



Percorsi
Pediatrici
del
Val di Noto
2015

Infezioni delle Basse Vie Respiratorie

Dr. Fabrizio Comisi

Polmonite

Bronchiolite

1

Condividere l'approccio alla patologia secondo le più recenti linee guida

2

Offrire al paziente il miglior setting assistenziale possibile :

- Domicilio ?
- Ospedale?

3

Ridurre gli interventi inappropriati

Polmonite

Infezione delle basse vie respiratorie tipicamente associata a

- Febbre
- Sintomi respiratori
- evidenza di coinvolgimento del parenchima all'esame clinico o presenza di infiltrati alla radiografia del torace

[Gereige RS, Laufer PM. Pneumonia. Pediatrics in Review. 2013;34;438]



Pediatrics in Review
An Official Journal of the American Academy of Pediatrics

35 years

Walking Pneumonia

Walking pneumonia is a term typically used in school-aged children and young adults with clinical and radiographic evidence of pneumonia but with mild symptoms in which the respiratory symptoms do not interfere with normal activity. Typically, Mycoplasma pneumoniae has been implicated as the organism presumably responsible for walking pneumonia.

Hospital-Acquired Pneumonia

A pneumonia that develops in a hospitalized child within 48 hours after admission is considered hospital-associated pneumonia. Pneumonia that affects those individuals living in chronic care facilities and those who were recently hospitalized fall in this category as well.

Community-Acquired Pneumonia

Community-acquired pneumonia (CAP) refers to an acute pulmonary infection in a previously healthy individual acquired in the community...

[Gereige RS, Laufer PM. Pneumonia. Pediatrics in Review. 2013;34:438]



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Thorax

AN INTERNATIONAL JOURNAL OF RESPIRATORY MEDICINE

Guidelines for the management of
community acquired pneumonia in
children: update 2011

British Thoracic Society
Community Acquired Pneumonia in
Children Guideline Group

thorax.bmj.com



BMJ Journals

Clinical Infectious Diseases Advance Access published August 30, 2011

IDSA GUIDELINES

The Management of Community-Acquired Pneumonia in Infants and Children Older Than 3 Months of Age: Clinical Practice Guidelines by the Pediatric Infectious Diseases Society and the Infectious Diseases Society of America

John S. Bradley,^{1,2} Carrie L. Byington,^{2,3} Samir S. Shah,^{3,4} Brian Alverson,⁴ Edward R. Carter,⁵ Christopher Harrison,⁶
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Incidenza Paesi Sviluppati:

- 3-4/100 sotto i 5 anni

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- 14,5/1000 tra 0 e 16 anni

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Community Acquired Pneumonia in
Children Guideline Group

Ospedalizzazione Paesi Sviluppati:

- 201,1/100.000 (0-18 anni)
- 912,9/100.000 (<1 anno)
- 62,8/100.000 (13-18 anni)

(Dati USA 2006)

IDSA GUIDELINES

- Dal 12 al 28 /1000 (dati UK 2001-2002)

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- 40% dei casi

Schlaudecker EP, Frenck RW Jr. Adolescent pneumonia. Adolesc Med State Art Rev. 2010;21(2):202–219, vii–viii

Mortalità : 1,2 milioni / anno < 5 anni nel mondo

- Prima causa di mortalità infantile
- 18% cause di morte soto i 5 anni;
- Maggior parte nei paesi in via di sviluppo

Mortalità paesi sviluppati: < 1/1000.

[Gereige RS, Laufer PM. Pneumonia. Pediatrics in Review 2013;34:438]



Pediatrics in Review
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35^{Years}

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- **Sesso: M>F**
- **Età < 5 anni**
- **E.G. 24-28 settimane**
- **Stagionalità**

•Virus

- RSV
- Influenza – Parainfluenza
- Adenovirus, rhinovirus, VZ, Cytomegalovirus, HS, enterovirus

•Batteri

- *Streptococcus pneumoniae*
- *Streptococco A*
- *Staphylococcus aureus*
- *Haemophilus influenzae*
- *Mycoplasma pneumoniae*
- *Chlamidia pneumoniae*

Vaccino anti H. Influenzae: drastica riduzione dei casi.

Vaccino antipneumococco 7 val:

- Riduzione dei casi di mal. invasiva da **98,7/10000** (1998-99) al **23,4/10000** (2005)
- Ridotta necessità ospedalizzazione e visite ambulatoriali
- Herd immunity (beneficio per over 65)
- **Benefici aumentati dopo introduzione del 13 val**

- Virus (RSV) nei più piccoli
- Sotto i 2 anni 50% batteri (spesso associati a virus)
 - Nei più piccoli spesso è Pneumococco
- Gli atipici sono più frequenti con l'aumentare dell'età (in genere dopo il 3° anno)

- Febbre, Tosse
- Tachipnea, sforzo respiratorio, wheezing, dolore toracico
- Dolore addominale, vomito, cefalea

