

CONTAGIOUS COMMENTS

Department of Epidemiology

Respiratory Season 2010 – 2011

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While we all plan for the upcoming holiday season, we need to also prepare for the inevitable viral respiratory season that fills our clinics and our inpatient beds with sick children. Specifics for influenza were covered in the October edition of Contagious Comments therefore this edition will highlight management of other respiratory viruses.

Each year, a multidisciplinary group of TCH clinicians meet to review virus epidemiology data from years past and also what viruses we expect we will see circulating this season. Preventative strategies are discussed to determine what should be implemented this year to minimize the spread of these infections at TCH. Although our influenza vaccination campaign has been in full swing for several weeks, that alone is not enough.

This edition will provide you with reminders about basic principles as well as new information on virus testing, patient management, visitation practices and prevention. Throughout the season, be sure to monitor “Bug Watch” so you can see what viruses we are detecting in our lab from patients seen throughout our TCH system.

Important information for this season:

Visitation Restrictions: December 15, 2010 – April 15, 2011

Inpatient Visitor Screening and Restrictions

On December 15, 2010 we initiated our visitation restrictions on the inpatient units to help protect these patients from ill visitors. Our visitation hours are 9a – 9p. The visitation restrictions program includes the following:

- 1) No ill visitors.
- 2) Children 12 years old and under are not allowed to visit. (This includes siblings.)
Please advise your patient’s family of our visitation restrictions when referring them to TCH to prevent any confusion when they arrive at our facility. This really helps!
- 3) Only 4 visitors (this number includes the parents) at a patient bedside at a given time.
- 4) ALL parents and visitors will be screened daily before entry into the inpatient units. Each unit has a screening station located at the entry to the unit. All visitors who

meet criteria and are not ill will be given an apple sticker to wear indicating they have been screened.

- 5) Visitors are to adhere to any isolation precautions noted on the patient room door sign and are to wash hands before leaving the room. *Exception: Parents may refrain from wearing isolation apparel, but need to wash hands each time upon entering and before leaving the room.*
- 6) In the event the primary caretaker (parent/guardian) has a respiratory illness, he / she is requested to wear a mask and wash hands when outside the room and to limit activity (and wear a mask) during the following:
 - a. Obtaining food in cafeteria (should return to patient room to eat, if possible).
 - b. Avoid crowded areas in hospital (e.g., gift shop).
 - c. Avoid high-risk patient visitation (if possible); if unavoidable (primary caregiver only), must wear a mask, gown and gloves. Discourage “close” patient contact.
- 7) Some of our higher risk units (ICUs, BMT) have more stringent visitor restrictions that may affect the number allowed at the bedside or may include an approved visitor list for each patient.
- 8) Decreasing the number of people visiting a single patient will decrease exposure risks and also provide an opportunity to educate a select group of visitors on the important steps to prevent transmitting infectious illnesses to our patients.

Outpatient Clinic /Therapy & Surgery/Procedure Visits:

Due to an increase in respiratory illnesses in the community during these months, we discourage bringing siblings or friends who are 12 years of age or younger, especially when ill, to your child’s scheduled visits to these areas.

Respiratory Infection Tips & Tools

Mode of Transmission of Most Respiratory Agents



Transmitted in large droplets by:

- Direct or close contact with secretions (e.g., close face to face contact), or
- Touching contaminated objects in the environment and

inoculating self or others (e.g., hand-to-eye, hand-to-mouth).

Remember...

RSV Persists:

- Up to 30 minutes for secretions in facial tissues.
- 30 minutes or more on hands.
- Up to 6 hours on surfaces (some viruses can be even longer).

Incubation Period is 2 - 8 days (4 - 6 days most common).

Epidemiology



Organism	Illnesses	Season
Adenovirus	<ul style="list-style-type: none"> • Pharyngitis • Tonsillitis • Croup • Bronchiolitis • Pneumonia • Keratoconjunctivitis • Common cold 	Year round with peak late winter-spring
Coronavirus	<ul style="list-style-type: none"> • Common cold • Croup • Pneumonia 	Fall-winter
Human Meta-pneumovirus (hMPV)	<ul style="list-style-type: none"> • Bronchiolitis • Croup • Pneumonia 	Year round, but mostly late winter - spring.
Influenza (seasonal)	<ul style="list-style-type: none"> • Flu • Bronchitis • Croup • Pneumonia • Secondary bacterial infections 	<ul style="list-style-type: none"> • Late Dec/Jan/Feb • Spring if <i>another strain circulates.</i>
Parainfluenza	<ul style="list-style-type: none"> • Croup • Bronchiolitis • Bronchitis • Pneumonia • Common cold 	<ul style="list-style-type: none"> • Type 1 - fall • Type 2 - year round • Type 3 - spring
RSV	<ul style="list-style-type: none"> • Bronchiolitis • Pneumonia • Croup 	December through April
Rhinovirus	Common cold	Year round with peaks in fall and spring

Isolation

Basic Infection Control



For patients with symptoms of a “suspected” or a “proven respiratory” illness.

