



PAL-GARD GUIDE

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NOTE

This manual is under constant development, it is part of a Pilot Study. The authors and contributors do not assume any responsibility in relation to any damage and/or harm to persons arising from this publication.

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GLOSSARY

- PAL: Practical Approach to Lung Health
- GARD: Global Alliance Against Chronic Respiratory Disease)
- TB: Tuberculosis
- COPD: Chronic Obstructive Pulmonary Disease
- ARIs: Acute respiratory infections
- PAC: Community Acquired Pneumonia
- GINA: Global Initiative for Asthma
- GOLD: Global Initiative for Chronic Obstructive Lung Disease
- GOLD- Global Initiative for Chronic Obstructive Lung Disease
- DOTS- Directly Observed Therapy, Short-course
- FEV1- Forced Expiratory Volume in the first second
- FVC - Forced Vital Capacity
- PEF- Peak Respiratory Flow

INDEX

- This handbook offers a symptom-based approach for patients with the following respiratory diseases: tuberculosis, asthma, COPD, acute respiratory infections (ARI)
- It is intended for primary health care doctors for use in people over 15 years of age
- As a basis, the patient's symptoms are used as a starting point. Use the content on this page to find your patient's symptoms in the guide.

On the next page there is a box that identifies patients who have signs and symptoms of seriousness and need urgent attention

RESPIRATORY DISEASES INCLUDING TUBERCULOSIS

Respiratory diseases are common and account for about one third of visits to primary care. Each visit is an opportunity for the diagnosis of chronic respiratory disease or tuberculosis.

COUGH AND / OR DIFFICULTY BREATHING

breathing difficulty is defined as intermittent / continuous shortness of breath, wheezing, chest tightness at rest or in minimal activities.

Coughing
≥ 2 Weeks?

Exclude TB
Page 7

cough < 2 weeks

cough ≥ 2 weeks

exclude serious illness that requires immediate referral.
Assess disease severity.

Pag.
2

Pay attention to symptoms of tuberculosis

Pag.
7

Then consider:

Cough and / or difficulty breathing **3**
Flu / cold syndrome **5**
Pneumonia **6**

Then consider:

Cough and / or difficulty breathing **4**
Asthma (intermittent breathing difficulty / wheezing) **7**
COPD (persistent breathing difficulties / smoking) **12**

COUGH AND / OR DIFFICULTY BREATHING <2 WEEKS

ASSESSMENT OF DISEASE SEVERITY: INITIAL CONDUCT

2

Evaluate the following to clarify the severity of the disease: one or more

	SEVERE	MODERATE	MILD
Shortness of breathe	At rest or during speech	While walking	None
Mental state	May be agitated or confused	Can be anxious	Normal
Use of accessory muscles	Prominent	Mild to normal	It is not evident
Respiratory rate	30 breaths per minute	20-29 breaths per minute	14-19 breaths per minute

INITIAL CONDUCT OF THE PATIENT WITH SERIOUS DISEASE

Administer oxygen (40% oxygen mask or 4l / min via nasal cannula)

If COPD is known, administer oxygen 2,2l a 2,5 l/ min via nasal cannula

All patients with severe respiratory disease should be referred after initial care (see below)

Wheezing /
Chest tightness

Fever > 37.8 C or
Hypothermia <35.5 C

Lower extremity
edema

SEVERE ASTHMA CRISIS / EXACERBATED COPD

Administer salbutamol / fenoterol (beta agonists) via:

- Spacer: 4 jets every 20 minutes for an hour and reevaluate, or
- Nebulizer (preferably connected to an oxygen source)
- Adults- 10 drops of salbutamol / fenoterol and 20 drops of ipratropium in 3 ml of 0.9% Saline
- Prednisone 40mg or hydrocortisone 100mf iv

Unanswered: referring urgently with continuous oxygen.

See page 11

PNEUMONIA

Cral Amoxicillin 1g and
Ceftriaxone 1g IV

Refer urgently with continuous oxygen

CARDIAC INSUFFICIENCY

- pending lower limbs systolic blood pressure > 90mmHg isordil 5mg SL
- Furosemide 0.5 to 1mg / kg EV
- Referencing urgently with continuous oxygen

- Wheezing
- Chest tightness

If you have Asthma / COPD:

Treat according to the red frame

Reassess if there is no improvement or if it worsens

If edema in the lower limbs:

Evaluate measurements in the red box beside Reference with continuous oxygen.

