

DeCon Multi-site Audit

Newsletter No. 5 (June 2011)

WELCOME to this edition of the DeCon Multi-site Audit Newsletter.

This edition of the newsletter will focus on the audit standards related to all groups of children and case mix analyses will not be covered. The newsletter covers the following areas:

1. Clinical Audit Data returns
2. Audit Sample
 - Age
 - Gender
 - Grade of doctor reviewing the child at presentation to hospital
 - Actual working diagnosis within 4 hours of presentation
 - Outcome
3. Audit Standards
 - Question 1: Features of the clinical history
 - Question 2: Observations
 - Question 3: Physiological scoring system used
 - Question 4: Recommended frequency of GCS measurements
 - Question 5: Investigations and tests: capillary blood glucose within 15 minutes of presentation
 - Question 6: Working diagnosis within 4 hours of presentation to hospital
 - Question 7: Management plan within 4 hours of presentation to hospital
 - Question 8: Parental/Guardian Involvement during initial resuscitation and management
4. Clinician Survey update

- i. Data in this newsletter refers to cases in the online tool up to the 22 June 2011.
- ii. Note some percentage totals may not sum to 100% due to rounding.
- iii. Data analyses contained in this newsletter may be subject to change once the full data returns are obtained and data has been cleaned thoroughly.
- iv. Comparative analyses should be treated cautiously because for trusts with small sample sizes, the percentage of children who meet the audit standard for these trusts may not be a true measure of their performance.
- v. **The median percent:** The middle value of the percentages of children and young people meeting the specific audit standard for all the trusts in other words the 50th percentile.
- vi. **95% confidence intervals for the median:** This is used to indicate the reliability of the median percent and can be interpreted as the 95% probability that the median percent lies within the bounds of this interval.

1. Clinical Audit Data Returns

- 55 trusts (67 hospitals) are currently participating in the audit.
- Stockport and Ormskirk NHS Trust and Swansea Hospital are also now collecting data.
- Arrowe Park, Lincoln County, Erne and York hospitals have decided to withdraw from the audit as a result of low case identification or staffing pressures.
- 45/55 trusts have returned clinical audit data to date.
- The total number of submitted cases in the web portal up to the 22 June 2011 is now 601.
 - ◇ < 5 cases = 9 trusts
 - ◇ 5-10 cases = 17 trusts
 - ◇ 10-20 cases = 9 trusts
 - ◇ > 20 cases = 10 trusts

NEWS!- Possible premature closure in September 2011 instead of October 2011

Depending on the number of cases we collect over the course of the next couple of months, data collection may close prematurely by one month in other words on 30th September 2011 instead of the 31st October 2011. You will be informed of the final decision towards the end of August.

2. Audit Sample

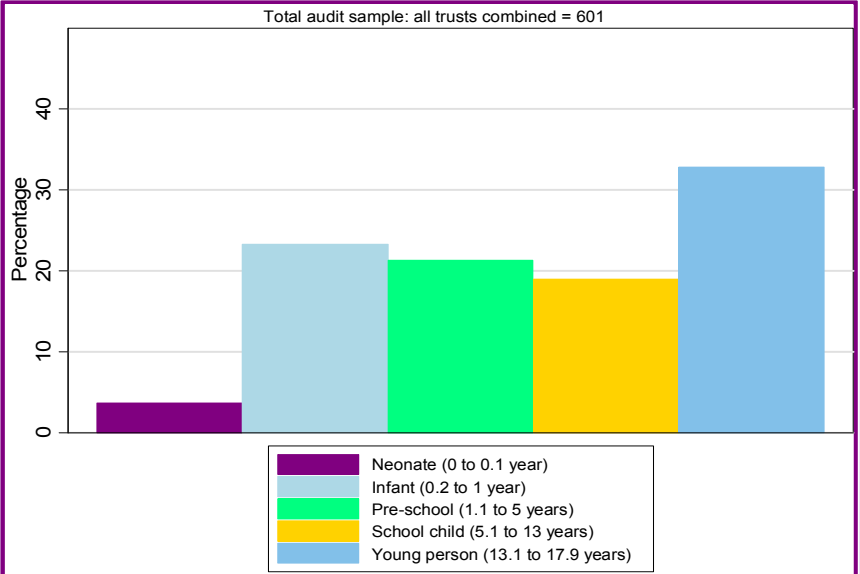
Age

Audit sample = 601
 Mean age = 7.7 years
 Standard deviation = 6.3 years
 Median age = 6 years
 25th Percentile = 1 years
 75th Percentile = 14 years

Age categories (adapted from Goldstein et al. 2005)

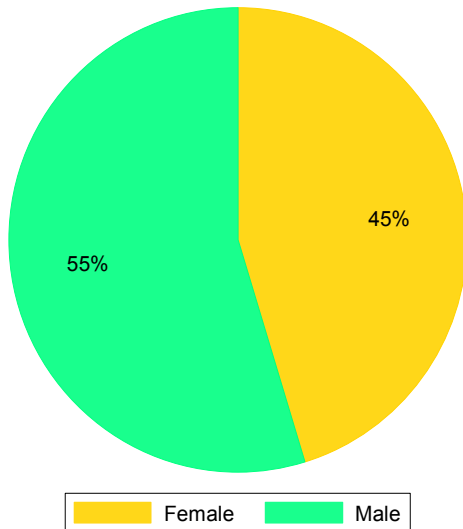
- ◇ 0.0 to 0.1 year (1 month) = 22 (3.7%)
- ◇ 0.2 to 1.0 year = 140 (23.3%)
- ◇ 1.1 to 5.0 years = 128 (21.3%)
- ◇ 5.1 to 13.0 years = 114 (19.0%)
- ◇ 13.1 to 17.9 years = 197 (32.8%)

