National Ambulance Service Clinical Quality Group (NASCQG)

National Ambulance Non-Conveyance Audit (NANA) Report
February 2014

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## Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Executive Summary</td>
<td>3</td>
</tr>
<tr>
<td>Clinical Audit Report</td>
<td>4</td>
</tr>
<tr>
<td>Introduction</td>
<td>4</td>
</tr>
<tr>
<td>Audit Aim</td>
<td>4</td>
</tr>
<tr>
<td>Purpose of Audit</td>
<td>4</td>
</tr>
<tr>
<td>Audit Objectives and Timescales</td>
<td>5</td>
</tr>
<tr>
<td>Audit Sample</td>
<td>5</td>
</tr>
<tr>
<td>Audit Methodology</td>
<td>5</td>
</tr>
<tr>
<td>Data Collection</td>
<td>6</td>
</tr>
<tr>
<td>Severity Grading</td>
<td>6</td>
</tr>
<tr>
<td>Policy Review</td>
<td>6</td>
</tr>
<tr>
<td>Audit Results</td>
<td>7</td>
</tr>
<tr>
<td>Conclusions</td>
<td>12</td>
</tr>
<tr>
<td>Recommendations</td>
<td>13</td>
</tr>
<tr>
<td>References</td>
<td>14</td>
</tr>
<tr>
<td>Appendices</td>
<td>15</td>
</tr>
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Executive Summary

The Department of Health (DoH) introduced a series of ambulance quality indicators in April 2011, which included an indicator for re-contact rates within 24 hours for patients treated and discharged at scene by ambulance services. The National Ambulance Service Clinical Quality Group (NASCQG) agreed to undertake a more detailed audit of this indicator; reviewing two 24 hour periods (24th October 2011 and 24 October 2012) for all re-contact cases following non-conveyance. All 11 ambulance Trusts participated in the audit but, to varying degrees.

For the two 24 hour periods, the audit reported a national non-conveyance rate of 29.8%, with a re-contact rate of 5%. Ambulance service re-contact rates ranged from 1.7 to 10.1%. A strong correlation between increased non-conveyance rates and increased re-contact rates was identified in the audit.

Nearly half (48.5%) the incidents had the same first and second incident type. Of the 208 first attendances, falls were the predominant incident type (33.6%), followed by respiratory problems (6.25%) and abdominal pain (5.7%). 43.3% of cases were recorded as having refused treatment and/or transport, with only 25.3% having had a mental capacity assessment completed. A paramedic was the most senior clinician on scene in 77.7% of cases. Only 19.7% of cases had a referral made to another service. A review of organisation’s non-conveyance policies highlighted a high degree of variance in relation to content and structure; ranging from concise and prescriptive to ambiguous and overly complex. The second year of the audit included a severity rating for the re-contact cases, which five trusts completed. Out of 74 cases assessed, there were 2 unexpected deaths and 5 cases where patients were assessed to have suffered severe harm.

The audit was a useful learning experience for NASCQG and individual ambulance trusts; overcoming some of the data collection and case identification issues. While there was a significant variance in the re-contact rates reported by services, there were some consistent themes in relation to the types of re-contact incidents and the level of clinical assessment and intervention undertaken. The audit highlights a number of areas that would benefit from further collaborative working; defining competency levels of clinicians to make decisions and minimum clinical assessment criteria, assessing and recording mental capacity, provision of clinical advice to patients, access to referral/care pathways and development of specific guidance around falls, abdominal pain and breathing problems.

Recommendations include; development of a national ‘7 day working week’ snapshot audit, running the 24 hour audit on a more frequent basis as part of the NASCQG work programme, hear and treat re-contact analysis, and presentation of the report at other national ambulance forums to help progress some of the areas of concern highlighted.

Finally, the audit shows that re-contact rates (within 24 hours) increase as non-conveyance rates increase, with evidence of risk of harm to patients. This is a significant quality and patient safety risk that ambulance Trusts will increasingly face (and need to mitigate against) in the context of the Keogh report. The report suggests that 40% of patients discharged from Emergency Departments could receive care closer to home (DH 2013). The operational implications area also evident with nearly 1.5% of activity generated from re-contacting non-conveyed patients.
Introduction

In April 2011, the DoH introduced a new series of ambulance quality indicators to help achieve a more balanced approach to measuring the quality of care provided (Cooke 2011). A total of 37 indicators were developed, consisting of 19 system indicators and 18 clinical indicators. One of the system indicators related to re-contact rates following patient contact:

- **SQU03_2_2_1**: Patients treated and discharged on scene where re-contact occurs within 24 hours (Patients treated and discharged on scene where re-contact with the ambulance service via 999 occurs from the same address or phone number for the same patient within 24 hours of time of discharge).

Data for this indicator is currently collated and produced on a monthly basis by English ambulance services and reported as a percentage rate.