- Appearance or increase in sputum production.
- Fever
- Pain when breathing or coughing

Consider:

- Infection of the lower respiratory tract - page 6, including tuberculosis - page 7

- Runny nose, nasal congestion,
- Sore throat
- Sinus pain or tenderness
- Earache

Consider:

- Upper airway infections

RESPIRATORY SYMPTOMS <2 WEEKS

3

If the patient has respiratory symptoms, no signs or symptoms of severity and does not have a known chronic respiratory disease

COUGH AND / OR RESPIRATORY DIFFICULTY

It is one or more of the following symptoms:
fever, sore throat
(symptoms lasting up to 5 days)

GRIPAL SYNDROME

ONE OR MORE gravity signs:

C - Mental confusion

R - Respiratory rate \geq 30 cycles / minute

B - Systolic blood pressure <90mmHg or diastolic <60mmHg

65 - Age > 65 years

Yes

**SEVERE ACUTE
RESPIRATORY SYNDROME**

PAGE 5

No

**UNCOMPLICATED
GRIPAL SYNDROME**

PAGE 5

Common cold worsens
after 5 days or persists
for more than 10 days

The presence of two or more major signs of acute rhinosinusitis:
(headache, facial pain or pressure, nasal obstruction or congestion,
nasal discharge or purulent nasal powder, hyposmia or anosmia,
or 1 major and 2 or more minor signs (fever, halitosis, dental pain,
otalgia or pressure in the ears, cough) or presence of purulent
nasal discharge on physical examination.

ACUTE RHINOSINUSITIS

Treatment:

Amoxicillin treatment for 7 to 10 days or
Amoxicillin with potassium clavulanate for 7 to
10 days OR 2 or 3 generation cephalosporin or
Macrolide or Quinolone

- On one or more of the following symptoms:
- Sputum, dyspnoea, chest pain.
 - At least one systematic finding of confusion, headache, sweating, chills, myalgia, temperature > 37.8)
- Focal findings on physical examination of the chest

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PNEUMONIA

TREAT LOCALLY WITH ATB IF NO
SIGNS OF GRAVITY

With dyspnea and prominent
chest pain (sudden / acute)