FR > 70 in pz < 1 anno : alta correlazione con ipossiemia

- **Rantoli**
- **Frequenza respiratoria >50 /min età >12 mesi**
- **SpO₂ $<96\%$**
- **Alitamento delle pinne nasali (<12 mesi)**

*Possono correlare con
immagine Rx di infiltrato*

Non c'è evidenza di correlazione fra clinica o radiologia e agente causale

Il Mycoplasma può dare quadro di wheezing e sintomi extrarespiratori (artralgia, cefalea)

Doppio Cieco, Studio Prospettico Randomizzato e Controllato 2006

•Pakistan: 1848 Rx in soggetti con diagnosi di polmonite non complicata, trattati con antibiotico;

•Rx positiva nel 14%

I pazienti con Rx positiva presentavano:

- Febbre 96%**
- Tosse 99%**
- Dispnea 89%**

I pazienti con Rx negativa presentavano:

- Febbre 94%**
- Tosse 99%**
- Dispnea 91%**

C'è scarsa correlazione fra clinica e quadro radiologico

Studio Retrospettivo 2006

•USA : 1268 soggetti ammessi al PS, effettuano Rx frontale e laterale, immagini interpretate separatamente da 3 radiologi (7608 referti)

Proiezione frontale		
Tipo di infiltrato	Sensibilità	Specificità
LOBARE	100%	100%
NON LOBARE	85%	98%

La sola proiezione frontale è sufficiente per individuare addensamenti lobari, il 15% dei non lobari è sottodiagnosticato.

RCT 2004

• **Canada : 570 soggetti da 1 a 16 anni ammessi al PS, effettuano Rx frontale e laterale, lette dal pediatra di PS che decide prima di ottenere referto del radiologo.**

Interpretazione finale		
	Sensibilità	Specificità
Gruppo 1 (lett. Frontale)	91%	58%
Gruppo 2 (lett. Frontale + laterale)	87%	57%

- 1. La proiezione laterale non ha inciso significativamente sulla decisione del clinico**
- 2. La lettura del radiologo pediatra non ha inciso significativamente sull'interpretazione del clinico**

CLINICAL INVESTIGATIONS

Does the Lateral Chest Radiograph Help Pediatric Emergency Physicians Diagnose Pneumonia? A Randomized Clinical Trial

pneumonia

Review

The radiological diagnosis of pneumonia in children

Kerry-Ann F O'Grady^a, Paul J Torzillo^b, Kieran Frawley^c, Anne B Chang^{a,d,e}

^aQueensland Children's Medical Research Institute, Queensland University of Technology, Herston, Queensland, Australia; ^bSydney Medical School, The University of Sydney; Departments of Respiratory Medicine and Intensive Care Royal Prince Alfred Hospital, Camperdown, Sydney, Australia; ^cDepartment of Radiology, Royal Children's Hospital, Brisbane, Queensland, Australia; ^dChild Health Division, Menzies School of Health Research, Charles Darwin University, Tiwi, Northern Territory, Australia; ^eQueensland Children's Respiratory Centre, Royal Children's Hospital, Brisbane, Queensland, Australia

Chest radiographs (CXR) are the most widely employed test, however,

- they are not indicated in ambulatory settings,*
- cannot distinguish between viral and bacterial infections and*
- have a limited role in the ongoing management of disease.*

pneumonia

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- ***Lateral CXRs are not useful or necessary , unless confirmation of the presence of pleural fluid is required.***
- ***A CXR beyond the initial procedure on admission is rarely necessary***

Indici infiammatori

PCR, VES, Procalcitonina : *Non utili per la diagnosi eziologica*

Emocromo

Leucocitosi : *scarsa specificità.*

Microbiologia

Difficoltosa l'identificazione, non utile in setting ambulatoriale.

Pulsossimetria

L'ipossiemia è un fattore noto di gravità: SpO₂ < 92% è indicazione al ricovero

E' importante per definire il setting assistenziale:

- Ambulatorio
- Ospedale (eventuale ICU)

Decisione condizionata anche da:

- Compliance familiare
- Fattori di rischio (es. altre patologie)

Table 3. Criteria for Respiratory Distress in Children With Pneumonia

Signs of Respiratory Distress

1. Tachypnea, respiratory rate, breaths/min^a
 - Age 0–2 months: >60
 - Age 2–12 months: >50
 - Age 1–5 Years: >40
 - Age >5 Years: >20
 2. Dyspnea
 3. Retractions (suprasternal, intercostals, or subcostal)
 4. Grunting
 5. Nasal flaring
 6. Apnea
 7. Altered mental status
 8. Pulse oximetry measurement <90% on room air
-

^a Adapted from World Health Organization criteria.

