

The BTS Paediatric Asthma Audit has now been running for 15 years. Each November, data is collected on every child with wheezing or asthma over 1 year of age admitted into participating hospitals for more than 4 hours. It benchmarks a unit's clinical performance in 5 domains (basic demographic information; initial hospital assessment; initial hospital treatment; discharge planning; and follow-up) against aggregated national data. Since November is generally a busy month for respiratory illness in children, the audits have provided a snapshot of the management of acutely wheezy children at a time when paediatric units are busy.

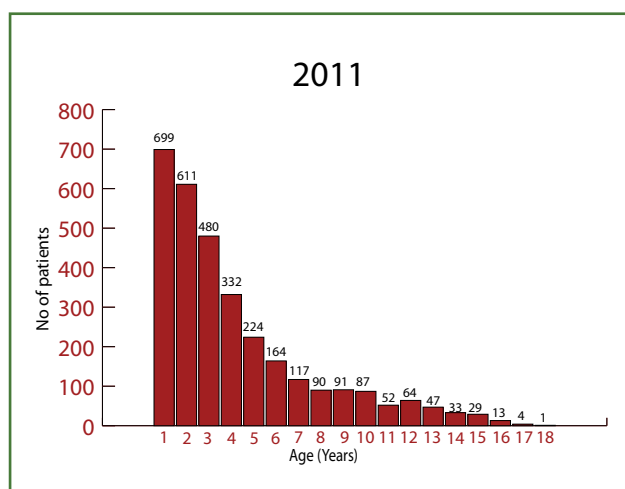
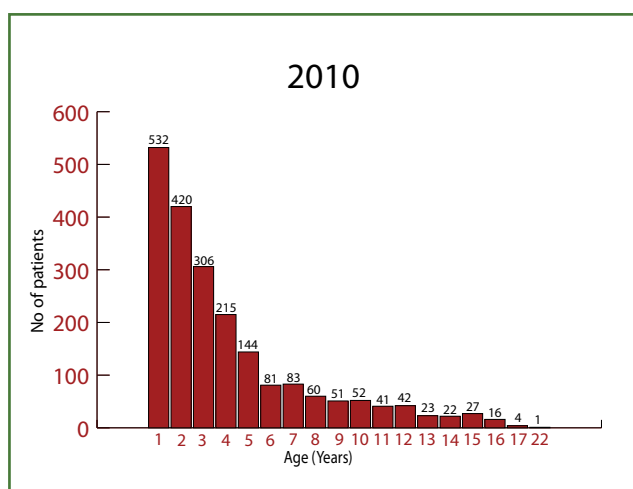
For the last three years, the paediatric asthma audit (along with the BTS audit of paediatric pneumonia) has been included on the list of National audits approved for inclusion in Department of Health Quality Accounts. This has led to sharp increases in the number of units participating. This year, 128 participating hospitals entered 3,148 cases, the highest number ever and a substantial increase on the previous year (97 Trusts, 2,174 cases). Although Quality Accounts only apply to England and Wales, data continues to come from all other parts of the UK and one unit overseas.

Year	Country	Contributing Hospitals	Gender		Total
			Female	Male	
2011	England	105	976	1714	2690
	Northern Ireland	8	28	70	98
	Scotland	10	122	196	318
	Wales	2	8	30	38
	Overseas	1	1	3	4
	Total		128	1135	2013
2010		97	805	1359	2164

Little change from last year

Despite the increase in cases submitted, a striking observation is how many of the results are similar to last year.