REFERENCE FOR
EVALUATION WITH URGENCY

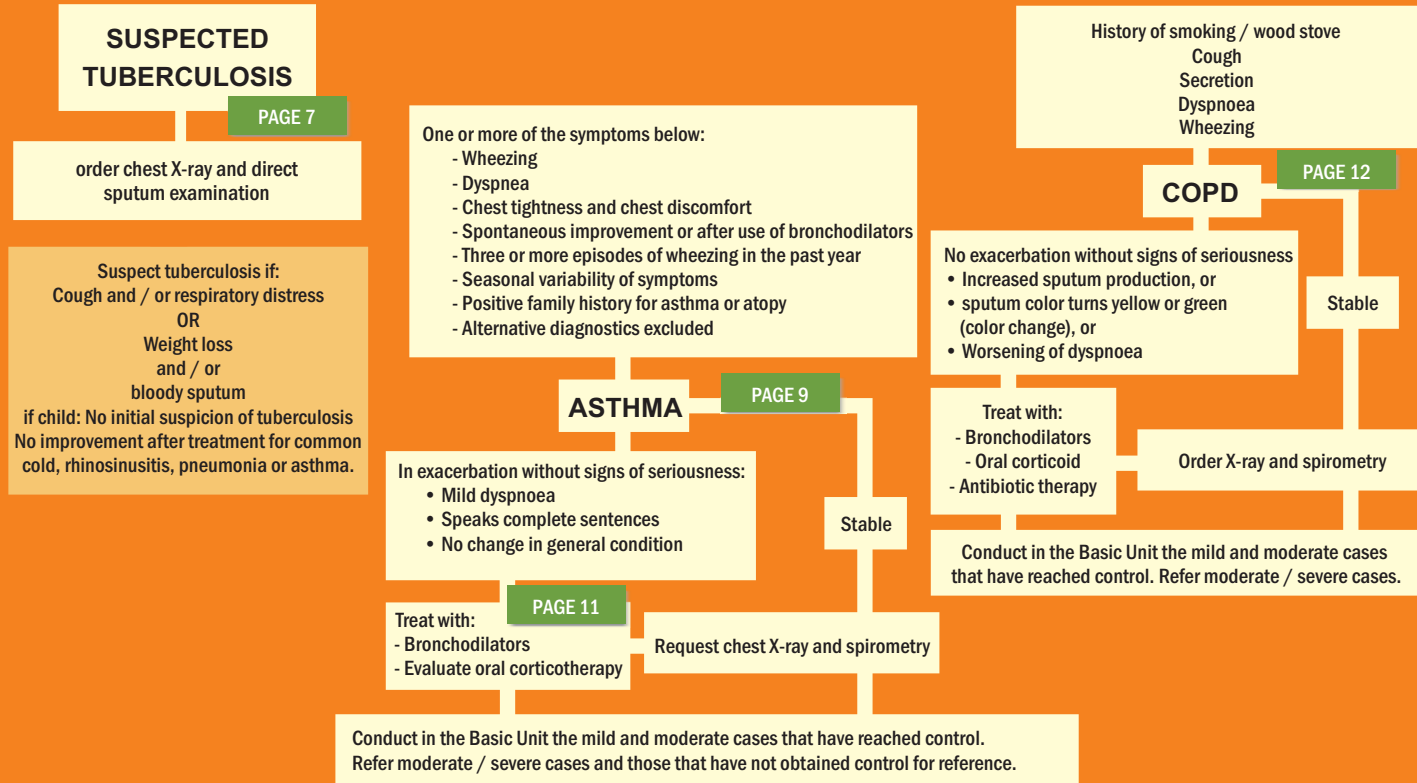
RESPIRATORY SYMPTOMS \geq 2 WEEKS

RESPIRATORY SYMPTOMS \geq 2 WEEKS

If the patient with respiratory symptoms, without signs or symptoms of severity

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COUGH AND / OR RESPIRATORY DIFFICULTY



RESPIRATORY SYMPTOMS \leq 2 WEEKS

If patient with respiratory symptoms and does not have a known chronic respiratory disease

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COUGH, FEVER, THROAT PAIN (Symptoms last for a maximum of 5 days)

FLU SYNDROME

ONE OR MORE signs of severity

C - Mental confusion

R - Respiratory rate 30 cycles / minute

B - Systolic blood pressure <90mmHg or diastolic <60mmHg

65 - Age > 65 years

SEVERE ACUTE RESPIRATORY SYNDROME

- STABILIZE THE PATIENT WHEN POSSIBLE
- FORWARDING TO HOSPITALIZATION QUICKLY
- NOTIFY

Other signs of severity:

- presence of at least one of the following criteria
 - Tachypnea (children: up to 2 months: RR> 60, > 2 months and <12 months> 50 RR; 1 to 4 years> 40 RR;> 4 years 30 RR, adults RR> 25)
 - Dehydration; flapping of the nose wing; chest in-drawing Worsening of the initial signs and symptoms (fever, myalgia, cough, dyspnoea); alteration of the state of consciousness
 - Fall in general condition; alteration of vital signs; arterial hypotension; fever; persistent for more than 5 days;
 - Pulse oximetry: O2 <94% (only if available on the unit)
- IF ONE OR MORE,

Groups of risk:

- Immunosuppression
- Chronic conditions;
- Hemoglobinopathies;
- Cardiopathies;
- Pneumopathies;
- Chronic kidney diseases;
- Diabetes mellitus;
- Doen; neurological;
- Genetic diseases (Down syndrome)
- Grade 3 obesity;
- Children;
- AND / OR

Risk factors:

- Age: less than or equal to 2 years or greater or equal to 60 years;
- Gestation

Home Treatment:

- Start antiviral (oseltamivir), preferably if symptoms start <48 hours.
- Medications to relieve symptoms:
 - Analgesic;
 - Antipyretic;
- Hydration
- Medical evaluation regarding the withdrawal of activities (up to 24 hours after the end of the fever)
- Guide on precautionary measures;
- Advise on adverse effects of antiviral;
- Advise on warning signs;
- Advise on signs of severity.
- Not to be carried out: notification and collection of specific exam.