Brahm Goldstein; Brett Giroir; Adrienne Randolph; and the Members of the International Consensus Conference on Pediatric Sepsis (2005) International pediatric sepsis consensus conference: Definitions for sepsis and organ dysfunction in pediatrics *Pediatric Critical Care Medicine* 2005; 6(1):2-8



Gender

Total audit sample: all trusts combined = 601
 female = 272; male = 329

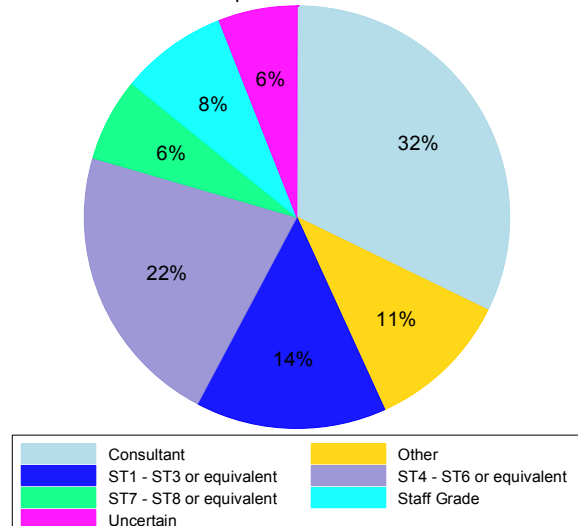


Audit sample = 601
 Female = 272 (45.3%)
 Male = 329 (54.7%)

Grade of doctor reviewing the child or young person on presentation to hospital

- ◇ Consultant = 194 (32.3%)
- ◇ ST1-ST3 or equivalent = 87 (14.5%)
- ◇ ST4-ST6 or equivalent = 131 (21.8%)
- ◇ ST7-ST8 or equivalent = 38 (6.3%)
- ◇ Staff Grade = 49 (8.2%)
- ◇ Other (associate specialist, clinical fellow, F1, F2 or other) = 66 (11.0%)
- ◇ Uncertain of doctor's grade = 36 (6.0%)

Total audit sample: all trusts combined = 601

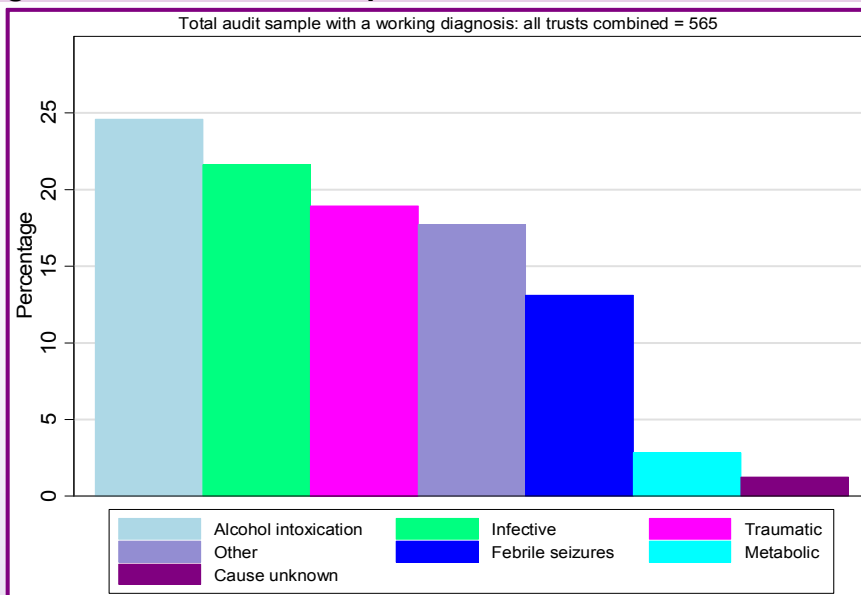


Working Diagnosis within 4 hours of presentation

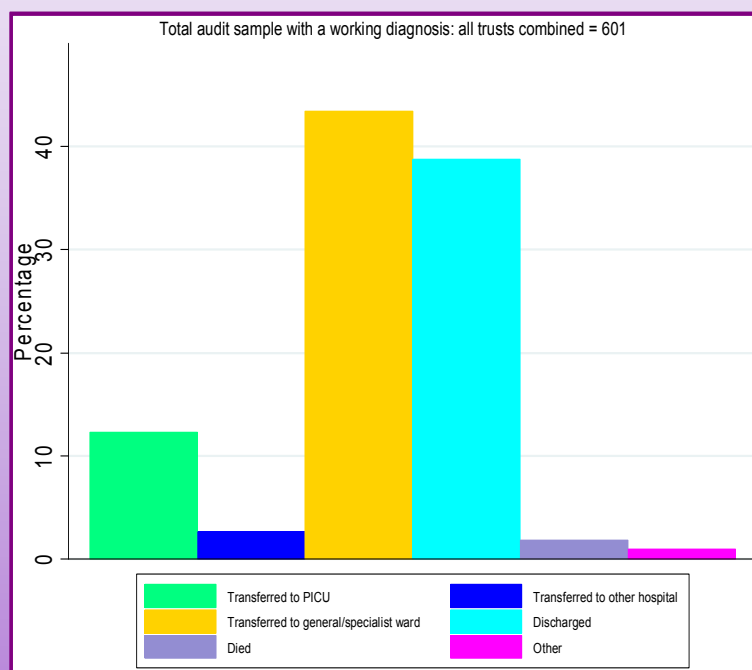
565 (94.0%) of the total audit sample (601) have a working diagnosis within 4 hours of presentation to hospital.