For example, the age distribution is similar with the majority of children being younger than 5 years:



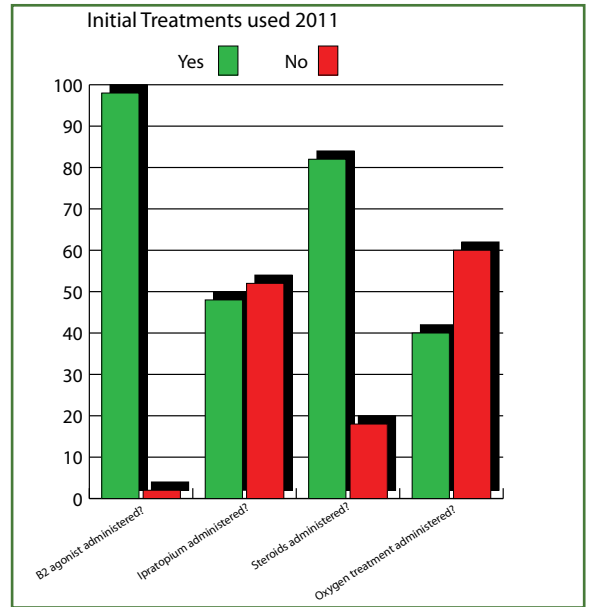
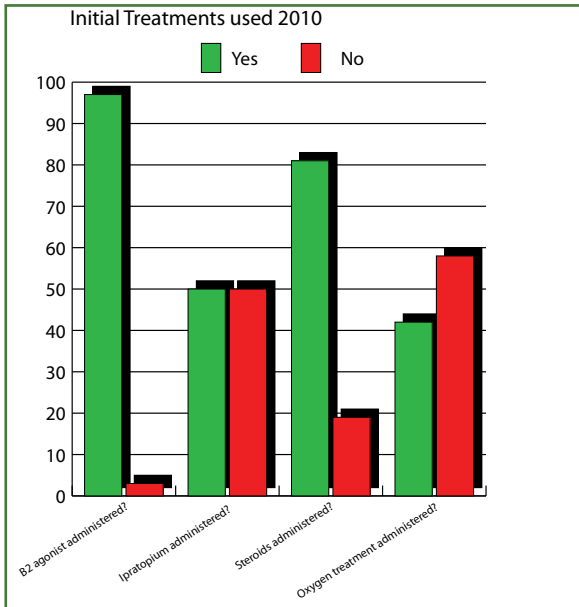
Vital signs at initial assessment - Median values

Resps	2010	2011
1-2yrs	44bpm	44bpm
2-5yrs	40bpm	40bpm
5-12yrs	32bpm	32bpm
Over 12	28bpm	27bpm
Pulse		
1-2yrs	156bpm	157bpm
2-5yrs	146bpm	147bpm
5-12yrs	130bpm	129bpm
Over 12	114bpm	116bpm
SaO2		
1-2yrs	96%	96%
2-5yrs	94%	95%
5-12yrs	94%	95%
Over 12	97%	96%

Vital signs at initial assessment are also very similar to last year, suggesting the severity of disease at presentation is stable (see table, left).

Essentially all children continue to receive the initial treatments recommended in BTS/SIGN asthma guidelines¹. So 98 percent received beta agonist bronchodilators with a quarter treated by nebulizer alone, and just over third by spacer alone, and just over third treated by a combination of nebuliser and other devices. Half the children also received ipratropium. Eighty two percent received corticosteroids.