Table 6 Severity assessment

	Mild to moderate	Severe
Infants	Temperature < 38.5°C Respiratory rate < 50 breaths/min Mild recession Taking full feeds	Temperature > 38.5°C Respiratory rate > 70 breaths/min Moderate to severe recession Nasal flaring Cyanosis Intermittent apnoea Grunting respiration Not feeding Tachycardia* Capillary refill time ≥ 2 s
Older children	Temperature < 38.5°C Respiratory rate < 50 breaths/min Mild breathlessness No vomiting	Temperature > 38.5°C Respiratory rate > 50 breaths/min Severe difficulty in breathing Nasal flaring Cyanosis Grunting respiration Signs of dehydration Tachycardia* Capillary refill time ≥ 2 s

*Values to define tachycardia vary with age and with temperature.^{67[11]}

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Table 4. Criteria for CAP Severity of Illness in Children with Community-Acquired Pneumonia

Criteria

Major criteria

Invasive mechanical ventilation

Fluid refractory shock

Acute need for NIPPV

Hypoxemia requiring FiO_2 greater than inspired concentration or flow feasible in general care area

Minor criteria

Respiratory rate higher than WHO classification for age

Apnea

Increased work of breathing (eg, retractions, dyspnea, nasal flaring, grunting)

PaO_2/FiO_2 ratio <250

Multilobar infiltrates

PEWS score >6

Altered mental status

Hypotension

Presence of effusion

Comorbid conditions (eg, HgbSS, immunosuppression, immunodeficiency)

Unexplained metabolic acidosis

Trattare o non trattare con antibiotico?

Tutti i bambini con evidente diagnosi clinica di polmonite devono essere trattati con antibiotico poiché non è possibile definire se eziologia virale o batterica

Bambini sotto i 2 anni con sintomi lievi spesso non hanno Polmonite, quindi non necessitano di antibiotico, ma devono essere seguiti e rivalutati.

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Bambini in età prescolare con CAP non devono essere trattati routinariamente con antibiotico poiché spesso l'origine è virale

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Quale antibiotico?

Amoxicillina, prima scelta in tutte le età

Macrolide, associare se non risponde alla terapia di prima scelta

Amoxiclavulanato, utilizzare nelle forme associate a influenza

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Amoxicillina, prima scelta in età prescolare

Amoxicillina, prima scelta in età scolare

Macrolide, se clinica compatibile con intracellulari

Antivirale, subito se sintomi compatibili con influenza, nei periodi di epidemia

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- **Antibiotico orale è efficace**

- **Via parenterale solo se non si alimenta o vomito o diarrea o condizioni gravi**

Quanto tempo trattare?

Non indicazioni precise

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Le maggiori esperienze sono su 10 giorni di trattamento.

Durata minore può essere efficace in casi più lievi

CA-MRSA può richiedere trattamenti più lunghi

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Quando ripensare ?

Se presenta febbre o malessere dopo 48 ore dell'inizio del trattamento rivalutare se:

- Il farmaco è appropriato ed alla dose appropriata
- Comparsa di complicazioni (es. pleurite, ascesso polmonare)
- C'è una malattia concomitante che riduce la risposta (es. Immunodepressione, Fibrosi Cistica)

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Il miglioramento deve essere evidente entro 48-72 ore dall'inizio del trattamento

Se le condizioni non migliorano, o peggiorano, necessario indagare ulteriormente

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Item # 1

Gestisco a casa o invio in ospedale ?

Se:

- Condizioni generali buone/discrete
- Famiglia collaborante ed affidabile
- Si alimenta e assume farmaci
- Compliance alla terapia adeguata
- Risponde alla terapia nelle 48 ore

GESTIONE A DOMICILIO

Se invece:

< 1 anno	>1 anno
Temperatura >38°C	
Refill capillare ≥ 2 sec	
Famiglia inaffidabile	
Cianosi o SpO2≤92%	
Alitamento delle pinne nasali	
Gemito respiratorio	
FR > 70/m'	FR > 50/m'
Rientramenti (giugulo, intercostali, diaframma)	Dispnea grave
Apnea intermittente	
Non si alimenta	E' disidratato

Invio in Ospedale

Item # 2

Quale trattamento ?

Antimicrobial therapy is not routinely required for preschool-aged children with CAP, because viral pathogens are responsible for the great majority of clinical disease. (strong recommendation; high-quality evidence)

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Children aged <2 years presenting with mild symptoms of lower respiratory tract infection do not usually have pneumonia and need not be treated with antibiotics but should be reviewed if symptoms persist. A history of conjugate pneumococcal vaccination gives greater confidence to this decision. [C]

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All children with a clear clinical diagnosis of pneumonia should receive antibiotics as bacterial and viral pneumonia cannot be reliably distinguished from each other. [C]

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Amoxicillina (o amoxiclavulanato) : antibiotico di prima scelta

Macrolide: se non risponde o sospetto di atipici

Somministrazione orale

Misure generali

Istruzioni ai genitori su:

- Gestione della febbre
 - ✓ Uso degli antipiretici
 - ✓ No spugnature
- Prevenzione disidratazione
- Identificare I segni di peggioramento
- Garantire una “Safety net”

Safety Net

- Garantire preciso programma di controlli
- Concordare con altri professionisti (sostituto, ospedale) e fornire chiare indicazioni per garantire un accesso diretto in caso di necessità

Item # 3

Quali indagini diagnostiche?

