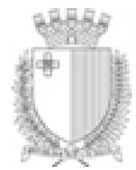


OFFICE of the DEPUTY PRIME MINISTER
MINISTRY for HEALTH
15, PALAZZO CASTELLANIA, MERCHANTS STREET, VALLETTA, MALTA

DH Circular 63/2018
DH 1001/2018

6th August 2018

Attention All: Consultants
Medical Officers
Pharmacists
Pharmacy Technicians
Nurses

Re: Use of Budesonide Nebuliser Solution

Please be reminded that budesonide nebuliser solution should NOT be administered to patients with an acute asthma or COPD attack, whether in hospitals, primary care or other facility.

Budesonide nebuliser solution gives no additional benefit during acute asthma or COPD attacks. When steroid use is required in severe acute attacks or life-threatening attacks, IV hydrocortisone should be prescribed. Please refer to the Acute Asthma Management Guideline prepared by the Mater Dei Hospital Respiratory Department annexed to this circular and which is to be followed by all healthcare professionals (Annex 1).

Budesonide nebuliser solution should be used according to protocol 28 (Annex 2) i.e. as prophylactic medication for patients who are unable to use other inhalation devices (pressurised inhalers or dry powder formulations), in infants and children with croup (inpatient use only) and in severe intractable cough (inpatient use only).

The consumption of budesonide nebuliser solution is being monitored closely.

For your attention please.

Dr. Denis Vella Baldacchino
Chief Medical Officer

Office of the Chief Medical Officer (Health)
t +356 22992232 **e** denis.vella-baldacchino@gov.mt