Droplet Precautions

1. Gown, glove and mask or face shield are needed whenever coming into contact with the patient or anything in the environment. ALSO, REMEMBER TO USE EYE PROTECTION WHEN SUCTIONING OR IF IN CLOSE CONTACT WITH A COUGHING PATIENT. If no such contact occurs, and you are not within a few feet of the patient, you are exempt as long as you are healthy and do not touch any items in the room!
2. **N95 masks should be used for staff performing cough inducing and aerosol generating procedures such as nasal suctioning.**
3. Hospital staff with respiratory illnesses should report to Employee Health Services (EHS) for evaluation to help determine if you should be working with patients or are too ill to be at work. Employee Health is open Mon - Fri 0700am-4:00pm including the lunch hour. After hours you should call the on call EHS nurse at 303-520-7517.
4. Use good handwashing / hand hygiene after removing gloves (prior to leaving the patient room).
5. Don't forget to disinfect your stethoscope and any other equipment that is used between patients.
6. Patients in isolation are not allowed to leave their room unless it is for the purposes of going to another department for a procedure that cannot be performed in their room. Isolation precautions are to be used during transport and the receiving department is to be notified in advance of the need for isolation precautions for the patient. PLEASE do not tell patients in isolation that they can walk in halls or go to playroom, cafeteria, etc.

DISCONTINUING ISOLATION

FOR PATIENTS WITH VIRAL RESPIRATORY ILLNESS*

(This does not apply to patients with Pertussis.)

May discontinue isolation if **ALL** of the following conditions are met:

- A. Patient is currently asymptomatic.
- B. It has been at least 7 days from first positive specimen.
- C. Patient will be hospitalized at least 2 more weeks.
- D. No underlying immunodeficiency or chronic respiratory condition.¹
- E. If repeat Direct Stain and/or PCR tests are negative. (PCR, or direct stain is required if virus was rhinovirus, enterovirus, or adenovirus).

- 1 If immunocompromised or with a chronic respiratory condition, then the individualized decision requires Epidemiology evaluation and consensus recommendation (at least 2 members of the Infection Control Executive Committee). Epidemiology will document recommendation in the patient record (progress notes). For BMT patients refer to "BMT Respiratory and Enteric Disease Isolation Guidelines" P&P ([ONC-001-A](#)) in the IC manual on Planet TCH

*TCH Infection Control Policy: ["Isolation and Standard Precautions \(IC-008\)."](#)

Sick Employees



Many viruses exhibit themselves in adults as a slight cold; however, large amounts of virus can be shed (by sneezing/coughing, etc) and when transmitted can cause severe disease in our patients. If you have mild URI symptoms (minus fever), you may work if you wear a mask (changed frequently throughout the day), wear gloves with patient contact, and wash hands frequently or use alcohol based hand rub.

Exceptions:

1. You should not care for high-risk patients (e.g. BMT, organ transplant, and immunocompromised).
2. No ill employees allowed in the BMT unit.
3. WASH YOUR HANDS after removing gloves.

Avoid contact with high-risk patients if you are ill.

Diagnosis



Specimens:

Nasopharyngeal washes or tracheal aspirates are the best specimens for most patients. Lower respiratory tract specimens such as BALs provide maximum sensitivity, especially in older patients. The highest yield is from cell-rich specimens. For best results follow our standardized Microbiology [Nasopharyngeal Wash Procedure](#) posted on the on-line Test Directory on the TCH Intranet and TCH public website. (See "Clinical Resources, Lab and Microbiology Test Directory") The [table below](#) summarizes the tests available at TCH for wintertime respiratory pathogens. Call Microbiology (720-777-6703) if you have questions.

Ordering Tests:

Tests for respiratory viruses (Figure 1) should be sent ONLY if the results will be used for patient management. Otherwise healthy children who are admitted during the peak of RSV season with typical symptoms may not need virus tests at all! See [ALGORITHM \[page 5\]](#).