Strumentazione necessaria:

- Occhio
- Orecchio
- Pazienza
- Saturimetro

No indagini di laboratorio

No Radiologia

CAP

Riassumendo

Criteri per ospedalizzare

Si

No



Trattamento empirico – educazione famiglia - monitoraggio

Migliora in 48 72 ore ?

Si

No

Rivaluto: criteri per ospedalizzare

Si

No

Modifico trattamento

Miglioramento

Si

No

OSPEDALE



Riassumendo

TABLE 2

Empiric outpatient antibiotic therapy for pediatric CAP^{1,19}

Duration of treatment is 10 days unless otherwise noted

Patient age	Presumed bacterial pneumonia	Presumed atypical pneumonia
3 mo to <5 y, regardless of immunization status	Preferred: amoxicillin 90 mg/kg/d PO In 2 divided doses Alternative: amoxicillin clavulanate 90 mg/kg/d PO In 2 divided doses	For all children regardless of age and immunization status: Preferred: azithromycin 10 mg/kg PO on Day 1, followed by 5 mg/kg PO once daily on Days 2-5 Alternative: clarithromycin 15 mg/kg/d PO In 2 divided doses OR In children >7 y: erythromycin 40 mg/kg/d PO In 4 divided doses; or doxycycline 2-4 mg/kg/d PO In 2 divided doses
≥5 y and fully immunized against <i>Streptococcus pneumoniae</i> and <i>Haemophilus influenzae</i>	Preferred: * amoxicillin 90 mg/kg/d PO In 2 divided doses to a maximum 4 g/d, with or without a macrolide antibiotic Alternatives: Second- or third-generation cephalosporins such as oral cefpodoxime, cefuroxime, or cefprozil OR levofloxacin (5-16 y) 8-10 mg/kg PO once daily (max 750 mg/d) [†] OR linezolid (<12 y) 30 mg/kg/d PO (max 1200 mg/d) In 3 divided doses; or (≥12 y) 20 mg/kg/d (max 1200 mg/d) In 2 divided doses	
≥5 y and NOT fully immunized against <i>S pneumoniae</i> and <i>H influenzae</i>	Preferred: * amoxicillin 90 mg/kg/d PO In 2 divided doses to a max of 4 g/d; or amoxicillin clavulanate 90 mg/kg/d PO In 2 divided doses Alternatives: Second- or third-generation cephalosporins such as oral cefpodoxime, cefuroxime, or cefprozil OR levofloxacin (5-16 y) 8-10 mg/kg PO once daily (max 750 mg/d) [†]	

CAP, community-acquired pneumonia.

*Preferred treatments of choice change in areas of high *S pneumoniae* resistance. Refer to the complete guidelines for specific recommendations.

[†]The guidelines do not fully address the controversy concerning the use of quinolones in children. The use of quinolones in infants and children is considered a risk vs benefit decision.

Community-acquired pneumonia in children: A look at the IDSA guidelines

This review of the guidelines can help you adjust your care according to your patient's age and disease severity.

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PRACTICE RECOMMENDATIONS

- › Chest x-rays and lab testing may be optional for children with community-acquired pneumonia (CAP) who are not seriously ill. **(A)**
- › Start amoxicillin empirically for any child with mild-to-moderate CAP. **(B)**
- › If an atypical bacterial pneumonia is suspected, azithromycin is the first-line treatment. **(B)**

Strength of recommendation (SOR)

- (A)** Good-quality patient-oriented evidence
- (B)** Inconsistent or limited-quality patient-oriented evidence
- (C)** Consensus, usual practice, opinion, disease-oriented evidence, case series

Riassumendo

TABLE 1
Influenza antiviral therapy in pediatric patients*1

Drug (brand name)	Formulation	Dosing
Oseltamivir (Tamiflu)	75 mg capsule; 60 mg/5 mL suspension	4-8 mo: 6 mg/kg/d In 2 doses 9-23 mo: 7 mg/kg/d In 2 doses ≥24 mo: ~4 mg/kg/d In 2 doses, for 5 days ≤15 kg: 60 mg/d In 2 divided doses >15-23 kg: 90 mg/d In 2 divided doses >23-40 kg: 120 mg/d In 2 divided doses >40 kg: 150 mg/d In 2 divided doses
Zanamivir (Relenza)	5 mg per Inhalation, using a Diskhaler	≥7 y: 2 Inhalations (10 mg total per dose), twice daily for 5 days
Amantadine (Symmetrel)†	100 mg tablet; 50 mg/5 mL suspension	1-9 y: 5-8 mg/kg/d as single daily dose or In 2 doses; not to exceed 150 mg/d 9-12 y: 200 mg/d In 2 doses (not studied as a single dose)
Rimantadine (Flumadine)†	100 mg tablet; 50 mg/5 mL suspension	Not FDA approved for treatment in children, but published data exist on safety and efficacy in children Suspension: 1-9 y: 6.6 mg/kg/d (max 150 mg/kg/d) In 2 doses ≥10 y: 200 mg/d, as single daily dose or In 2 doses

*In children for whom prophylaxis is indicated, antiviral drugs should be continued for the duration of known Influenza activity in the community (because of the potential for repeated exposures) or until immunity can be achieved as a result of immunization.