Of those 565 children and young people, their actual diagnoses are as follows:

- ◇ Alcohol intoxication = 139 (24.6%)
- ◇ Infective causes = 122 (21.6%)
- ◇ Traumatic causes = 107 (18.9%)
- ◇ Febrile seizures = 74 (13.1%)
- ◇ Metabolic causes = 16 (2.8%)
- ◇ Other causes (fits, shock, prolonged convulsion, haemorrhage) = 100 (26.3%)
- ◇ Cause unknown = 7 (1.2%)



Outcome



The outcomes for the total audit sample (601 cases) are as follows:

- ◇ Discharged from the area of hospital attendance = 233 (38.8%)
- ◇ Transferred to a ward area (paediatric or adult) = 261 (43.4%)
- ◇ Transferred to PICU = 74 (12.3%)
- ◇ Transferred to another hospital = 16 (2.7%)
- ◇ Died = 11 (1.8%)
- ◇ Other (self-discharge or discharged without medical consent) = 6 (1.0%)

Comment: It is likely that deaths are underestimated in this audit as the data collection tool is designed to collect data within the first few hours of the children's presentation to hospital so the above may not provide a full picture of their outcome.

3. Audit standards

There are 8 audit areas covered as part of this audit. They include the history of the clinical features, observations, physiological scoring system used, frequency of GCS measurements, capillary blood glucose within 15 minutes of presentation, working diagnosis and management plan within 4 hours of presentation along with parental/guardian involvement. The target performance for all of these standards with the exception of parent/guardian involvement audit standards is 90%.

Bar charts will be used to illustrate the comparisons for the audit standards among the participating NHS trusts. These charts may be interpreted as follows:

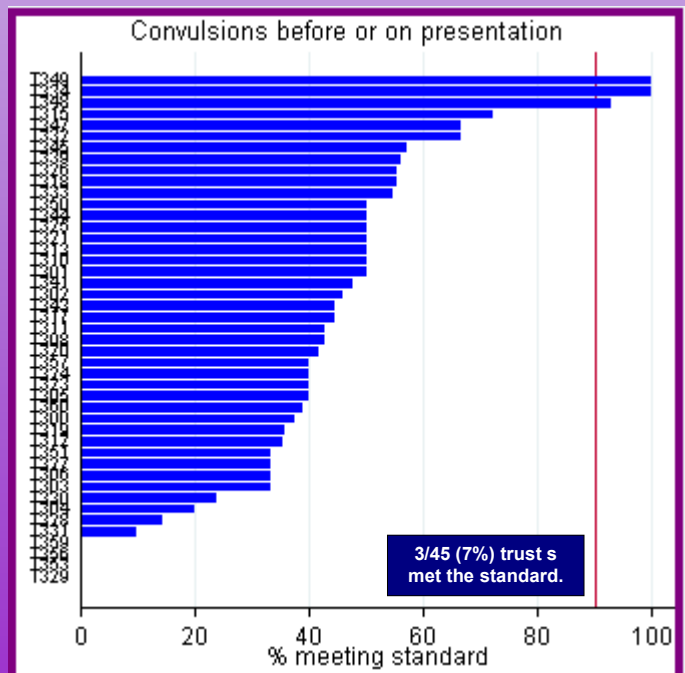
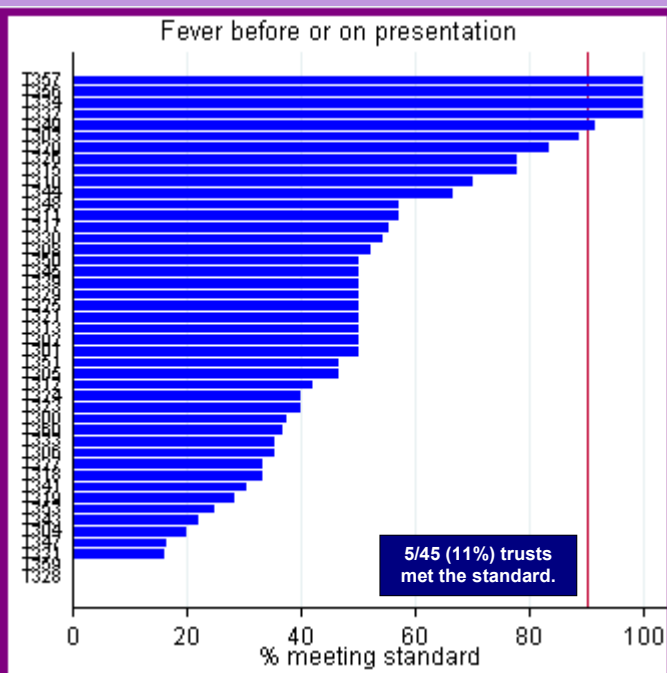
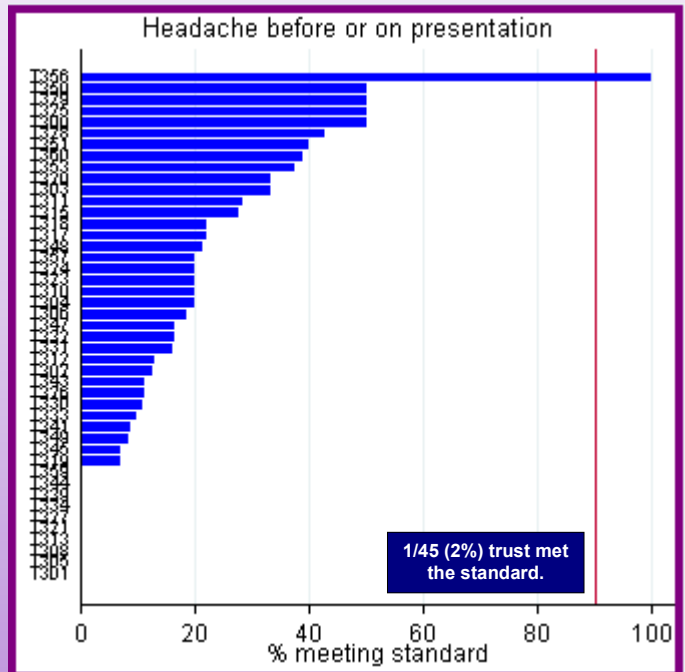
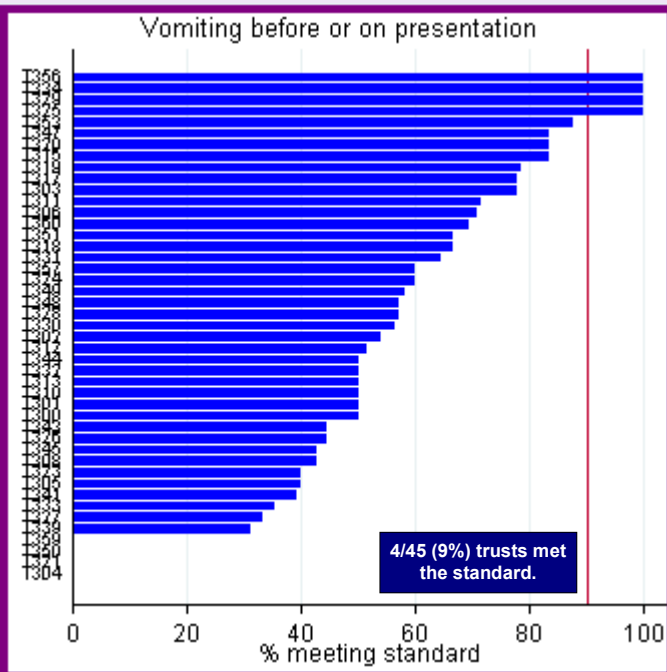
- ◇ The horizontal axis is the percentage of children who meet the audit standard for the individual trust, the vertical axis comprises the names of the trusts and the red line is the 90% target performance line.
- ◇ Each bar on the graph represents a trust in the audit and the length of the horizontal bar relates to the percentage who meets the audit standard for the respective trust. If this percentage is zero, a bar is not shown on the graph.