Reassess
within 72h

- Periods of fever more frequent and higher: in the first 24 hours;
- Typical fever: 3 days, ranging from 1 to 5 days;
- Productive cough can occur in up to 40% of cases;
- Myalgia is common (> 50%), usually on the back and legs;
- Cough, asthenia and weakness may persist for 2 to 6 weeks.

UNCOMPLICATED GRIPAL SYNDROME

Home treatment:

- Home care
- Medications to relieve symptoms:
 - Analgesic,
 - Antipyretic,
- If it is possible to stay away from activities for up to 24 hours,
- Guide on precautionary measures;
- Advise on warning signs;
- Advise on signs of severity;
- Not to be carried out: notification and collection of specific exam, antiviral prescription

OLSETAMIVIR -
Recommended dose 75mg
twice daily for five days,
for adults

RESPIRATORY SYMPTOMS \leq 2 WEEKS

FLU, COLD

RESPIRATORY SYMPTOMS < 2 WEEKS

If patient with respiratory symptoms and does not have a disease, the known chronic respiratory.

COUGH AND / OR RESPIRATORY DIFFICULTY

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- And one of the following symptoms:
 - Expectoration, dyspnoea, chest pain
- At least one systematic finding: confusion, headache, sweating, chills, myalgia, temperature > 37.8C
- Focal findings on physical examination of the chest

PNEUMONIA

Assess CRB65 severity signs:

C- Mental confusion

R- Respiratory rate > 30 cycles / minutes

B- Systolic blood pressure < 90mmHg or diastolic < 60mmHg

65- Age > 65 years

DEFINITION: Community-acquired pneumonia refers to a disease acquired outside the hospital environment or from special health care units or even within 48 hours of admission to the care unit.

If one or more: - Stabilize the patient
- Assess hospitalization

If none

AMBULATORY TREATMENT

Request chest X-ray

Previously healthy

Associated diseases or
Antibiotic in the last 3 months

Beta lactamics: amoxicillin 500mg 8 / 8hs for 7 days

Macrolides:

Azithromycin 500mg once daily for 3 days

Erythromycin 500mg 6 / 6hours for 7 days

* with the use of isolated beta lactomics consider the possibility of one failure every 14 treated.

Beta lactam + macrolide

or

Quinolone: levofloxacin 500mg
once daily (7 to 10 days,
depending on severity and
clinical response)

Steps for dolacal evaluation of the treatment of a patient with CAP

- 1 - Assess the presence of disease and associated diseases
- 2 - Avaliar CRB-65
- 3 - Assess the degree of oxygen; to and or to radiological impairment
 - OS < 90% - indication of hospital admission
 - Chest X-ray
 - Radiological extension
 - Pleural effusion suspected of empyema
- 4 - Assess social and cognitive factors
 - Absence of family member or caregiver at home
 - Need to observe response to treatment
 - Ability to understand the prescription;
- 5 - Assess the economic factors
 - Access to medicines
 - Return for evaluation
- 6 - Assess the acceptability of oral medication
- 7 - Clinical judgment

* The duration of treatment should be determined by the severity of the indication or the clinical response. On average 7 to 10 days.

RESPIRATORY SYMPTOMS ≥ 2 WEEKS

PNEUMONIA

RESPIRATORY SYMPTOMS \geq 2 WEEKS

Patient with respiratory symptoms, without signs or symptoms of severity

COUGH AND / OR RESPIRATORY DIFFICULTY

SUSPECTED TUBERCULOSIS

- Request two sputum samples for research. Have one sample taken on the same day and the other by the next morning
- Request chest X-ray (in two incidences)

Sputum +:
Start treatment and notify
Evaluate supervised treatment

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Sputum - and suspicious chest X-ray:

- Patient without spontaneous expectoration
- Unsatisfactory sample

Sputum - chest X-ray without alterations suggestive of tuberculosis:

- Repeat sputum and culture
- Send for reference

Request Anti HIV

Follow up:

- Monthly sputum,
- Periodic chest X-ray if possible,

Symptomatic contacts:

- Chest X-ray, sputum, tuberculin skin test

Request new sputum.

Request culture if:

- Cases of portraiture
- HIV patients
- Vulnerable populations (detainees, health professionals)
- Suspected resistance
- Difficulty obtaining a sample
- Suspected extrapulmonary tuberculosis

Main changes in chest x-ray:

Parenchymal changes:
Ten nodular opacities sharpened from uncertain limits, located mainly at the apexes.