†Amantadine and rimantadine should be used for treatment and prophylaxis only in the winter, when most isolated Influenza A virus strains are susceptible to adamantine; the adamantines should not be used for primary therapy because of the rapid emergence of resistance. However, for patients requiring adamantine therapy, a treatment course of about 7 days is suggested, or one that runs until a day or 2 after the signs and symptoms have disappeared.

Community-acquired pneumonia in children: A look at the IDSA guidelines

This review of the guidelines can help you adjust your care according to your patient's age and disease severity.

Bronchiolite

Malattia infiammatoria acuta delle basse vie respiratorie che determina intrappolamento d'aria e difficoltà respiratoria nell'infanzia (0-12 /24 mesi)



*James M. Anderson Center for Health
Systems Excellence*

Evidence-Based Care Guideline
**Management of first time episode
Bronchiolitis
in infants less than 1 year of age**

Current Revision Publication Date: November 16, 2010
Revision Publication Dates: August 15, 2005, November 28, 2001
Original Publication Date: December 6, 1996

Policy Directive



Ministry of Health, NSW
73 Miller Street North Sydney NSW 2060
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Telephone (02) 9391 9000 Fax (02) 9391 9101
<http://www.health.nsw.gov.au/policies/>

Infants and Children - Acute Management of Bronchiolitis

Document Number PD2012_004
Publication date 19-Jan-2012

American Academy
of Pediatrics



DEDICATED TO THE HEALTH OF ALL CHILDREN™

Guidance for the Clinician in
Rendering Pediatric Care

**Clinical Practice Guideline: The Diagnosis, Management, and Prevention of
Bronchiolitis**

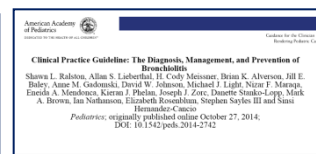
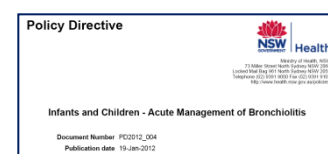
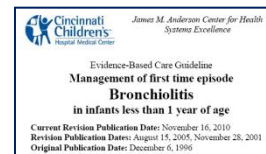
Shawn L. Ralston, Allan S. Lieberthal, H. Cody Meissner, Brian K. Alverson, Jill E. Baley, Anne M. Gadomski, David W. Johnson, Michael J. Light, Nizar F. Maraqa, Eneida A. Mendonca, Kieran J. Phelan, Joseph J. Zorc, Danette Stanko-Lopp, Mark A. Brown, Ian Nathanson, Elizabeth Rosenblum, Stephen Sayles III and Sinsi Hernandez-Cancio

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DOI: 10.1542/peds.2014-2742

USA

- **Più frequente causa di ospedalizzazione <12 mesi**
- **tasso di ospedalizzazione=5,2/1000 bambini < 12 mesi**
- **Costo stimato: 1,73 miliardi di dollari**

- Prematurità / basso peso alla nascita
- Cardiopatia
- Malattia polmonare cronica
- Immunodeficienze
- Storia di wheezing progressivo
- Età < 3 mesi



•Virus Respiratorio Sinciziale

•Rhinovirus

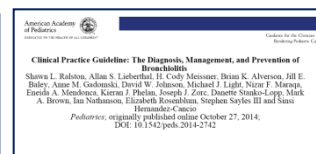
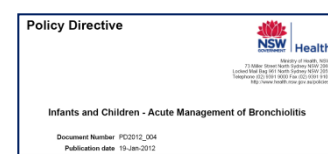
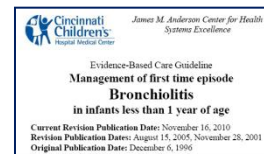
• Influenza

•Metapneumovirus

•Adenovirus

•Coronavirus


•Parainfluenza



Segni respiratori

- **Ostruzione nasale ± rinorrea, tosse stizzosa**
- **Tachipnea – impegno respiratorio (dopo 1-3 gg)**
- **Rantoli fini, wheezing, espirazione prolungata**
- **Febbre nel 50% dei casi**
- **Apnea (può essere il primo segno)**


- Clinica
- Saturimetro

 *James M. Anderson Center for Health Systems Excellence*

Evidence-Based Care Guideline
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American Academy of Pediatrics 

Clinical Practice Guideline: The Diagnosis, Management, and Prevention of Bronchiolitis

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Non ci sono sistemi di scoring universalmente accettati.