Initial Treatments used



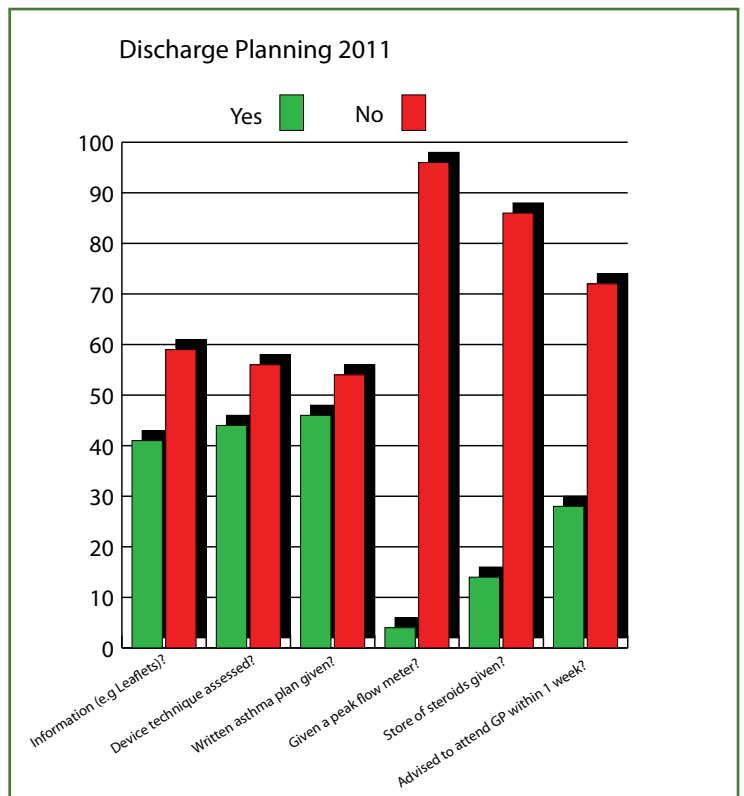
For most children, initial treatment is clearly highly effective with short lengths stay of a day or less. The proportion of children receiving second line treatment remained stable with around 3% receiving IV aminophylline, 3% IV Magnesium and % IV Salbutamol and 4% being admitted to ICU.

From the data for 2011, and as noted previously, the area where care remains least well done is around discharge planning (see Discharge Planning 2011, right)

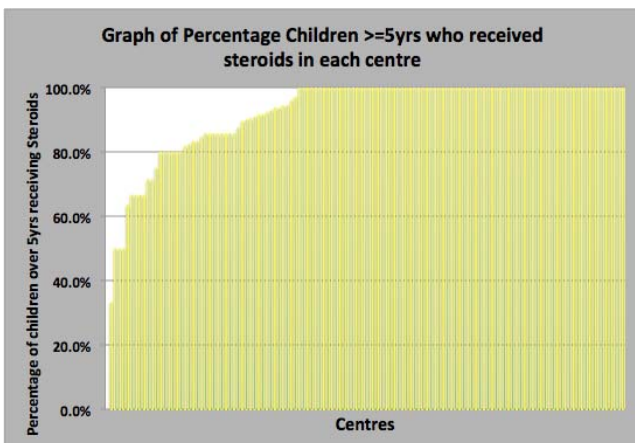
Thus only 44% of children are recorded as having their device use checked and only 41% are recorded as being given a written discharge plan.

Variability Persists

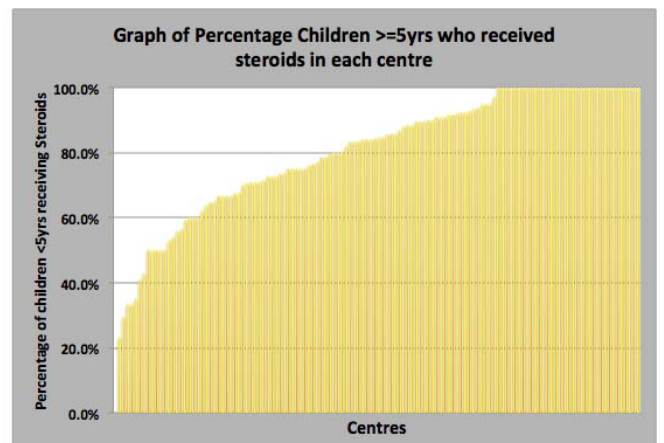
Like many audits, the paediatric asthma audit shows evidence of substantial variation between centres. The two graphs below show the percentage of children in each centre given corticosteroids. For children, 5 years or over where the guideline evidence is clear it can be seen that most centres manage to give all the children they manage corticosteroids. For those under 5 years, where the evidence is evolving and the place of corticosteroids more uncertain, fewer children receive corticosteroids.