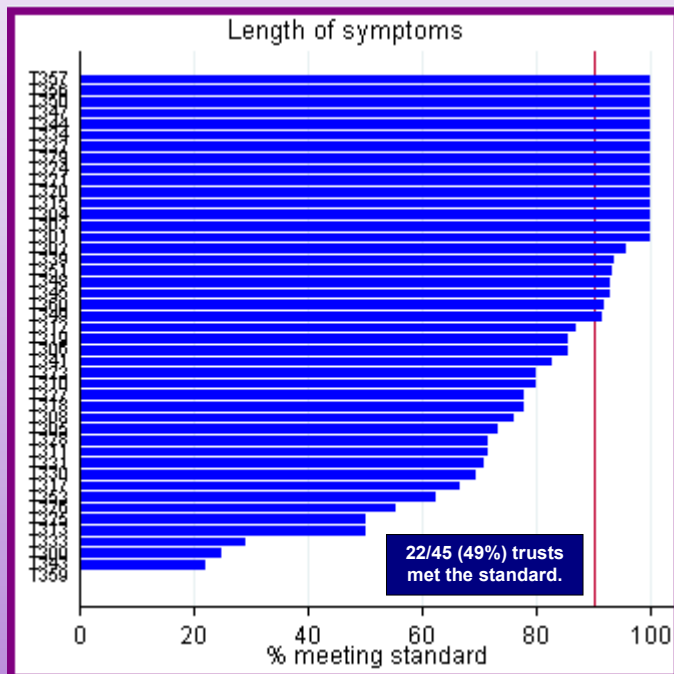
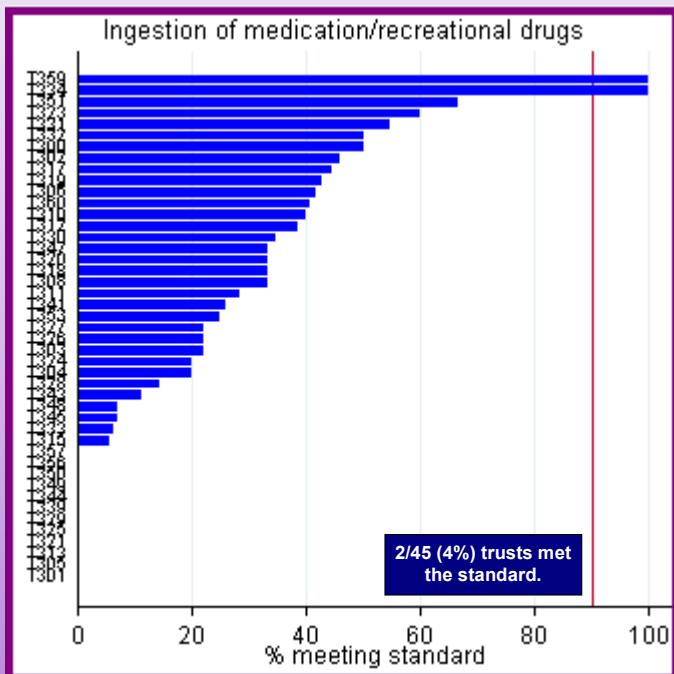
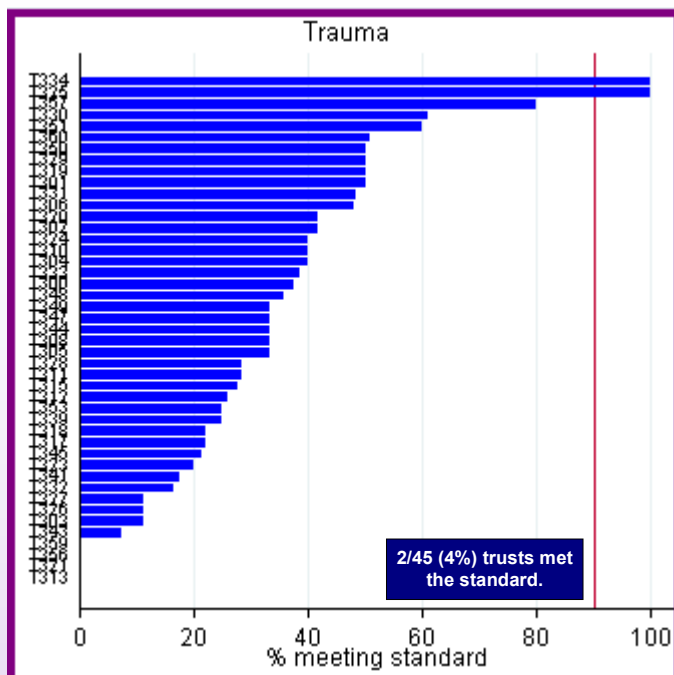
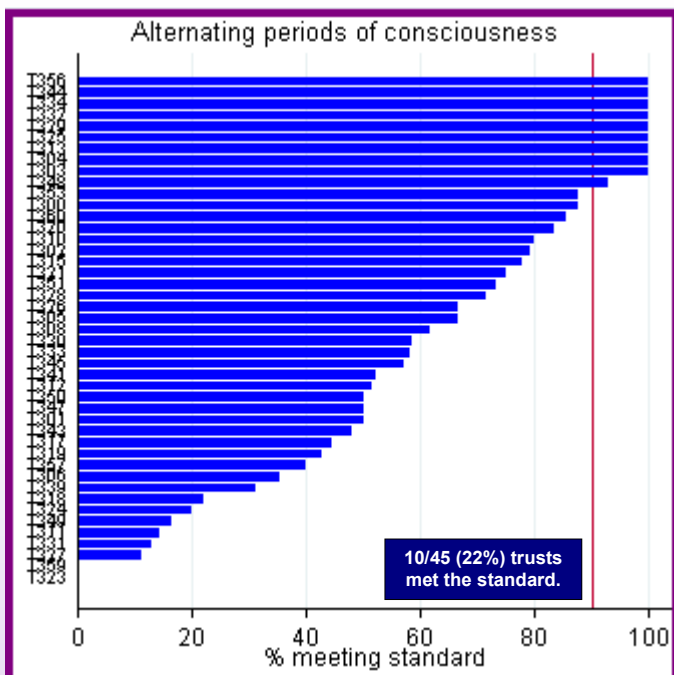
Question 1: Features of the Clinical History