Local lymphatic dissemination is characterized by lines and bands permeating parenchymal opacities

The Classical pattern of post primary tuberculosis and the cavity, single or multiple. On average about 2 cm in diameter, preferably located in the apical and dorsal segments.

Forward for reference if in doubt

TREATMENT OF TUBERCULOSIS

Basic Regimen - Brazil - (2RHZE/4RH)

Indicated for all new cases of all forms of pulmonary and extrapulmonary tuberculosis (except meningoencephalitis), all cases of recurrence and return after abandonment.

2RHZE

Intensive phase: 2 initial months

Adults over 50 kg:

4 tablets containing each: Rifampicin R = 150 mg;
Isoniazid H = 75mg;
Pyrazinamide Z = 400mg;
Ethambutol E = 275 mg

Maintenance phase: Final 4 months

4 tablets containing each: Rifampicin R = 150 mg;
Isoniazid H = 75mg;

Tuberculosis follow-up

Request sputum survey monthly.

Periodic chest X-ray.

If at the end of the 2 months of treatment:
Patients present positive sputum bacillus test
Order sputum culture and sensitivity test

Most common adverse reactions

Symptom	Drug	Action
hepatotoxicity / abdominal pain	Pyrazinamide, Isoniazid, Rifampicin	Request liver function, temporarily stop treatment. Forward for reference
Rashes or moderate to severe hypersensitivity	rifampicin, isoniazid, pyrazinamide, ethambutol, streptomycin	Temporarily suspend. Restart drug by drug. Forward the reference
Blurred vision, decreased vision of eye pain (optic neuritis)	Ethambutol	Substitute medication. Forward for reference
Tinnitus, Hypoacusis	Streptomycin	Suspend and forward
Gastric irritation, nausea, vomiting	Rifampicin, isoniazid, pyrazinamide, ethambutol,	Change medication schedules
Peripheral neuropathy	Ethambutol	Medicating with pyridoxine (vit b6)
Orange sweat and urine	Rifampicin	Orient

Tuberculosis treatment scheme in Brazil

Regimen	Drugs	Weight	Dose	Months
2RHZE Intensive phase	RHZE	Até 20 kg	R: 10 mg/kg/ dia H: 10 mg/kg/ dia Z: 35 mg/kg/ dia E: 25 mg/kg/ dia	2
		20-35 kg	2 tablets	
		36-50 kg	3 tablets	
		> 50 kg	4 tablets	
4 RH Maintenance phase	RH	Até 20 kg	R: 10 mg/kg/ dia H: 10 mg/kg/ dia	4
		20-35 kg	2 tablets	
		36-50 kg	3 tablets	
		> 50 kg	4 tablets	

The number preceding the acronym indicates the number of months of treatment; dose per tablet: R = 150 mg; H = 75 mg; Z = 400 mg; E = 275 mg.
*In the first months of implementing the new scheme, the maintenance phase will continue in the form of capsules.

RESPIRATORY SYMPTOMS \geq 2 WEEKS

Patient with respiratory symptoms, no signs or symptoms of severity

ASTHMA: DIAGNOSIS AND TREATMENT

DIAGNOSIS

One or more of the symptoms below:

- Wheezing,
- Dyspnea
- Tightness in the chest or chest discomfort
- Spontaneous improvement or after the use of bronchodilators,
- Three or more episodes of wheezing in the last year,
- Seasonal variability of symptoms,
- Positive family history for asthma or atopy
- Alternative diagnostics excluded

History data and tests that favor asthma, in the differential diagnosis with COPD.

- Childhood or adolescence onset
- Family history
- Non-smoker
- Marked variation in the degree of symptoms and signs
- Complete reversibility of airflow limitation
- Good response to inhaled corticosteroids

After clinical diagnosis start treatment
Request: Chest X-ray and Spirometry

GRAVITY CLASSIFICATION

The primary objective of asthma management is to obtain control of the disease. The main function of the severity classification is to determine the dose of medication sufficient for the patient to achieve control in the shortest possible time. Patients can migrate from one classification to another (seasonality, periods of exacerbation, etc.). Therefore, control should be periodic.