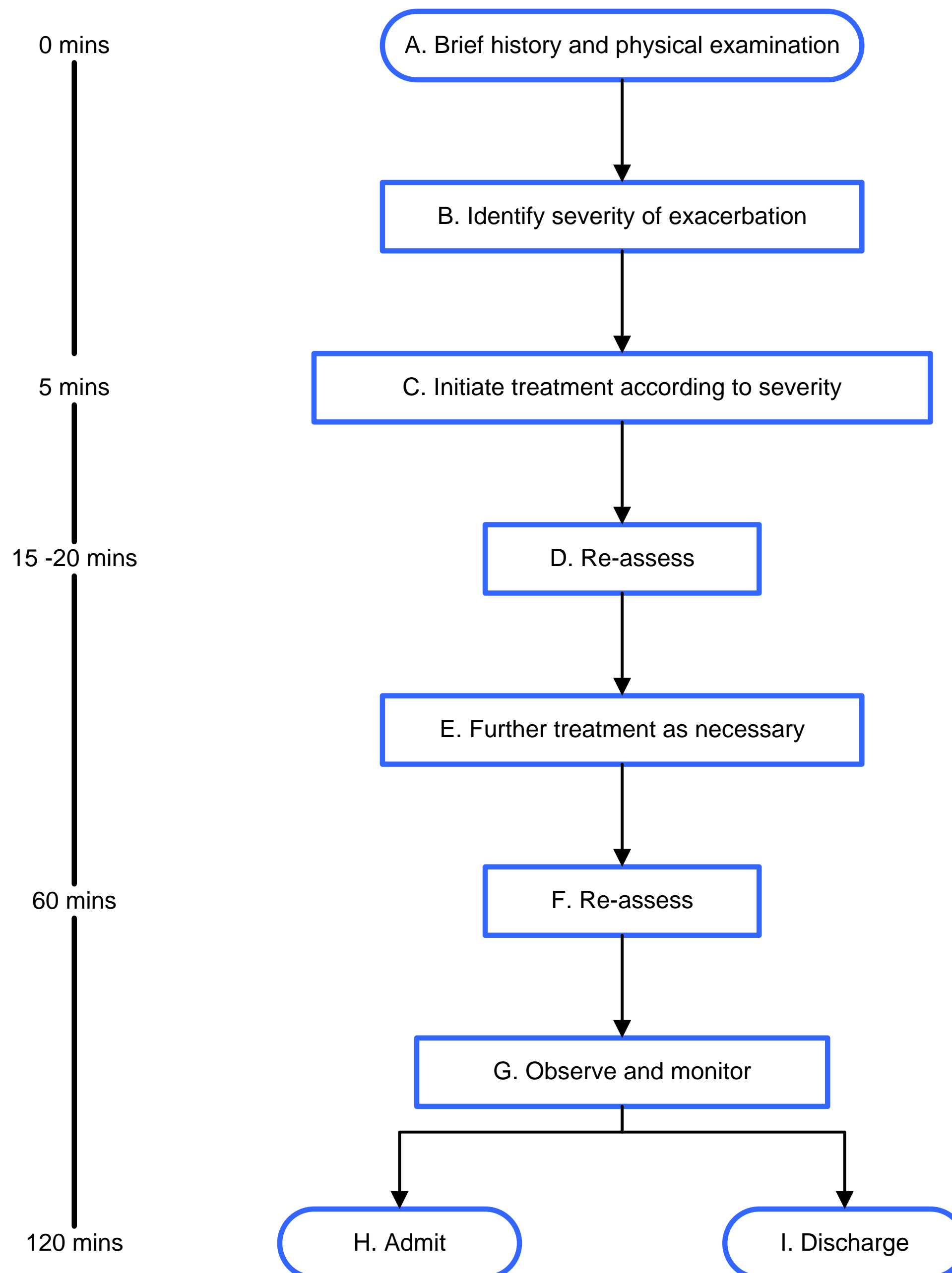
Annex 1

Acute Asthma Management Guideline

Advisory, not mandatory

DEPARTMENT OF MEDICINE

Acute asthma shall be managed according to the following algorithm which is explained in detail within this guideline.



This is a clinical practice guideline and does not in any way replace or supercede the clinical discretion necessary in its implemenation

A. INITIAL ASSESSMENT

Brief History
SOB, cough, wheeze, chest tightness
Time of onset
Potential cause for exacerbation
Severity
Exercise limitation
Sleep disturbance
Drug history/doses/compliance
Response to therapy
Hospitalisations/A&E visits in past year
Comorbidities

Physical Examination
Heart rate (HR)
Respiratory rate (RR)
Blood pressure
Pulse oximetry (SpO_2)
Peak expiratory flow rate (PEFR)
Cyanosis
Use of accessory muscles
Ability to speak
Auscultation
GCS

B. IDENTIFY SEVERITY OF EXACERBATION

		Mild-Moderate	Acute severe	Life threatening
Symptoms	SOB	walking - at rest can lie - prefers sitting	at rest prefers sitting	poor respiratory effort sits upright
	Talks in	sentences - phrases	words	unable to speak
	Alertness	may be agitated	usually agitated	drowsy or confused
Signs	HR	< 110 bpm	> 110 bpm	bradycardia
	Accessory muscle use	usually not - commonly	usually	paradoxical thoraco-abdominal movement
	Wheeze	moderate-loud	usually loud	silent chest
	Other		RR ≥ 25/min	cyanosis arrythmia, hypotension
Functional Assessment	SpO_2 (on Air)	≥ 92%	≥ 92%	< 92%
	PEFR	>50-75% best/predicted	33-50% best/predicted	<33% best/predicted

CXR if suspecting: pneumothorax/consolidation/pneumomediastinum
ECG if: > 50 years old or Co-existent heart disease or Co-existent COPD
ABG if: Severe asthma

PEFR must be expressed as % predicted - refer to appendix 1 on page 5

C. INITIATE TREATMENT ACCORDING TO SEVERITY

0 mins

Mild-Moderate

Acute severe

Life threatening

5 mins

Give salbutamol 5mg* nebulised + oxygen (aim SpO_2 94-98%)

Give salbutamol 5mg nebulised + oxygen + 100mg iv hydrocortisone (aim SpO_2 94-98%)

15 -20 mins

D. RE-ASSESS : physical examination, PEFR, SpO_2

Clinically Stable **+ PEFR > 75%**

Clinically Stable **+ PEFR < 75%**

No life-threatening features **+ PEFR 50-75%**

Life-threatening features or **PEFR < 50%**

Obtain senior/ICU help
Oxygen (SpO_2 94-98%)
Salbutamol 5mg neb.
Ipratropium 0.5mg neb.*
Hydrocortisone 100mg iv

E. FURTHER TREATMENT AS NECESSARY

Repeat salbutamol 5mg neb.
Give 100mg iv hydrocortisone (if not given yet)

Measure ABG

$PaCO_2$ N/↑
PaO_2 <60mmHg
pH ↓

No

60 mins

F. RE-ASSESS : physical examination, PEFR, SpO_2

Patient recovering and PEFR >75%

No signs of severe asthma and PEFR 50-75%

Severe asthma or PEFR <50%

Yes

- Repeat salbutamol 5mg + 0.5mg ipratropium neb.
- Consider iv salbutamol 5-20mcg/ml*
- Consider iv magnesium sulphate 2g over 20mins*
- Take renal profile
- CXR
- Repeat ABG

G. OBSERVE AND MONITOR

SpO_2
Heart Rate
Respiratory Rate

120 mins

Patient stable and PEFR > 50%

Signs of severe asthma or PEFR < 50%

I. DISCHARGE

H. ADMIT CARE OF RESPIRATORY SPECIALIST

for reconstitution of highlighted drugs, please refer to Annex

© **Asthma Management GDG**

Lower threshold for admission if:

Persistent symptoms	Previous severe/near fatal attacks or brittle asthma
Afternoon or evening attack	Exacerbation despite adequate corticosteroid dose
Recent nocturnal symptoms	Psychological problems
Recent hospital admission	Physical disability or learning difficulties
Concerns about compliance	Social problems/Unreliable patient

ADMISSION PLAN

Admit to observation unit those patients who are predicted to be discharged within 24 hours

Medical Ward

Management plan

- CXR
- Oxygen to maintain SpO_2 94-98%
- Prednisolone 40-50mg po daily
  OR iv HC 100mg 8 hourly
- Nebulised salbutamol 4-6 hourly
  and ipratropium bromide 4-6 hourly
- Monitor PEFR, SpO_2
- Consider antibiotics if consolidation suspected

Intensive Care Unit

Clinical indications for ITU

- Deteriorating PEFR
- Exhaustion or altered consciousness
- Silent chest
- Poor respiratory effort or respiratory arrest
- Worsening or persistent hypoxia pO_2 <60mmHg
- Worsening/persisting hypercapnoea: pCO_2 >55mmHg
- Severe respiratory acidosis pH <7.2
- Consider NIPPV/mechanical ventilation

A&E DISCHARGE PLAN

Medication

1. Start or increase dose of inhaled corticosteroid
2. Continue inhaled salbutamol every 1-2hours as needed (seek medical advice if necessary)
3. Consider prednisolone 40mg daily for at least 5 days or until early medical review

Education

4. Inhaler technique
5. Education and compliance
6. Monitor asthma control
7. Written action plan
8. Smoking cessation
9. Avoid possible triggers

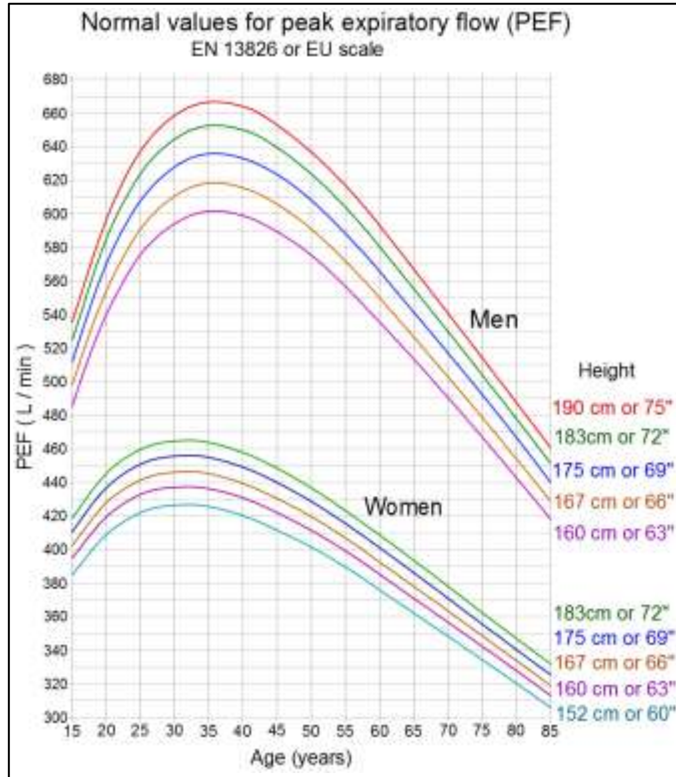
Follow-up

10. GP review within 48hours
11. Refer to asthma clinic

ADDITIONAL TREATMENT NOTES

	Indications
Antibiotics	Symptoms or signs of infection. Should not be routinely prescribed
S.c. or i.m. adrenaline	Acute treatment of anaphylaxis and angioedema
I.v. salbutamol	Refractory life-threatening asthma
NIPPV	Selected patients with acute asthma and respiratory failure only in ICU

Appendix 1. Calculating % predicted PEFR



OR

http://www.mdcalc.com/estimatedexpected-peak-expiratory-flow-peak-flow/

OR

PEFR (L/min) = [Height (cm) - 80] x 5 (approximation)

Appendix 2. PEFR Monitoring Chart

Date	Time	PEFR reading (actual)	% predicted PEFR

Budesonide Nebuliser Solution

Part A

Prescriber Criteria: Consultant Oncologist
Consultant Paediatrician
Consultant Respiratory Physician
Specialist Respiratory Medicine Consultant

Out-patient and In-patient use:

1. Chronic Asthma
2. Chronic Respiratory Failure
3. Cystic Fibrosis

For patients where use of a pressurised inhaler or dry powder formulation is unsatisfactory or inappropriate.

In-patient use:
Infants and children with croup.

Duration of Approval:
Up to 3 years or as directed by consultant

Part B

Prescriber Criteria: Consultant Respiratory Physician
Specialist Respiratory Medicine Consultant

In-patient use:
Severe intractable cough in inpatients only.