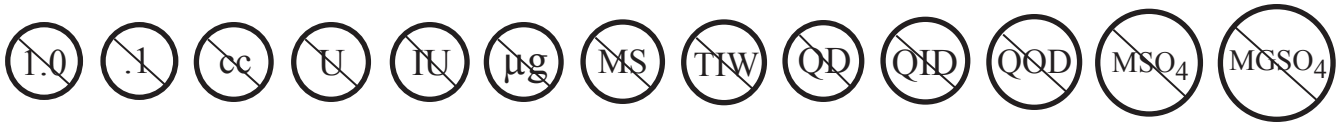
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DRUG SENSITIVITY: _____ WT: _____ kg
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Education

- Education: Begin education at admission. Teach family to use bulb syringe and have them practice. Review Bronchiolitis educational materials with family including:
 - Review "Patient Education Sheet" and teach signs of worsening respiratory distress and signs of inadequate PO intake.
 - Review whom to contact for problems and reasons to call physician or return to ER.

Discharge planning

- Initiate "Learning Assessment" and implement Bronchiolitis education.
- FAX discharge instructions once signed by attending to primary care physician.

Physician's Signature / ID Number: _____ Date: ____/____/____ Time: _____

Bronchiolitis

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Patient Label

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Physician's Order Sheet

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 _____
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Patient Label





Amazing People. Incredible Care.

What is Bronchiolitis?

It is an infection in the lungs caused by a virus. The smallest airways of the lungs (bronchioles) swell and narrow, so air cannot pass through them easily.

What causes Bronchiolitis?

Bronchiolitis is usually caused by a virus called RSV (respiratory syncytial virus). It is common between November and March. RSV looks like the common cold. Some children with RSV can have a fever. It is such a common virus that almost every child will have had it by the time they are three years old.

What are the symptoms of Bronchiolitis?

You may see:

- Fussiness
- Runny nose
- Coughing
- Fast breathing
- Fever

How does this virus spread?

Anyone can get RSV. Sometimes, an adult might only have symptoms like a sore throat or cough. Even though the adult might not feel sick, a child can still catch a cold virus from an adult.

The virus is spread through nasal secretions. It can spread when someone sneezes or coughs, or when someone touches his or her eyes or nose and then touches other people.

How do I know if my child needs to see the doctor?

Call your doctor right away if your child has any breathing problems. **If you are unsure, it is best to call.**

Can you get RSV more than once?

Yes. Most likely a second infection will be not as bad as the first.



How can I keep my child from getting RSV and other cold viruses?

- **Wash your hands often**
- Do not share food or drinks
- Clean and disinfect household surfaces regularly
- Use a tissue when you cough or sneeze and throw the tissue away immediately.
- Keep your child away from anyone who has a cold, including other children.
- Remember that kissing a baby can spread a cold or flu virus
- Stay away from crowds during the “cold” or “RSV” seasons
- Stay healthy by getting enough sleep, eating healthy foods and exercising
- Do not smoke near your baby. Being around tobacco smoke can increase the risk of viral disease

How is Bronchiolitis treated?

Acetaminophen (like Tylenol) can help reduce the fever and relieve pain. Check with the doctor to find out what kind of medicine will work best and how much to give.

Some children with a viral cold need to be in the hospital if they have trouble breathing or need oxygen.

What are some things I can do to help my child?

Clear a stuffy nose

A child with a stuffy nose may not be able to drink from a bottle or breastfeed. You can clear the nose with saline nose drops. Put three drops into each nostril. Wait one minute, then use a bulb syringe to suck out the mucus.

Feedings

Children who have trouble breathing have to work really hard to eat and drink. Give your child plenty of fluids and healthy foods. Give small amounts and feed them many times throughout the day.

Hold infants upright for feedings for 30 minutes. Burp often.

If your child starts coughing while eating and throws up, suction out the nose and mouth. Let your child recover from the throwing up, then try to feed him again.

Positioning

Raise the head of the bed if possible so your child is not lying flat. This may make it easier for him/her to breathe. **DO NOT** use pillows for infants.



Bronchiolitis/RSV

Education Information for Patients and Families

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Keep air moist

Use a humidifier in your child's room if possible. Use distilled water instead of water from the sink if you can. Be sure to wash the humidifier daily to prevent mold from growing.

Will my child be given antibiotics for RSV?

There is no cure for the common cold. Antibiotics will not make RSV or any other viral infection "get better". Medicines can be used to help reduce the symptoms but they will not make the cold go away any faster.

Should I give my child cough medicine?

If your child is under 2 years old, **do not** give over-the-counter cough and cold medicines as there are dangerous side effects. Ask your child's doctor before giving medicine if your child is between 2 and 6 years old.

Discharge Sheet

For Hospital Use Only

Dictation:

1-800-411-1001 (#963)

Discharge sheet FAXed to primary care physician (initial/date) _____

D/S Job #: _____

Follow-up appointment SCHEDULED with primary care physician (initial/date) _____

Patient's Name: _____

Discharge date: _____

Dx: 1) Bronchiolitis 2) _____ 3) _____

Hospital Course

Patient admitted for acute onset of wheezing, congestion and fever. CXR findings _____

Patient diagnosed with acute bronchiolitis. Treated per pathway orders.

Complications during hospitalization: _____

Discharge condition: _____ Discharge weight: _____

Instruction to Patient

Activity: No one should smoke near the baby. Avoid all other exposure to smoke (fireplaces and BBQ); avoid contact with other infants; limit travel.

Diet: Regular diet: Formula or breast feed as before, encourage oral intake.

Medications: See Medication Reconciliation Form

Additional instructions: Bulb suction nose with saline; return immediately or call 911 if child has difficulty breathing, stops breathing or cannot eat.

Reference: Patient Education Sheet. Follow up with: _____

Signed: _____ M.D.

Signature of Parent or Guardian

Attending Physician

Attending Resident

Primary Care Physician

City

Bronchiolitis

0083



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Children's
Hospital
Central California 

Patient Label

Discharge Instructions