University Hospitals of Derby and Burton NHS Foundation Trust

Paediatric - Salbutamol

Reference No: MONO-PAEDS/501/23

Indication: Acute astima, status astimaticus Dose: V bolus (as a single dose) Acute astima, status astimaticus Dose: Y bolus (as a single dose) Age Dose 1 month - 2 years 5 micrograms / kg over 5 mins 2 - 13 years 15 micrograms / kg/minute, adjusted according to response and heart rate. • Doses above 2 micrograms/kg/minute, adjusted according to response and heart rate. • Doses above 2 micrograms/kg/minute should be given in an intensive care setting. Please note that local tertiary PICUs now rarely use doses above 0.5-1 microgram/kg/minute astignificant tachargeria ad tactate. • Discuss with consultant on call/CoNET if using more than 2 micrograms/kg/minute (Max 5 micrograms/kg/min) In children who are obses, to prevent adverse effects consider using: • I deal Body Weight (IW) to calculate their Infusion. To calculate BW - Obtain accurate recent weight in kilograms (total body weight (TBW)) and height (cm) 1. Calculate BMI and BMI centile (NHS Choices BMI healthy weight calculator can be used hittps://www.nhs.uk/live.weight/pmic.alculator/2/ ? If BMI estPicetile as ad cause acutal weight (TBW), however: To avoid excessive dosage in obses patients (BMI > BMI centile (DMI calculater) ? 16 BMI centile (BW) BW = BMI _{exx} (height in m) ² where BMI _a represents the 50 ^m centile of a BMI centir (BW). BWI = BMI _{exx} (height in	Presentation:	Injection - 500 micrograms/ml (1ml ampoules)						
Dose: IV bolus (as a single dose) Age Dose 1 month - 2 years 5 micrograms / kg over 5 mins 2 - 18 years 15 micrograms / kg (max 250 micrograms) over 5 mins V infusion 1 month - 16 years: 1-2 micrograms/kg/minute, adjusted according to response and heart rate. • Doses above 2 micrograms/kg/minute should be given in an intensive care setting. Please note that local tertiary PICUs now rarely use doses above 0.5-1 microgram/kg/minute shigher doses are unlikely to improve effacy and cause significant atchycardia and raised lactate. • Discuss with consultant on call/CoMET if using more than 2 micrograms/kg/minute (Max 5 micrograms/kg/min) In children who are obese, to prevent adverse effects consider using: • • I deal Body Weight (BW) to calculate their infusion. To calculate BW - Obtain accurate recent weight in kilograms (total body weight (TBW)) and height (cm) 1. 1. Calculate BMI and BMI centile (MHS Choices BMI healthy weight calculator can be used https://www.nb.uk/live.well/healthy.weight/omic_alculator/) 2. // If BMI + 698 ⁺ centile (MHS 2 houveer: To avoid excessive dosage in obese patients (BMI 2 98 ⁺ centile) use reverse BMI method to work out ideal body weight (BW). I BW = BMIa x (height in m) [*] where BMIs; represents the 50 th centile of a BMI chart, height, age and gender. Adults: Inititally 5 micrograms/minute, adjusted according to re	Indication:	Acute asthma, status asthmaticus						
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To prepare an infusion of 200micrograms/ml:	administration	For IV infusion: Use 1	mg/ml solution for infusion and dilute to 200micrograms/ml (see below):					
		To prepare an infusion of 200micrograms/ml:						
 Withdraw 50ml from a 250ml bag of sodium chloride 0.9% - discard 		Withdraw 50ml fr	rom a 250ml bag of sodium chloride 0.9% - discard					
 Measure 50mg of 1mg/ml salbutamol injection (= 50ml) 		Measure 50mg of	f 1mg/ml salbutamol injection (= 50ml)					
 Add the 50mg salbutamol to the sodium chloride 0.9% to give 50mg in 250ml 200 mino groups (ml) 		Add the 50mg sal	butamol to the sodium chloride 0.9% to give 50mg in 250ml					
 (= 200micrograms/mi) Shake well to ensure thorough mixing 		(= 200micrograms/ml) Shake well to ensure thorough mixing						

Suitable for printing to guide individual patient management but not for storage Review Due: Dec 2026