Audit question: At presentation to hospital, was the presence or absence of the recommended features of the clinical history elicited and documented in the clinical record?

Standard: 90% of children presenting to hospital with a decreased conscious level should have the presence or absence of the recommended features of the clinical history elicited and documented in their clinical records.

| Audit standards | Number of cases meeting the standard | Median % (all trusts) | 95 % confidence intervals for the Median % |
|---|--------------------------------------|-----------------------|--|
| (Total Audit sample all trusts combined = 601) | | | |
| % vomiting on or before presentation | 341 | 57% | (50%, 67%) |
| % headache on or before presentation | 106 | 17% | (11%, 21%) |
| % fever on or before presentation | 273 | 50% | (40%, 52%) |
| % convulsions on or before presentation | 253 | 43% | (39%, 50%) |
| % alternating periods of consciousness | 346 | 62% | (50%, 79%) |
| % trauma | 221 | 33% | (25%, 40%) |
| % ingestion of medication/recreational drugs | 175 | 22% | (7%, 33%) |
| % length of symptoms | 469 | 87% | (78%, 96%) |



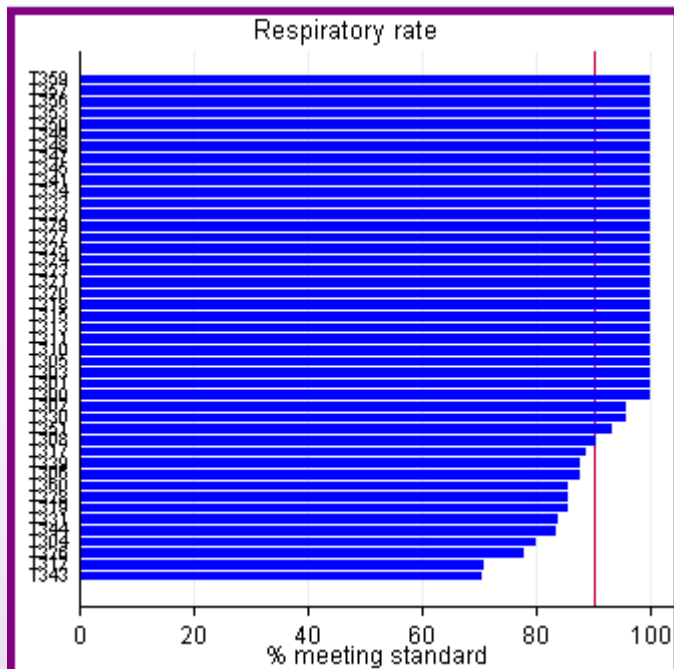
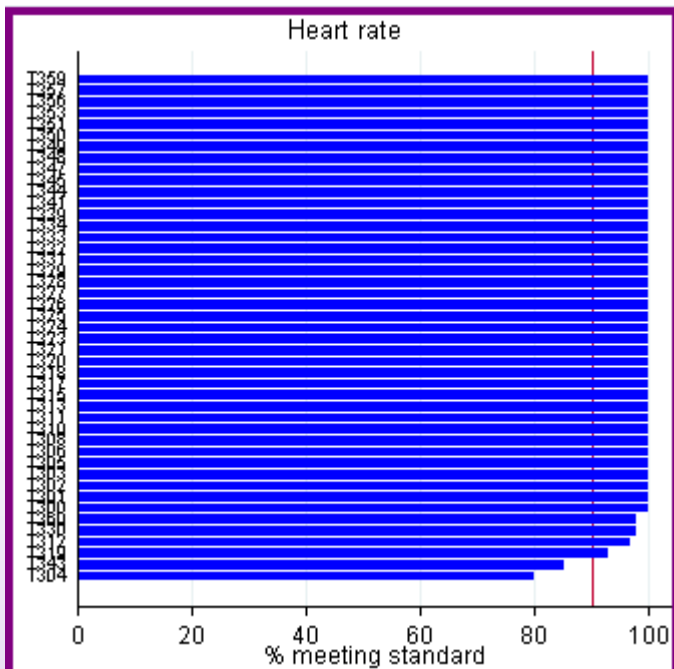


Question 2: Observations

Audit question: Were the recommended observations documented in the child or young person's clinical record at their presentation to hospital?

Standard: 90% of children and young people presenting to hospital with a decreased conscious level should have the recommended observations measured and documented in their clinical records on presentation.

| Audit standards | Number of cases meeting the standard | Median % (all trusts) | 95 % confidence intervals for the Median % |
|--|--------------------------------------|-----------------------|--|
| (Total Audit sample all trusts combined = 601) | | | |
| % heart rate at presentation | 592 | 100% | (100%, 100%) |
| % respiratory rate at presentation | 550 | 100% | (96%, 100%) |
| % oxygen saturation at presentation | 569 | 100% | (100%, 100%) |
| % blood pressure at presentation | 434 | 75% | (67%, 87%) |
| % temperature at presentation | 531 | 97% | (87%, 100%) |

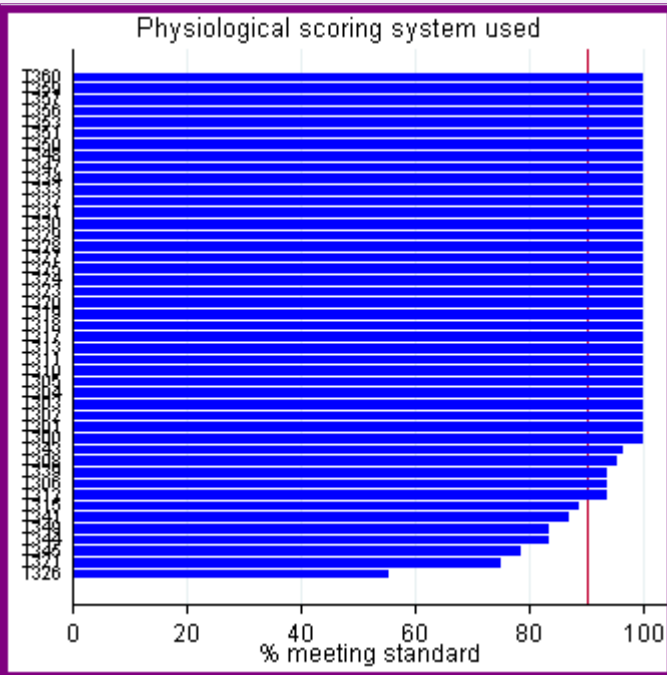


Question 3: Physiological scoring system used

Audit question: Was either the modified Glasgow Coma Score (GCS) or the AVPU (alert, voice, pain and unresponsive) scale or both documented in the clinical record as being used to evaluate the extent of the patient's conscious level on presentation to hospital?

Standard: 90% of children and young people presenting to hospital with a decreased conscious level should have either a modified GCS or AVPU scale assessment performed and documented in order to assess the extent of their conscious level on presentation.