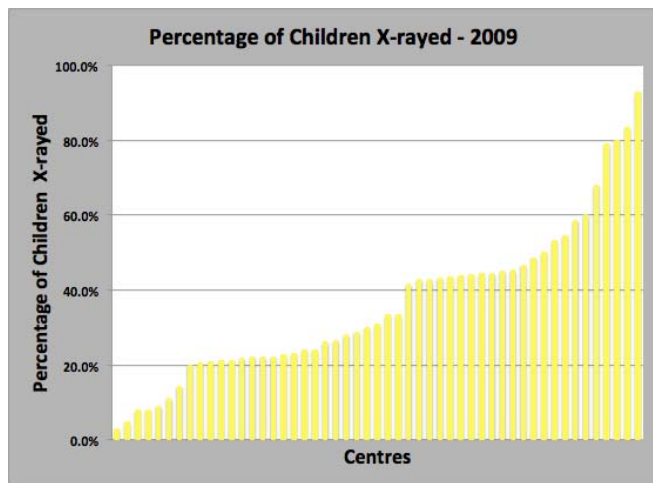
>= 5 yrs



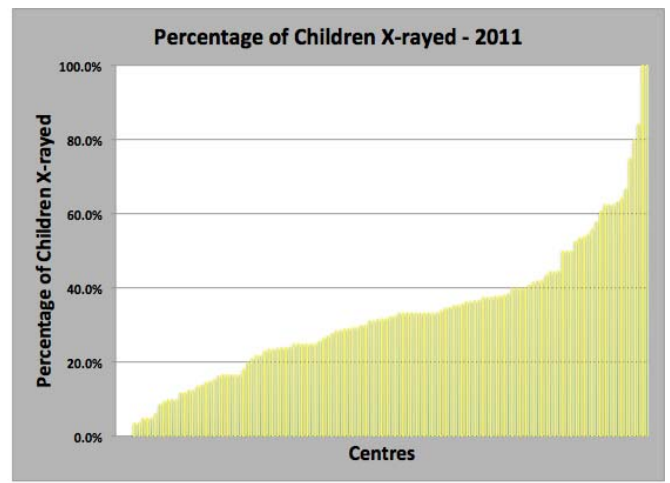
< 5 yrs



2009



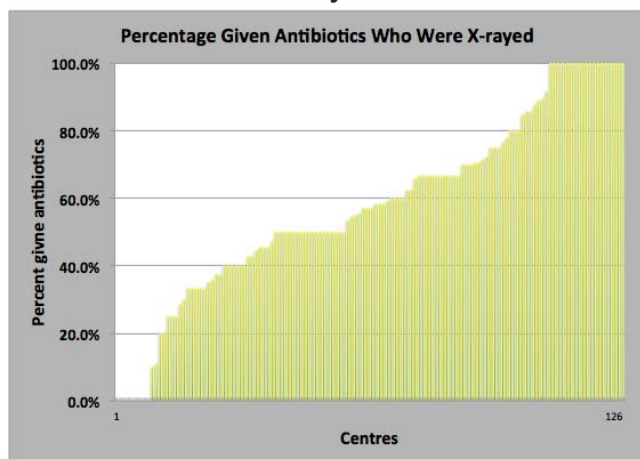
2011



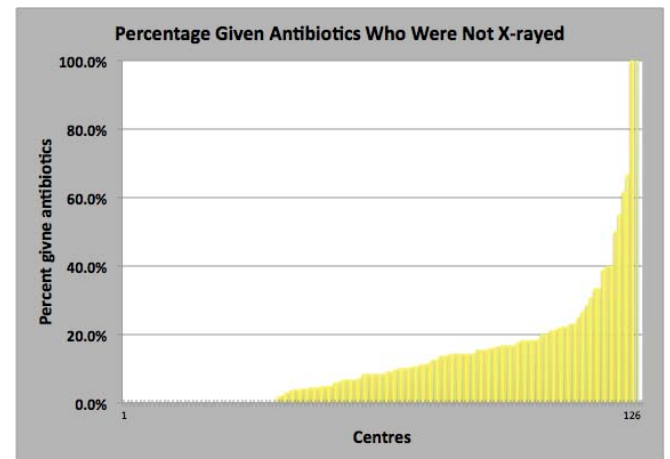
Evidence suggests that only 10-12% of children presenting with wheezing/asthma should have a CXR. In 2011 30% of children were X-rayed. Compared with 2009, the graphs suggest that the proportion of children being X-rayed is slowly decreasing.