Classification of asthma severity

	INTERMITTENT*	Light	PERSISTENTE moderate	Serious
Symptoms	Rare	Weekly	Daily	Daily or continuous
Night awakenings	Rare	Monthly	Weekly	Almost daily
Need for beta 2 agonist relief	Rare	Eventual	Daily	Daily
Limitations for activities	None	Present in exacerbations	Present in exacerbations	To be continued
Exacerbations	Rare	Affects activities and sleep	Affects activities and sleep	Frequent
FEV1 or PEF	\geq 80% predicted	\geq 80% predicted	60-80% predicted	\leq 60% predicted
Variation of FEV1 or PEF	< 20%	< 20-30%	> 30%	> 30%

* Patients with intermittent asthma, but with severe exacerbations, should be classified as having moderate asthma.

Initial maintenance treatment based on gravity

Gravity	Relief	First choice	Alternative	Use of oral corticosteroids
Intermittent	Short acting beta-agonist	No need for maintenance medication		
Light persistent	Short acting beta-agonist	Low dose IC	Antileukotriene	Oral corticoid in severe exacerbations
Persistent Moderate	Short acting beta-agonist	IC moderate to high dose or with LABA	Low to moderate dose IC associated antileukotriene or Theophylline	Oral corticoid in severe exacerbations
Serious persistent	Short acting beta-agonist	High dose IC associated with LABA	High to moderate dose IC associated antileukotriene or Theophylline	Courses of oral corticosteroids at medical criteria, in the lowest dose to achieve control

CI — LABA-Beta 2 inhaled corticosteroid Long-acting agonist
Adapted from the GINA 2006 review

Conduct in a basic unit the mild and moderate cases that have reached control.

Forward moderate / severe cases and those that do not obtain control to the reference units

RESPIRATORY SYMPTOMS \geq 2 WEEKS

Patient with respiratory symptoms, no signs or symptoms of severity

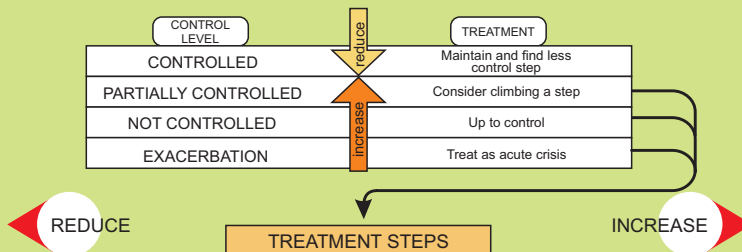
ASTHMA: DIAGNOSIS AND TREATMENT

ASTHMA CONTROL

Initial asthma treatment can be started according to severity criteria. However, maintenance must be fundamentally based on the state of disease control, as shown in the table.

Asthma control levels			
Parameter	Controlled	Partially controlled (at least 1 in any week)	Not controlled
Daytime symptoms	none or minimal	2 or more per week	3 or more parameters present in any week
Night awakenings	None	At least 1	
Need for rescue drugs	None	2 or more per week	
Activity limitation	None	Present at any time	
PEF or FEV ₁	normal or close to normal	< 80% predicted the best individual, if known	
Exacerbation	None	1 or more per year	1 any week

The ideal treatment is what keeps the patient controlled and stable with the lowest dose of medication;



Educational activities + environmental control				
Short acting beta-agonist if necessary	Short acting beta-agonist if necessary	Short acting beta-agonist if necessary	Short acting beta-agonist if necessary	Short acting beta-agonist if necessary
	<i>SELECT ONE</i>	<i>SELECT ONE</i>	<i>+ ONE OR MORE</i>	<i>ADD</i>
	Low dose IC	Medium / high dose of IC	Medium / high dose of IC + long acting beta-agonist	Oral Corticoid
	antileocotrienos		theophylline slow release	
		Low dose IC + theophylline	antileukotrine	
STEP 1	STEP 2	STEP 3	STEP 4	STEP 5
Intermittent asthma	Mild persistent asthma	Additional therapy	Persistent poor control	Frequent use of oral corticosteroids