Testing May be Indicated for:

- Severely ill or immunocompromised patients who may need antiviral therapy or who may be started on multiple antibiotics, and a positive virus test might permit modification or discontinuation of antibiotics.
- An unusually-severe illness in an otherwise normal child.
- Monitoring efficacy of antiviral therapy in high-risk patients who cannot be assessed by symptoms alone.

Figure 1

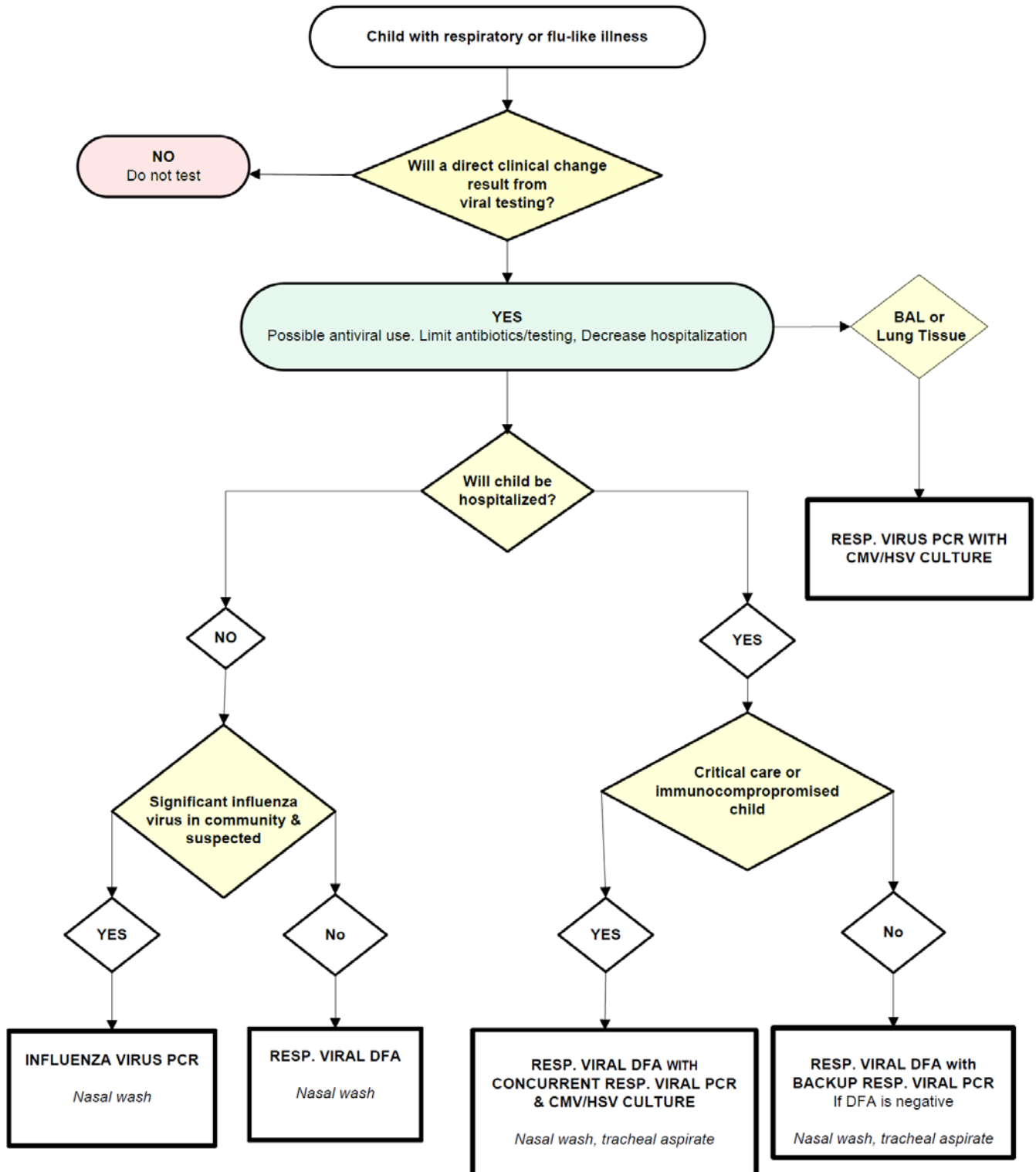
2010-2011 Respiratory Pathogens Test

Virus Detected	Test & Relative Value		
	Resp. Viral DFA	Resp. Viral PCR (RVP)	Influenza Virus PCR
Influenza A, B	+++	++++	++++
Influenza A Subtype	0	++++ Further identifies seasonal H1 or H3. If non-subtypeable, may be p2009 H1N1, a low titer seasonal influenza A, or an unusual influenza A	++++ Subtypes p2009 H1
RSV	+++	++++	0
