The Royal College of Emergency Medicine

Clinical Audits

EXCELLENCE IN EMERGENCY MEDICINE

Moderate & Acute Severe Asthma - adult and paediatric Clinical Audit Information (2016/2017)

Background
This audit brings together RCEM's previously audited adult and paediatric asthma audit topics. The standards have been reviewed against the most recent standards and guidance.

Aims and objectives
The purpose of the audit is:

1. To benchmark current performance in Emergency Departments (ED) against the standards
2. To allow comparison nationally and between peers
3. To identify areas in need of improvement

Inclusion criteria

- Adults (16 years and over) presenting to the ED with moderate or acute severe asthma
- Children (2-15 years) presenting to the ED with moderate or acute severe asthma

Exclusion criteria

- Adults (16 years and over) presenting to the ED with mild, life-threatening or near-fatal asthma
- Children (2-15 years) presenting to the ED with mild, life-threatening asthma or features of a pre-terminal event
- Paediatric patients aged under 2 years old

Sample size
RCEM recommends auditing a different number of cases depending on the number of patients *in each patient group* that you expect to see within the data collection period. If this is an area of concern in your ED, you are able to submit data for more cases for an in depth look at your ED's performance.

Basing the audit sample size on the number of cases in this way increases the reliability of your ED's audit results.

Audited cases should be consecutive during the data collection period (1 January 2016 to 31 December 2016).

Expected number of cases	Recommended audit sample
< 50	All eligible cases
50-250	50 consecutive cases
>250	100 consecutive cases

Data collection period
1 January 2016 to 31 December 2016.
Note: the audit may be started from any point within the data collection period but all data must be submitted by 31 January 2017.

Data submission period
Data is to be submitted online at the link below between 1 August 2016 to 31 January 2017: https://rcem.l2s2.com

Data Sources
ED patient records (paper, electronic or both).

Standards

STANDARD	%	GRADE
1.		
a) O_2 should be given on arrival to maintain sats 94-98%	**100**	**F**
b) O_2 should be prescribed on arrival to maintain sats 94-98%	**80**	**D**
2.		
a) As per RCEM standards, vital signs should be measured and recorded on arrival at the ED	**100**	**F**
b) Patients with any recorded abnormal vital signs should have a further complete set of vital signs recorded in the notes within 60 minutes of the first set	**80**	**D**
3. High dose nebulised β_2 agonist bronchodilator should be given within 10 minutes of arrival at the ED ***Note: A pMDI + spacer is the preferred option in children with moderate asthma***	**100**	**F**
4. Add nebulised Ipratropium Bromide if there is a poor response to nebulised β_2 agonist bronchodilator therapy	**100**	**F**
5. If not already given before arrival to the ED, steroids should be given as soon as possible as follows: Adults 16 years and over 40-50mg prednisolone PO or 100mg hydrocortisone IV Children 6-15 years 30-40mg prednisolone PO or 4mg/kg hydrocortisone IV Children 2-5 years 20mg prednisolone PO or 4mg/kg hydrocortisone IV ***Note: children receiving maintenance steroid tablets should receive 2mg/kg prednisolone up to a maximum dose of 60mg***		
a) within 60 minutes of arrival (acute severe)	**100**	**F**
b) within 4 hours (moderate)	**100**	**F**
6. Intravenous Magnesium 1.2 - 2g over 20 minutes to be given to adults with acute severe asthma who do not respond well to bronchodilators	**80**	**D**
7. Evidence of consideration given to psychosocial factors in adults prior to discharge	**50**	**A**
8. Evidence of assessment before discharge that:		
a) the patient's inhaler TECHNIQUE is satisfactory	**80**	**D**
b) the patient's inhaler TYPE is satisfactory	**80**	**D**
9. Discharged patients should have oral prednisolone prescribed as follows: Adults 16 years and over 40-50mg prednisolone for 5 days Children 6-15 years 30-40mg prednisolone for 3 days Children 2-5 years 20mg prednisolone for 3 days ***Note: children receiving maintenance steroid tablets should receive***	**100**	**F**

2mg/kg prednisolone up to a maximum dose of 60mg		
10. Written discharge advice given to the patient	**80**	**D**
11. GP or clinic follow-up arranged according to local policy for discharged patients within 2 working days	**80**	**D**

Grade:

F - Fundamental: need to be applied by all those who work and serve in the healthcare system. Behaviour at all levels and service provision need to be in accordance with at least these fundamental standards. No provider should provide any service that does not comply with these fundamental standards, in relation to which there should be zero tolerance of breaches.

D - Developmental: set requirements over and above the fundamental standards.

A - Aspirational: setting longer term goals.