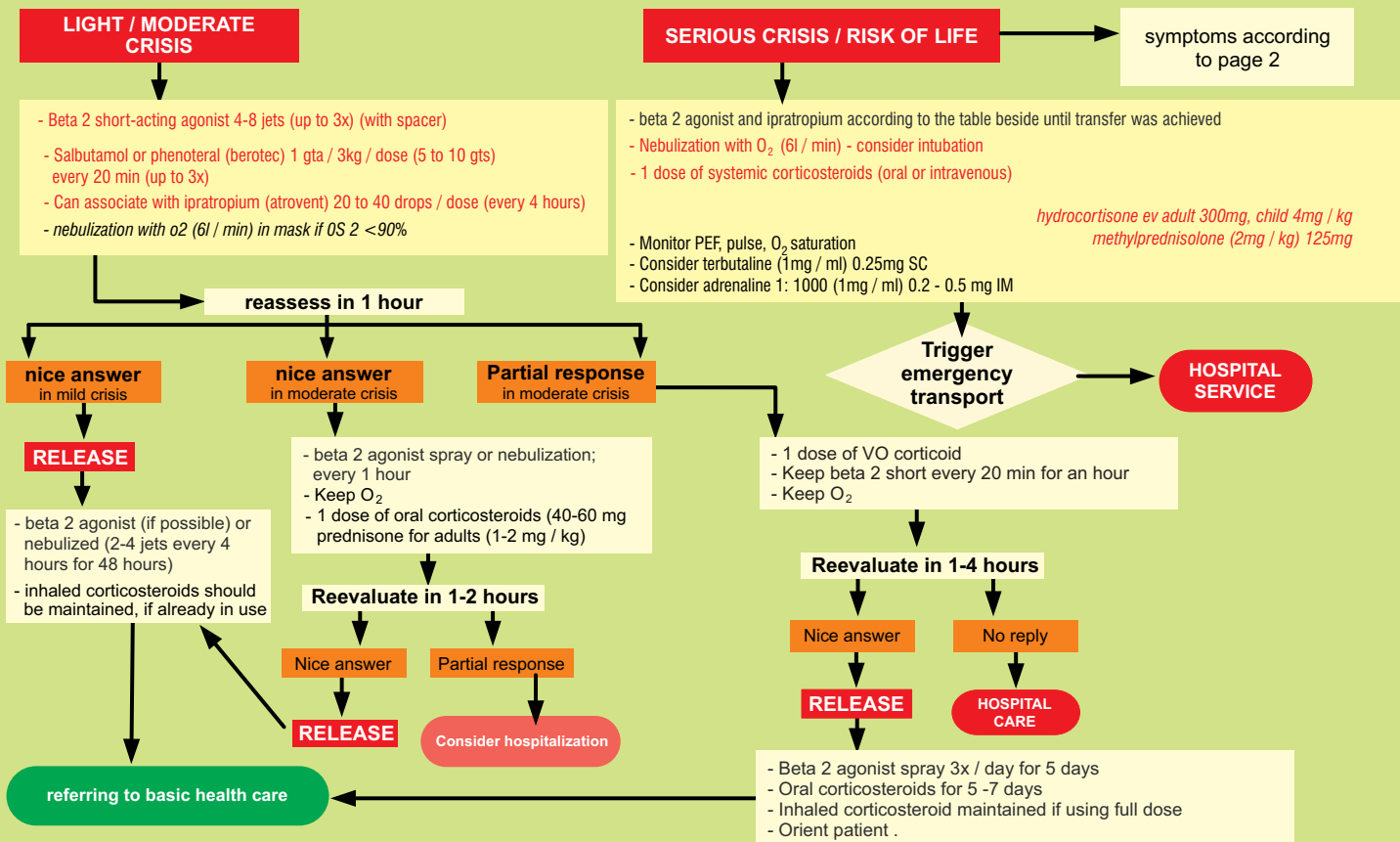
Adapted from the GINA 2006 review

Adapted from the revision of Global Initiative for asthma 2008 and British guideline on the management of asthma 2008.

Taken from the Primary Care Notebooks - Chronic Respiratory Diseases, 2010, Ministry of Health, Brazil

TREATMENT OF THE ASTHMA CRISIS IN A HEALTHCARE UNIT OR HOME

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RESPIRATORY SYMPTOMS \geq 2 WEEKS

Patient with respiratory symptoms, no signs or symptoms of severity

COPD: DIAGNOSIS AND TREATMENT

Chronic respiratory symptoms

- Cough
- Secretion
- Dyspnea
- Wheezing

Exposure to risk factors

- Smoking
- Occupational dust
- Smoke from firewood

Request pre and post bronchodilator spirometry: FEV1 / FVC BD post $<$ 70%

Other exams

- Chest X-ray: Exclude other pathologies (lung cancer, etc.)