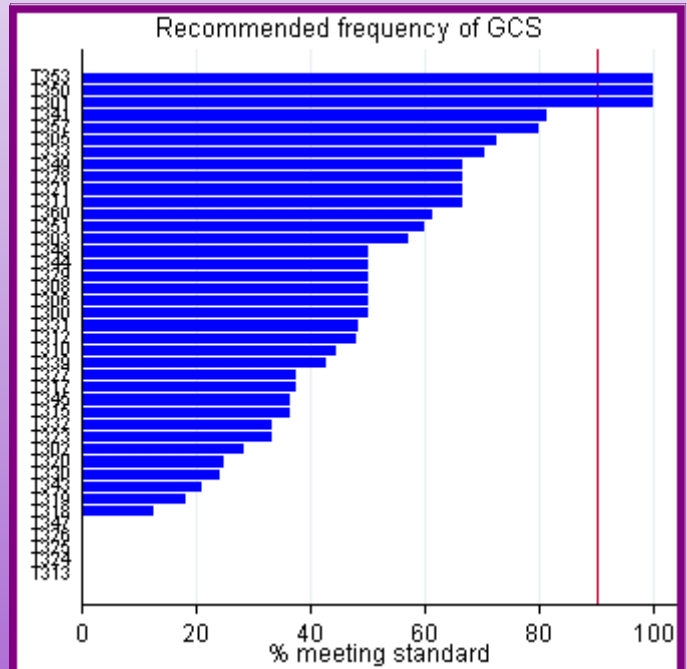
| Audit standard | Number of cases meeting the standard | Median % (all trusts) | 95 % confidence intervals for the Median % |
|--|--------------------------------------|-----------------------|--|
| (Total Audit sample all trusts combined = 601) | | | |
| % modified GCS or AVPU documented | 577 | 100% | (100%, 100%) |



Question 3: Physiological scoring system used

38/45 (84%) of trusts met the standard.

Comment: This standard is closely connected with the audit's inclusion criteria. Of 601 cases, 24 (4%) have been reported as not having a documented modified GCS or AVPU measurement on presentation to hospital. This may be an issue of documentation or that of data quality whereby cases are included who fail to meet the audit's inclusion/exclusion criteria.



Question 4: Recommended frequency of GCS measurements

Audit question: Were GCS measurements performed and recorded in the clinical records within the recommended frequency of every 15 minutes if ≤ 12 or every hour if > 12 at presentation to hospital?

Standard: 90% of children and young people presenting to hospital with a decreased conscious level who had their GCS done should have the recommended frequency of GCS measurements performed and documented in their clinical records.

| Audit standard | Number of cases meeting the standard | Median % (all trusts) | 95 % confidence intervals for the Median % |
|--|--------------------------------------|-----------------------|--|
| (Total Audit sample of all children who had a GCS done is 463) | | | |
| % recommended frequency of GCS | 220 | 48% | (36%, 57%) |

Question 4: Recommended frequency of GCS measurements

3/45 (7%) of trusts met the standard.

Comment: This area is difficult to assess and easily misinterpreted for two reasons:

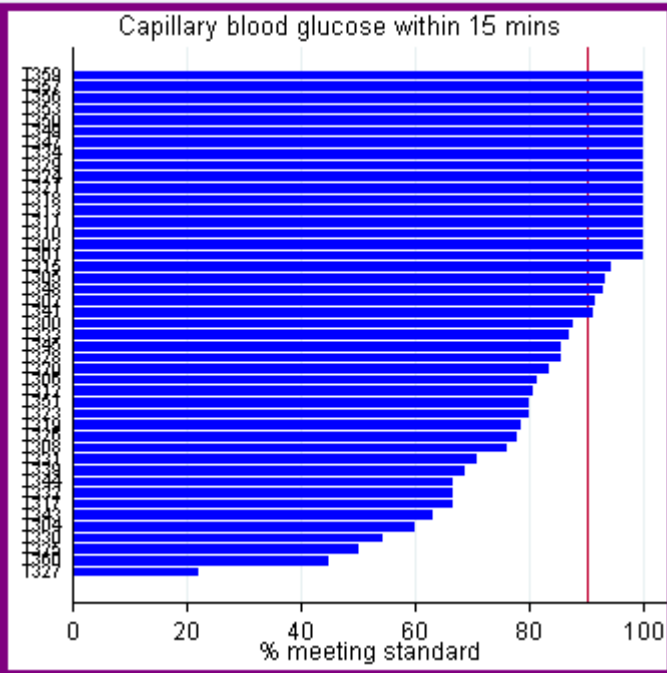
- ◇ Some observations may be done on these children but not all measurements for the full GCS score performed or formal GCS measurements may not be undertaken in children who are intubated.

Question 5: Investigations and tests: Capillary blood glucose

Audit question: Was capillary blood glucose taken within 15 minutes of the child's presentation to hospital with a decreased conscious level?