Questions

Patient reference	

Casemix

Q1	Date of arrival	DD/MM/YYYY	
Q2	Time of arrival or triage, whichever is earlier	HH:MM	
Q3	Age of patient	2-5 years	
		6-15 years	
		16 years or over	

Initial ED observations

Q4	Was oxygen **given** on arrival to maintain saturation 94-98%	Yes	
		No	
		Not recorded	
Q5	Was oxygen **prescribed** on arrival to maintain saturation 94-98%	Yes	
		No	
		Not recorded	
Q6	Was high dose nebulised β2 agonist bronchodilator given within 10 minutes of arrival at the ED?	Yes	
		No	
		Not recorded	
Q7	If there was a poor response to nebulised β_2 agonist bronchodilator therapy, was nebulised Ipratropium Bromide added?	Yes	
		No	
		No – not needed	
		Not recorded	

Q8	Were the following vital signs measured and recorded?			
		Yes	Time (leave blank if unknown)	No
Q8a	Respiratory rate		HH:MM	
Q8b	Oxygen saturation		HH:MM	
Q8c	Heart rate		HH:MM	
Q8d	Systolic blood pressure		HH:MM	
Q8e	GCS or AVPU score		HH:MM	
Q8f	Temperature		HH:MM	
Q8g	Capillary refill time		HH:MM	
Q8h	Peak flow		HH:MM	

Q9	Were any of the recorded vital signs identified as abnormal?	Yes	
		No	
		Not recorded	
Q10	Were the patient's asthma symptoms considered to be:	Moderate	
		Acute severe	

Subsequent observations and treatment

Q11	If not already given before arriving at the ED, were steroids given as follows: <u>Adults 16 years and over</u> 40-50mg prednisolone PO or 100mg hydrocortisone IV <u>Children 6-*15years*</u> 30-40mg prednisolone PO or 4mg/kg hydrocortisone IV <u>Children 2-5 years</u> 20mg prednisolone PO or 4mg/kg hydrocortisone IV ***Note: children receiving maintenance steroid tablets should receive 2mg/kg prednisolone up to a maximum dose of 60mg***	Yes – fully		
		Yes – different dose		
		Not given – reason given		
		Not recorded		
		Enter time given or leave blank if not recorded		HH:MM
Q12	In adults, was Intravenous Magnesium 1.2 - 2g over 20 minutes given to patients with acute severe asthma who did not respond well to bronchodilators?	Yes – fully		
		Yes – different dose		
		No – reason given		
		No – paediatric patient		
		No		
		Not recorded		
Q13	Were the following vital signs measured and recorded on a repeat occasion?			
		Yes	Time (leave blank if unknown)	No
Q13a	Respiratory rate		HH:MM	
Q13b	Oxygen saturation		HH:MM	
Q13c	Heart rate		HH:MM	
Q13d	Systolic blood pressure		HH:MM	
Q13e	GCS or AVPU score		HH:MM	
Q13f	Temperature		HH:MM	
Q13g	Capillary refill time		HH:MM	
Q13h	Peak flow		HH:MM	

Discharge

Q14	Was the patient admitted or discharged?	Admitted	
		Discharged	
		Not recorded	
*Only answers Q15-Q20 if the patient was **discharged***			
Q15	In adults, is there evidence of consideration given to psychosocial factors prior to discharge?	Yes	
		No – reason given	
		No – paediatric patient	
		No	
		Not recorded	
Q16	Was the patient's inhaler **TECHNIQUE** assessed and found to be satisfactory?	Yes	
		Not assessed – reason given	
		Not recorded	
Q17	Was the patient's inhaler **TYPE** assessed and found to be satisfactory?	Yes	
		Not assessed – reason given	
		Not recorded	
Q18	Was oral prednisolone prescribed as below? *<u>Adults 16 years and over</u>* *40-50mg prednisolone for 5 days* *<u>Children over 6-15 years</u>* *30-40mg prednisolone for 3 days* *<u>Children 2-5 years</u>* *20mg prednisolone for 3 days* ***Note: children receiving maintenance steroid tablets should receive 2mg/kg prednisolone up to a maximum dose of 60mg***	Yes – fully	
		Yes – partially	
		Not prescribed – reason given	
		Not recorded	
Q19	Was written discharge advice given to the patient?	Yes	
		No – reason given	
		No	
		Not recorded	
Q20	Was GP or clinic follow-up arranged according to local policy?	Yes - within 2 working days	
		Yes - after 3 or more working days	
		No – reason given	
		No	
		Not recorded	

Notes

Question and answer definitions

- When entering times, use 24 hour clock, e.g. 7:23pm = 19:23, and leave blank if the time is not known

- GSC – Glasgow Coma Scale

- AVPU – alert, voice, pain, unresponsive scale

- For the purposes of this audit, abnormal vital signs are defined as:

Temperature (degrees Celsius)[2]

- <35 or >37.9 in children <3 months of age
- <35 or >38.9 in children 3-6 months of age
- <35 in children >6 months of age (**NB**: no upper limit)

Respiratory rate (breaths per minute)[1]

- <30 or >40 in children <1y of age
- <25 or >35 in children aged 1-2 years
- <25 or >30 in children aged 2-5 years
- <20 or >25 in children aged 5-12 years
- <15 or >20 in children aged >12 years

Heart rate (beats per minute)[1]

- >160 in children <12 months
- >150 in children aged 12-24 months
- >140 in children aged >2 - 5 years
- >120 in children aged >5 - 12 years
- >100 in children aged >12 years

Oxygen saturation (%) in air ≤95%[2]

GCS <15 or less than 'Alert' on the AVPU scale

Capillary refill time > 3 seconds[2]

References

[1] Samuels M and Wieteska S (2011), *Advanced Paediatric Life Support: The practical approach*. 5th ed. Manchester: Advanced Life Support Group

[2] NICE Clinical Guideline: Feverish illness in children (CG160) (May 2013)