Probable diagnosis of COPD

Start treatment according to the stage.

KEEP SMOKING ORIENTING STOP SMOKING

Lead mild cases to the Basic Unit
Refer moderate and severe cases or those without good control to the referral

COPD staging based on spirometry

Stage	- FEV1 / FVC spirometry pos BD - FEV1
Stage 1 - Mild	$<$ 70% Normal
Stage 2 - Moderate	$<$ 70% $>$ 50% $<$ 80%
Stage 3 - Serious	$<$ 70% $>$ 30% $>$ 50%
Stage 4 - Very serious	$<$ 70% $<$ 30%

Treatment

Bronchodilators are the basis of symptomatic treatment of obstructive pulmonary diseases
The preferred route of administration is inhalation, by direct action in the airways and less incidence of side effects.

Therapy at each stage of COPD*

I: Mild	II: Moderate	III: Serious	IV: Very serious
<ul style="list-style-type: none"> • FEV1 / FVC $<$70% • FEV1 $>$ 80% of predicted 	<ul style="list-style-type: none"> • FEV1 / FVC $<$70% • $>$50% FEV1 $<$ 80% of predicted 	<ul style="list-style-type: none"> • FEV1 / FVC $<$70% • $>$30% FEV1 $>$ 50% of predicted 	<ul style="list-style-type: none"> • FEV1 / FVC $<$70% • FEV1 $<$30% of predicted
<p>Active reduction of risk factors: flu vaccine Add short-acting bronchodilator (when necessary)</p>			
<p>Add regular treatment with one or more long-acting bronchodilators (when necessary); Add rehabilitation.</p>		<p>Add inhaled corticosteroids if repeated exacerbations.</p>	
		<p>Add home oxygen therapy if respiratory failure. Consider surgical treatment.</p>	

* FEV1 bronchodilator is recommended for the diagnosis and assessment of the severity of COPD
Adapted from GOLD 2006

MANAGEMENT OF COPD EXACERBATION

Exacerbation of COPD may be associated with:

- Worsening dyspnoea
- Purulence of sputum
- increase in volume or change in sputum staining
- Increased cough

Initial treatment:

- Increase the frequency of BD (consider nebulization with O₂)
- Oral antibiotic if purulent sputum (and other signs of infection).
- Prednisone 30-40mg / day for 7-14 days (for all patients with significant shortness of breath and those admitted to hospital, unless contraindicated).

Where to manage?

HOSPITAL

Request:

- Chest X-ray
- Arterial blood gas analysis
- ECG
- Complete blood count, urea, electrolytes
- Theophylline level (if necessary)
- Microscopy and sputum culture

Additional management:

- - O₂ (maintain saturation > 90%)
- - Consider non-invasive ventilation
- - Consider intubation
- - Consider theophylline or parenteral corticoid if poor response to bronchodilators
- - Consider homecare

Before discharge:

- Optimize treatment
- Multidisciplinary team

Where to manage the patient?		
FACTOR	HOUSE	HOSPITAL*
Able to cooperate at home	YEA	NO
Shortness of breathe	MODERATE	SEVERE
General state	GOOD CONDITION	BAD GENERAL STATE
Activity level	GOOD	POOR / LADY
Cyanosis	NO	YEA
Pioara in peripheral edema	NO	YEA
Level of awareness	NORMAL	DECREASED
Already in oxygen therapy	NO	YEA
Acute mental confusion	NO	YEA
Quick installation	NO	YEA
Severe comfort (cardiac or insulin dependent DM)	NO	YEA
Saturation O ₂ <90%	NO	YEA
Changed chest X-ray	NO	YEA
Arterial PH	> 7.35	< 7,35
Arterial PO ₂	> 60mmHg	< 60mmHg

* Consider hospitalization if one or more positive responses.

HOUSEHOLD

Request:

- Sputum culture if necessary,
- Pulse oximetry if severe exacerbation

- Optimize treatment
- Multidisciplinary team

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