Tachipnea >70 è stata associata a maggiore rischio di malattia severa in alcuni studi ma non in altri

“Il medico dovrebbe diagnosticare la bronchiolite e definirne la severità sulla base della storia e dell’esame fisico”

Elementi da valutare:

- Aspetto del paziente
- Frequenza ed impegno respiratorio
- Colorito cutaneo
- SpO₂
- FC
- Alimentazione/idratazione

“La diagnosi di bronchiolite e della sua severità si fonda sull’interpretazione da parte di medico della costellazione di elementi caratteristici e non dipende da alcun segno clinico o test diagnostico specifico”

1. La bronchiolite è di norma una patologia autolimitantesi
2. Stabilità clinica, ossigenazione, idratazione, sono i goal del trattamento

Cose da **NON** fare:

- Somministrare steroidi
- Somministrare antibiotici
- Somministrare antiistaminici o decongestionanti

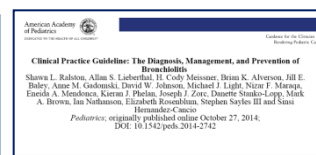
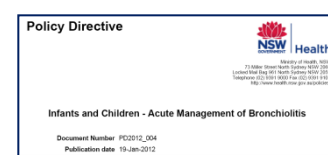
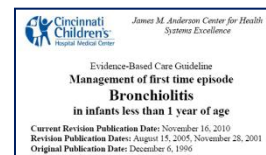
Cose da fare:

- Educare la famiglia
- Disostruzione nasale
- Garantire alimentazione / idratazione
- Monitorare


Ipertonica salina: forse efficace dopo somministrazioni ripetute

Broncodilatatori: non efficaci

Epinefrina: non efficace




E le nostre buone vecchie abitudini?

 *James M. Anderson Center for Health Systems Excellence*

Evidence-Based Care Guideline
**Management of first time episode
Bronchiolitis
in infants less than 1 year of age**


Current Revision Publication Date: November 16, 2010
Revision Publication Dates: August 15, 2005, November 28, 2001
Original Publication Date: December 6, 1996

Policy Directive

 **NSW Health**
Ministry of Health, NSW
73 Miller Street North Sydney NSW 2060
Locked Mail Bag 961 North Sydney NSW 2059
Telephone (02) 9391 9000 Fax (02) 9391 9101
<http://www.health.nsw.gov.au/policies/>

Infants and Children - Acute Management of Bronchiolitis

Document Number PD2012_004
Publication date 19-Jan-2012

 **American Academy of Pediatrics**
DEDICATED TO THE HEALTH OF ALL CHILDREN™

Guidance for the Clinician in Rendering Pediatric Care

Clinical Practice Guideline: The Diagnosis, Management, and Prevention of Bronchiolitis

Shawn L. Ralston, Allan S. Lieberthal, H. Cody Meissner, Brian K. Alverson, Jill E. Baley, Anne M. Gadomski, David W. Johnson, Michael J. Light, Nizar F. Maraqa, Eneida A. Mendonca, Kieran J. Phelan, Joseph J. Zorc, Danette Stanko-Lopp, Mark A. Brown, Ian Nathanson, Elizabeth Rosenblum, Stephen Sayles III and Sinsi Hernandez-Cancio

Pediatrics; originally published online October 27, 2014;
DOI: 10.1542/peds.2014-2742

Clinicians should not administer palivizumab to otherwise healthy infants with a gestational age of 29 weeks, 0 days or greater (Evidence Quality: B; Recommendation Strength: Strong Recommendation).

Clinicians should administer palivizumab during the first year of life to infants with hemodynamically significant heart disease or chronic lung disease of prematurity defined as preterm infants <32 weeks, 0 days' gestation who require >21% oxygen for at least the first 28 days of life

(Evidence Quality: B; Recommendation Strength: Moderate Recommendation).

Clinicians should administer a maximum 5 monthly doses (15 mg/kg/dose) of palivizumab during the RSV season to infants who qualify for palivizumab in the first year of life

(Evidence Quality: B, Recommendation Strength: Moderate Recommendation).

Palivizumab

No se > 29 settimane di gestazione senza patologie

Si se:

- **Cardiopatìa**
- **Pneumopatia del prematuro** (<32 sett, fabbisogno >21% nei primi 28 gg.)

Item # 1

Gestisco a casa o invio in ospedale ?

Le infezioni delle basse vie respiratorie

- Bronchiolite

Indicazioni pratiche per la gestione in ambulatorio

Assessment and initial management of acute bronchiolitis

Reconsider diagnosis if the child is >1 year, looks 'unwell', has high fever or responds poorly to treatment.