	This will provide: 1 microgram / kg / minute if infused at a rate of 0.3 x weight (kg) ml/hour Alternatively, the infusion rate can be calculated as follows:								
	Rate of in (ml/h	nfusion = our)	(mic	dose rograms/kg,	x /min)	weight (Kg)	х (0.3	
	Discard all diluted salbutamol solutions after 24 hours May be given undiluted through a Central venous access device if fluid restricted. Flush with sodium chloride 0.9%								
Prescribing	Prescribe	on Lorenzo, N	/leditech o	r paper char	t as per Trus	t Medicines	Code		
	For exam	ple, for a 12 l	kg child:						
	Drug		Drug amo un	Drug amount			Total	volume (ml)	Route
	Salbutamol		50mg		sodium chloride 0.9%		250ml		IV
	Start date	Drug concentra	ation per ml	Infusion range	М	lin		Max	Name, Sig, Bleep
	18/12/19	200 microg	gram/ml	Dose/kg/time	1 microgra	ım/kg/min	2 mi	icrogram/kg/min	A.Doctor
	Pharm	mg/microgra	ams / units	ml/hr	3.6			7.2	#1234
Known compatibility issues	Incompatible with aminophylline See Medusa for additional information on compatibility								
Additional Comments:	Potentially serious hypokalaemia may result. Particular caution is required in severe asthma, because this effect may be potentiated by concomitant treatment with theophylline and its derivatives, corticosteroids, diuretics, and by hypoxia.								
	Cardiovascular parameters should be monitored, including heart rate and rhythm, blood pressure particularly in older/heavier children. Urea and electrolytes should be reviewed regularly, especially plasma potassium, glucose, and lactate levels. Caution in patients with diabetes as there is a risk of hyperglycaemia and ketoacidosis Nebulised salbutamol should normally be continued alongside an IV infusion. This helps to limit the infusion rate required (and the side effects which are common with IV infusion). It also aids weaning of the infusion as the patient's condition improves.								
						t the infusion the infusion as			
Noto	The contor	atc of thic mo	nograph d	hould be rea	d in conjunct	tion with inf	ormat	ion available in the	、

Note: The contents of this monograph should be read in conjunction with information available in the BNFC and Medusa

References:

British National Formulary for Children accessed via <u>https://www.medicinescomplete.com/#/content/bnfc/ 867541028?hspl=salbutamol#content%2Fbnfc%2F 8675</u> <u>41028%23pot-indications</u> Dose (accessed 07/12/23)

Medusa Paediatric Intravenous Guideline accessed via https://medusa.wales.nhs.uk/IVGuideDisplay.asp on 07/12/23

SPC Ventolin injection accessed via https://www.medicines.org.uk/emc/product/2192/smpc on 18.12.19

Nottingham Hospitals – PICU monograph for Salbutamol 07/12/23

Document control sheet

GUIDELINE NUMBER	
AREA IN WHICH THIS MONOGRAPH APPLIES	Paeds/NICU

DIVISIONAL AUTHORISATION			
GROUP	DATE		
Paediatric monograph review group	12/12/2023		

AUTHORS			
Author	Position	Date	
Written by:	Version 1 (anonymous)	December 2016	

If review:

	Position	Date
Updated and transferred to new template by:	Maya Daas (Specialist Clinical Pharmacist, Rotational)	15/11/19
Checked by: Sharon Conroy	Advanced Pharmacist, Paediatrics	22/01/20
Reviewed by:	Ellie Cheale, Womens and Childrens pharmacist	December 2023
Checked by:	Lamia Ahmed Advanced Prescribing Pharmacist- Women's and Children's	December 2023

Change history:				
Changes Reference	Change details	Date		
1	Transferred to new template	15/11/19		
2	Discuss with consultant if using >2 micrograms/kg/minute	08/07/20		
3	Advice around transfer of young persons to adult ITU, Removal of definite 50kg weight to define obese child, note around tertiary centres using lower doses that maximum dose	08/07/20		
4	Added IBW calculator link	28/10/20		
5	Added caution for diabetic patients. Removed instruction to make up with water for injection as this isn't included in Medusa. Added Meditech and paper chart into prescribing information and flush information into preparation instructions. In compatibility issues, added incompatible with aminophylline as per Medusa and removed reference to Y site compatibility guideline. Amended example prescription chart to have a maximum of 2mcg/kg/min in line with dose recommendations	December 2023		