Parainfluenza virus	+++ Types 1-3 detected but not differentiated	++++ Differentiates all 4 types	0
HMPV	++	++++	0
Adenovirus	++	+++	0
Rhinovirus	0	++++ Also detects some enteroviruses	0
Coronavirus	0	+++ Differentiates 4 common types	0
Other Factors			
Acceptable Specimens	Nasal wash tracheal aspirate	Nasal wash tracheal aspirate, BAL, lung tissue	Nasal wash
Turnaround Time	0.5 day (1 day on weekend)	1.5 – 2 days	4 hours (in season)
Relative Cost	\$\$	\$\$\$\$	\$\$

*Always check intranet for latest version:
<http://planetth/policiesfitz/general/pdf/538.pdf>

Figure 2

RESPIRATORY VIRUS TESTING ALGORITHM

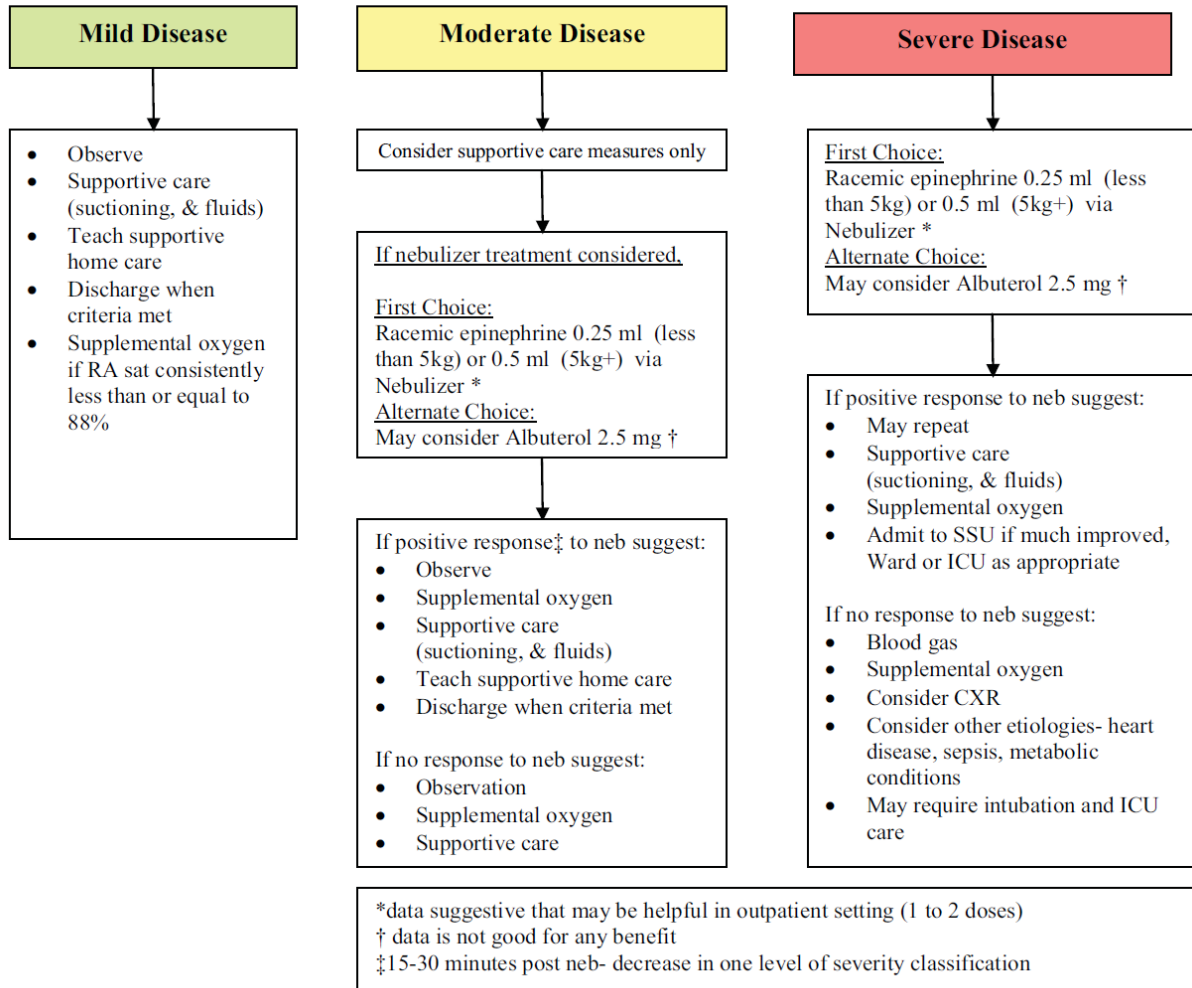


DPLM CR 101410

Figure 3

Bronchiolitis Care Algorithm

All Patients should receive upper airway suctioning prior to classification of disease severity.
Do not use treatment algorithm in the toxic appearing patient.