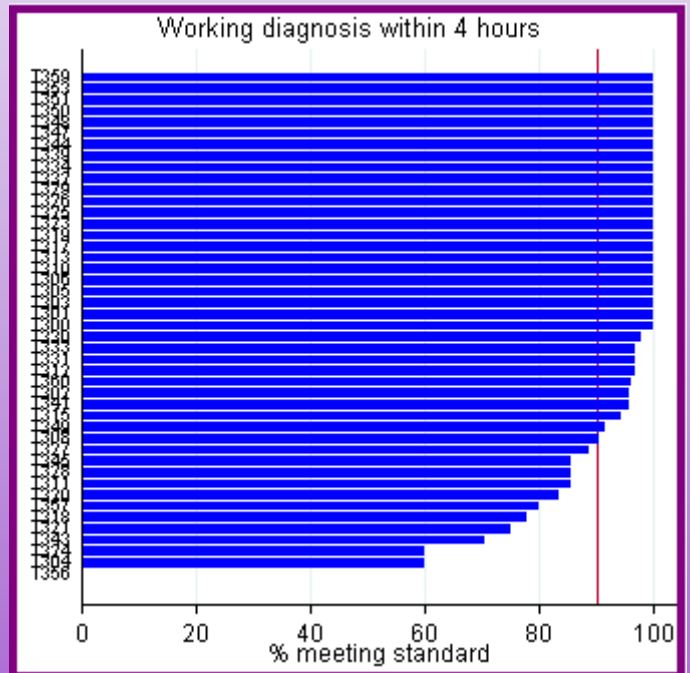
Standard: 90% of children and young people presenting to hospital with a decreased conscious level should have their capillary blood glucose taken within 15 minutes of presentation.

| Audit standard | Number of cases meeting the standard | Median % (all trusts) | 95 % confidence intervals for the Median % |
|--|--------------------------------------|-----------------------|--|
| (Total Audit sample all trusts combined = 601) | | | |
| % capillary blood glucose taken with 15 mins of presentation | 466 | 88% | (80%, 100%) |



Question 5: Investigations and tests: Capillary blood glucose within 15 minutes of presentation

22/45 (49%) of trusts met the standard.



Question 6: Working diagnosis within 4 hours of presentation

Audit question: Did the patient have a working diagnosis (documented in the clinical record) within 4 hours of presentation to hospital?

Standard: 90% of children and young people who present to hospital with a decreased conscious level should have the working diagnosis documented in their clinical records within 4 hours of presentation.

| Audit standard | Number of cases meeting the standard | Median % (all trusts) | 95 % confidence intervals for the Median % |
|--|--------------------------------------|-----------------------|--|
| (Total Audit sample all trusts combined = 601) | | | |
| % working diagnosis within 4 hours | 565 | 100% | (96%, 100%) |

Question 6: Working diagnosis within 4 hours of presentation

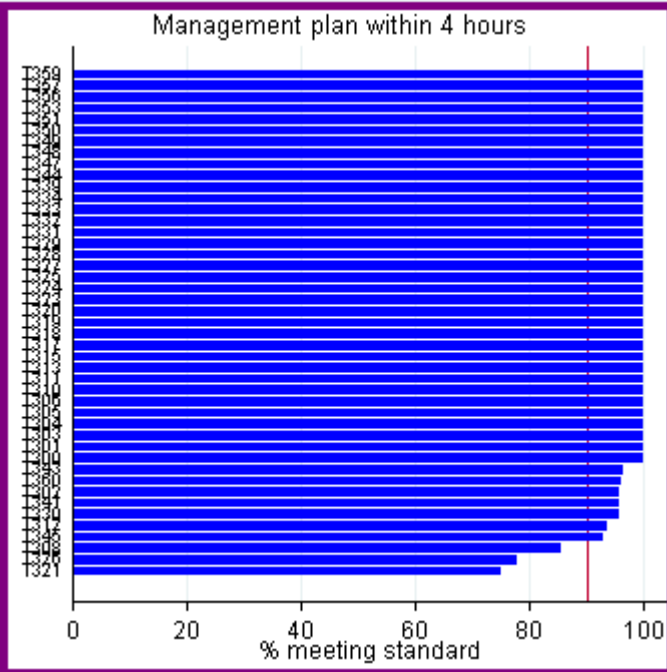
33/45 (73%) of trusts met the standard.

Question 7: Management plan within 4 hours of presentation

Audit question: Did the patient have a management plan in place (documented in the clinical record) within 4 hours of presentation to hospital?

Standard: 90% of children and young people who present to hospital with a decreased conscious level should have a management plan documented in their clinical records within 4 hours of presentation.

| Audit standard | Number of cases meeting the standard | Median % (all trusts) | 95 % confidence intervals for the Median % |
|--|--------------------------------------|-----------------------|--|
| (Total Audit sample all trusts combined = 601) | | | |
| % management plan in place within 4 hours | 585 | 100% | (100%, 100%) |



Question 7: Management plan within 4 hours of presentation to hospital

42/45 (93.0%) of trusts met this standard.

Question 8: Parental/guardian involvement

Audit Question: During the initial management and resuscitation of the child or young person presenting to hospital with a decreased conscious level, were their parent or guardian's involvement documented in the clinical record on the following areas:

- ◇ Parent/guardian allowed to stay with their child
- ◇ Parent or guardian informed regarding their child's diagnosis
- ◇ Parent or guardian informed regarding their child's prognosis?

Standard: No performance targets set for these areas.

| Audit standards | Number of cases meeting the standard | Median % (all trusts) | 95 % confidence intervals for the Median % |
|--|--------------------------------------|-----------------------|--|
| (Total Audit sample all trusts combined = 601) | | | |
| 8. Parental/Guardian involvement documented | | | |
| % allowed to stay with their child | 235 | 33% | (20%, 44%) |
| % informed re their child's diagnosis | 315 | 56% | (42%, 71%) |
| % informed re their child's prognosis | 228 | 33% | (20%, 44%) |