Previously it was shown that whether a child was X-rayed influenced whether they were then given an antibiotic. Here the data for 2011, are quite striking.

X-rayed

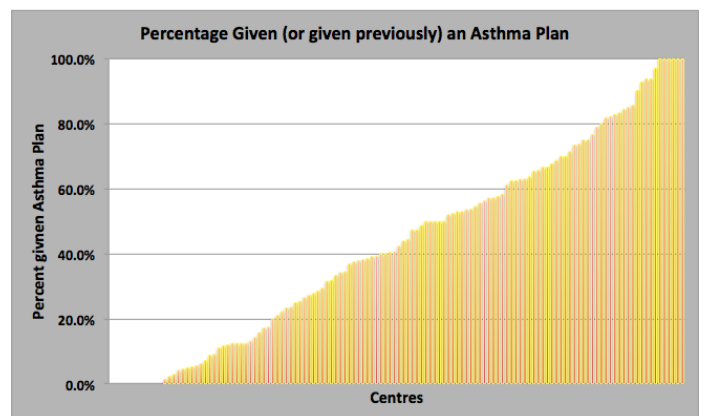


Not X-rayed



Thus it is clear that the proportion given an antibiotic continues to differ markedly depending on whether the child was X-rayed or not.

It was noted above that discharge planning was an area where improvement needs to be targeted. The evidence of variation here is large - for example the proportion of children recorded as receiving a written asthma plan or being given one previously varied from 0 - 100%. Since the evidence suggests that good discharge planning decreases future admissions this is an area that many units might target for improvement.



Qualitative feedback

One change in this year's audit was the inclusion of a request for qualitative feedback about what action had been taken previously with audit findings. It was pleasing to find that some units had used the data to develop initiatives to improve care.

A particularly striking example came from the Royal Belfast Hospital for Sick Children in Northern Ireland who reported that:

"We now have 2 asthma nurses (previously had none) employed. They have just started (after completion of training) before this month's audit BUT had begun to see these patients prior to discharge.

In addition, due to many years of doing this audit and identifying the same issues BUT not being able to effect change we have designed an Acute Asthma Care Pathway - we plan to put this into operation in all units treating children with Asthma in N Ireland in the near future and we are looking at ways of also implementing it in the 7 acute 'Out of Hours' centres in N Ireland."

In the future, we hope more units will use the data to drive quality improvement. Units should be aware that the asthma audit tool can be used throughout the year for local short cycle audits that can be used to as part of quality improvement initiatives.

Improving the audit

Through the period of the audit, we receive feedback with questions or problems. We take these seriously and try to get an answer back to you quickly. We have recently renewed and amended ranges and limits to improve quality of data. We also receive suggestions for new questions to include. One question that will be included in future is whether a child was ventilated or not.

The principal challenge is back to the individual units – **how can you use the information to improve asthma care in your unit?** From this year's evidence the biggest gains are likely to come from focusing on discharge planning.

I would again like to thank everyone at the BTS (Chris Routh, Sally Welham and Kerry Reid) for their continuing hard work in bringing audit in paediatric respiratory medicine into the main stream. If you have comments or suggestions I would be very pleased to hear from you (james.paton@glasgow.ac.uk).

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References

1) BTS/SIGN British Guideline for the Management of Asthma (<http://www.brit-thoracic.org.uk/Guidelines/Asthma-Guidelines.aspx>)