Initial Severity Assessment			
Treat in the highest category in which any symptom occurs			
Symptoms	Mild	Moderate	Severe and Life Threatening
Appearance	Well	Mildly Unwell	Unwell
Respiratory Rate	Mild Tachypnoea	Moderate Tachypnoea	Apnoeas Severe Tachypnoea Greater than 70 Bradypnoea Less than 30
Work of Breathing	Normal	Mild to Moderate	Moderate to Severe Grunting
Cyanosis	No Cyanosis	No Cyanosis	May be Cyanosed or Pale
Oxygen Saturation Oxygen Requirement	Above 95% in Air	90- 95% in Air	Less than 90% in Air Less than 92% in O2
Heart Rate	Normal	Mild Tachycardia	Tachycardia greater than 180
Feeding	Normal or Slightly Decreased	Difficulty feeding but able to take more than 50% of normal feed.	Difficulty feeding taking less than 50% of normal feed.
		Contact paediatrician	Get senior help then Call NETS 1300 36 2500
Treatment			
Oxygen	No	Give O2 to maintain saturation at or above 95% and or to improve the work of breathing	Maintain oxygen saturations greater than 95% Ensure high inspired oxygen via high flow delivery device if required
Hydration	Recommend smaller more frequent feeds if required	Smaller more frequent feeds Consider NG feeds	IV fluids and NBM
Investigations	Nil required	Nil required	Consider – CXR and Blood Gas / BSL
Observation & Review	hourly	Continuous SaO2 monitoring Minimum hourly observation	Continuous cardio respiratory and SaO2 monitoring Constant observation
No or Poor response to Treatment		Check diagnosis Escalate treatment	Get Senior Help Consult PICU via NETS Consider CPAP May need intubation
Disposition	Likely to go home	Likely to admit Decisions around hospitalisation of infants with SaO2 between 92 & 95 % should be supported by clinical assessment, phase of the illness & social & geographical factors	Transfer to an appropriate paediatric unit via NETS If in a children's hospital, may need PICU.

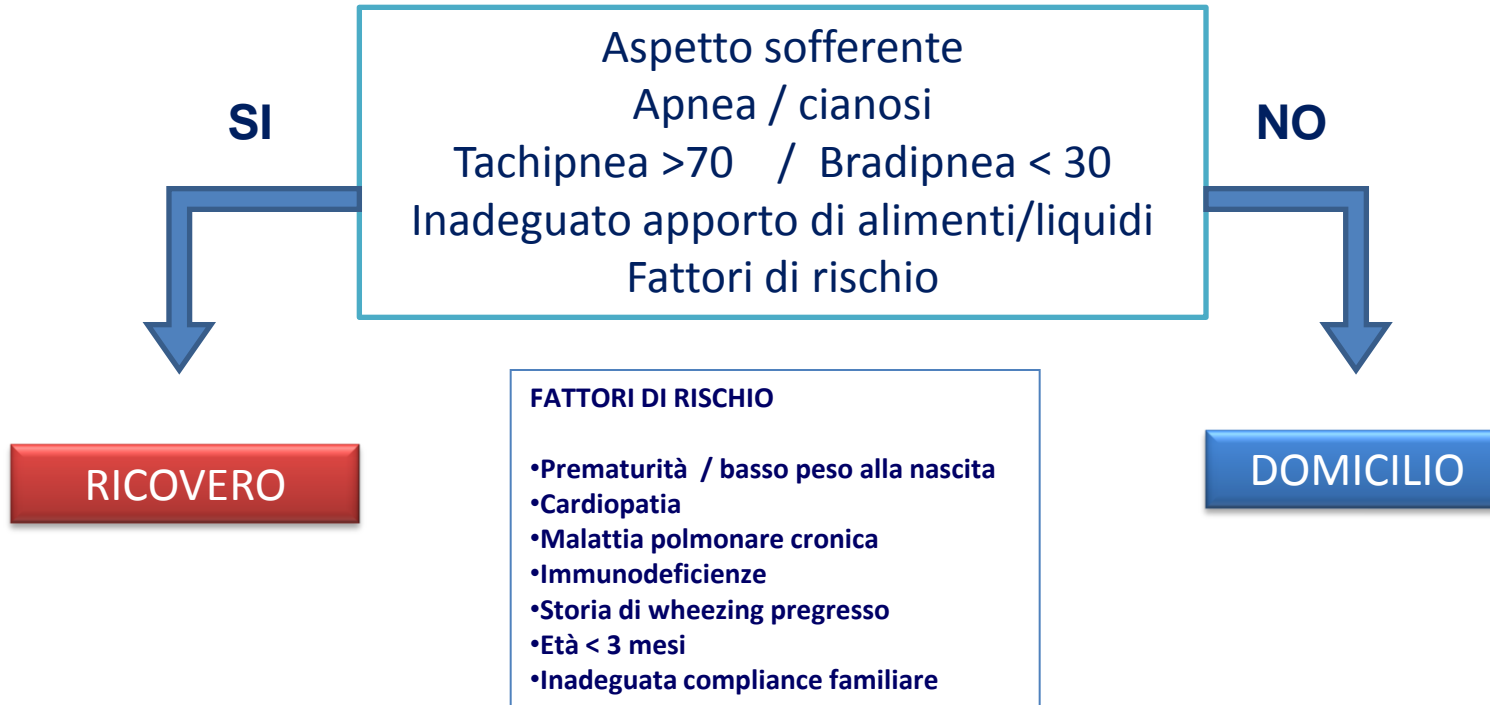
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Item # 2

Quale trattamento ?