Bronchiolitis Severity Classification

<u>Mild Disease</u>	<ul style="list-style-type: none"> Alert, active, feeding well None to minimal retractions RR normal to mildly elevated (less than 50)
<u>Moderate Disease</u>	<ul style="list-style-type: none"> Alert, consoles, feeding decreased Minimal to moderate retractions RR is mildly to moderately elevated (50-70)
<u>Severe Disease</u>	<ul style="list-style-type: none"> Fussy, difficult to console, poor feeding Moderate to severe retractions, RR is moderately to severely elevated (greater than 70)

Therapies



Supportive Therapy: Adequate hydration, upper airway suctioning, and oxygenation are the mainstays of treatment for most infants with viral pneumonia and bronchiolitis.

Bronchodilators: Consider these if Severity Classification is moderate or severe. First Choice: Racemic Epinephrine. Alternate Choice: Albuterol via nebulizer. (See *Clinical Care Guidelines*, <http://planettch.thechildrenshospital.org/policiesfitz/general/pdf/538.pdf>.)

Evaluating Clinical Status and Response to Treatment:

1. On initial assessment, determine Severity Classification
2. Decide on intervention (based on Care Algorithm (Figure. 3))
3. Repeat severity classification to determine if intervention was helpful

Respiratory Severity Classification:

<u>Mild Disease</u>	<ul style="list-style-type: none"> • Alert, active, feeding well • None to minimal retractions • RR normal to mildly elevated (less than 50)
<u>Moderate Disease</u>	<ul style="list-style-type: none"> • Alert, consoles, feeding decreased • Minimal to moderate retractions • RR is mildly to moderately elevated (50-70)
<u>Severe Disease</u>	<ul style="list-style-type: none"> • Fussy, difficult to console, poor feeding • Moderate to severe retractions, • RR is moderately to severely elevated (greater than 70)

Supportive Care - Routinely Indicated:

Oxygen is probably the most effective therapy in infants and children with bronchiolitis and/or viral pneumonia.

- Oxygen to achieve SaO₂ at or above 90%
- P.O. / I.V. fluids as needed
- Suction upper airway (use saline PRN):
 - Prior to feeding
 - Prior to clinical assessment
 - PRN evidence of upper airway obstruction

RSV Prophylaxis



In 2009, the American Academy of Pediatrics Committee on Infectious Diseases (Redbook) updated their recommendations

on prophylactic therapy for RSV in an effort to ensure optimal balance of benefit and cost of this intervention. The recommendations were based on additional data regarding seasonality of RSV disease as well as limitations in available data on risk factors for identifying children at increase risk of serious RSV lower respiratory track disease.

To view these new recommendations please use the following link:

<http://www.cdc.gov/rsv/clinical/prophylaxis.html>

Some Final Thoughts



Finally, remember to adhere to infection control practices and isolation procedures. Avoid inappropriate use of antibiotics for viral illness, continue vaccination for influenza and now that you are knowledgeable about the management of patients with viral bronchiolitis etc., you can help to dispel the many widely prevalent myths regarding ineffective therapies and patient management.

Bug Watch

Up-to-date information on currently circulating respiratory and enteric viruses detected by the TCH Laboratory can be provided to you weekly during the wintertime or twice a month spring-fall. It is also posted on the TCH Internet at:

<http://www.thechildrenshospital.org/news/publications/bug.aspx>

or you may receive it by email. Contact Carolyn Brock by email brock.carolyn@tchden.org or phone (720-777-6412) to begin receiving your personal copy.

VISITATION REMINDER!

12/15/2010 – 4/15/2011

Inpatient Units:

No ill visitors

Children 12 yrs of age and younger may not visit.

ALL visitors will be screened for contagious illnesses before allowed entry into unit.

Outpatient clinics/Network of Care sites:

Due to an increase in respiratory illnesses in the community during these months, we discourage bringing siblings or friends who are 12 years of age or younger to your child's scheduled visits to these areas.

Thank You!