- Educazione della famiglia
- Controlli clinici ripetuti
- Toilette nasale
- Garantire adeguata alimentazione

FACTSHEET

This fact sheet is for education purposes only. Please consult with your doctor or other health professionals to make sure this information is right for your child. If you would like to provide feedback on this fact sheet, please visit: www.schn.health.nsw.gov.au/parents-and-carers/fact-sheets/feedback-form.

Bronchiolitis

Bronchiolitis is a chest infection caused by a virus - most commonly respiratory syncytial virus (RSV). It often occurs in babies during the first year of life and it usually happens in winter.

It is the most common reason for admission to hospital in infants during the first 12 months. The virus infects the small breathing tubes (bronchioles) of the lungs; this causes them to become narrowed by mucus and inflammation.

Generally, the baby first develops symptoms of a cold, such as a runny nose, a cough and fever. Over the next day or so, the coughing may become worse and there may be a wheezing sound heard when the baby breathes out. Sometimes the baby finds it hard to breathe and does not feed or sleep well. Your baby may look as if they have asthma.

The wheezing sound, if present, usually lasts for two to three days. As the wheezing settles, the baby gradually improves. However, the cough may last up to a month.

Home management

Most babies with bronchiolitis can be managed at home, and they get better within a week to ten days.

As it is a viral infection, antibiotics will not help. Sometimes, other medication such as Ventolin™, Atrovent™ or Bricanyl™ may be prescribed to open up

the airways and settle the wheezing, but these may not be effective in babies under 6 - 12 months of age.

Your baby may need extra fluids. Give an extra bottle or two per day, and give more frequent breastfeeds. As feeding may be difficult, offer smaller feeds but more often.

Bronchiolitis is infectious so you should keep your baby away from other babies whilst they are getting better.

When to see your doctor

Poor fluid intake

An easy way to tell if your child is not taking enough fluids is to check their nappies. If there are fewer wet nappies than usual, it probably means that your child is not getting enough fluid. If he/she is refusing to feed, having difficulty feeding or fewer wet nappies consult your doctor.

Worsening cough and wheeze

If your baby's breathing becomes more difficult, or your child looks tired and listless, is not sleeping or if there is any blueness around the lips, *seek help immediately*. Some babies do need to be admitted to hospital for support such as oxygen and fluids.

Will it happen again?

Maybe. It is possible to have bronchiolitis again, but most babies will only have it once. Wheezing may occur again with other viral infections. If a wheeze occurs often you should consult your doctor as further assessment or more definitive treatment may be needed. Children exposed to Second Hand Smoke are more likely to develop a range of illnesses including, bronchiolitis as compared to children living in smoke-free environments. If you do smoke, you can choose not to smoke in front of children, particularly in enclosed areas such as the car and home, and ask others to do the same.

Remember:

- Bronchiolitis gets better in a week to ten days.
- It is a viral infection, so medications, especially antibiotics, may not help.
- Your baby may need extra fluid, offer small frequent feeds or frequent breast feeds
- Consult your doctor if your child has difficulty with breathing, feeding or sleeping.

E se non basta ?

- Aerosol con ipertonica 3% ?

- Aerosol con salbutamolo ?

(Le LG del Cincinnati Childrens' prevedono un test trial con albuterolo nebulizzato)

1. La diagnosi e la graduazione di severità delle infezioni delle basse vie respiratorie si basano sulla clinica;
2. La maggior parte dei casi non necessita di ricovero ospedaliero
3. I familiari devono essere educati al riconoscimento dei segnali di “allarme”
4. E' utile definire un “Safety Network” per consentire al paziente di accedere immediatamente al livello di cure appropriato
5. L'interazione territorio – ospedale è fondamentale nella gestione e nella educazione dei pazienti (una cultura, un comportamento)

**Grazie per
l'attenzione**



Score di Silverman e Andersen per la valutazione del distress respiratorio nel neonato			
Parametro	0 punti	1 punto	2 punti
Retrazione toracica	sincrona	minima depressione, l'addome si espande	movimento ondoso
Retrazioni intercostali	assenti	appena visibili	marcate
Retrazione al giugulo	assente	appena visibile	marcata
Alitamento delle pinne nasali	assente	appena visibile	marcato
Gemito espiratorio	assente	udibile con fonendoscopio	udibile con le orecchie

0 = no distress
4 - 6 = distress moderato
7-10 = distress grave