The NASCQG agreed as part of its 2011/12 annual audit programme to explore further the re-contact following face to face treatment. The group agreed to select a single day (24th October 2011) where all re-contact cases would be audited – examining first and second incident types including clinical assessment, interventions and attending clinician levels. A review of organisational policy in relation to this area was also to be undertaken. It was agreed that North West Ambulance Service NHS Trust (NWAS) would support the data collection and analysis. A second 24 hour period (24th October 2012) was subsequently audited during 2012/13 to develop the report further.

Audit Aim

To undertake a snapshot audit of English ambulance service non-conveyance practice for 999 calls attended on two 24 hour periods; including re-attendance within the subsequent 24 hour period.

Purpose of audit

To examine the nature of category red and green calls that ambulance services currently do not convey, including the level of assessment undertaken and any transfer of care through senior clinical advice/support, referral processes or information sharing.

To examine re-contact rates to non-conveyed patients during a 24 hour period, including the nature of subsequent calls and their outcome.

To rate the severity of re-contact incidents following non-transportation.

To review current ambulance service policy in relation to non-conveyance.
Audit Objectives & Timescales

1. National Ambulance Service Clinical Quality Group (NASCQG) to review and agree audit process and methodology.
2. Complete pilot sampling process to identify audit sample (from 2 x 24 hour periods).
3. Review and feedback on pilot sampling process, including agreement of final process and size of sample for 24th October audit.
4. Development and testing of audit spreadsheet/database to support local collection and analysis of data.
5. Issue of final version of audit documentation and spreadsheet/database to all Trusts.
6. Undertake audit of agreed sample of non-conveyed patients for 24th October 2011 and 2012 and return completed spreadsheet/database to NWAS.
7. Produce final draft audit report.

It was originally planned for the audit report to be completed by April 2012. However, this was delayed due to some Trusts experiencing difficulties in obtaining the data and the addition of a second year of audit data.

Audit Sample

Due to concerns about Trusts having the capacity to undertake the audit, it was agreed for a pilot sampling process to be undertaken to help identify a feasible sample size. Following a successful pilot sampling process, it was agreed by all Trusts that a 100% sample would be used for the audit.

Audit Methodology

1. All non-conveyed patients for the time period 00-00 to 23-59 on the 24th October (2011 and 2012), were identified using the agreed sampling process.
2. Agreed data was extracted from the AMPDS/Pathway systems to support the audit.
3. All patients who re-contacted via 999 within a 24 hour period from 00-00 on the 24th October 2011 and 2012 were identified using the agreed sampling process.
4. The patient report forms (or equivalent) were retrieved for the identified incidents (original non-conveyance and any re-contact incidents).
5. An agreed audit pro-forma was used to collect the required data from the PRFs.
6. The data was collated at Trust level using an agreed spreadsheet or database.
7. NWAS collected and analysed completed spread sheets.
8. A severity assessment grading matrix was developed and agreed.

A more detailed audit methodology is provided in Appendix 1. This should be used as the basis for any future comparative audits.
Data Collection

All Trusts were asked to complete a spreadsheet pro-forma to calculate non-conveyance and re-contact rates. All Trusts were able to complete this. In addition, Trusts were then asked to complete a clinical review of the clinical records for the first and second incidents where re-contact had occurred within 24 hours. A severity rating was also requested for the re-contact incidents in 2012. Table 1 below provides a summary of the returns made by Trusts. All data was then collated and analysed by NWAS.

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<tr>
<th>Trust</th>
<th>WMAS</th>
<th>SCAS</th>
<th>LAS</th>
<th>YAS</th>
<th>SECamb</th>
<th>NWAS</th>
<th>EMAS</th>
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<tbody>
<tr>
<td>2011</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>2012</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
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Table 1: Individual Trust Data Returns

Severity Grading

A severity grading matrix has been developed for assessing the re-contact incidents. The classifications and consequence definitions are as follows:

<table>
<thead>
<tr>
<th>Severity</th>
<th>Definition</th>
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<tbody>
<tr>
<td>Expected Death</td>
<td>An expected death (such as end of life patient or where GP would be willing to issue MCCD). Evidence such as a DNACPR, appropriate care plan or instruction from the patient's GP/Consultant would provide a good indication that the death was expected.</td>
</tr>
<tr>
<td>Minor</td>
<td>Re-contact for a similar incident of a relatively minor nature for example; repeat falls where there is no evidence of injury or worsening of condition and/or patient is NOT transported to hospital.</td>
</tr>
<tr>
<td>Moderate</td>
<td>Re-contact where there is evidence of further injury or illness of a relatively minor nature where treatment is provided and/or the patient is transported to hospital.</td>
</tr>
<tr>
<td>Severe</td>
<td>Re-contact where there is evidence of further significant injury or illness and the patient is transported to hospital - possibly with a stand-by message.</td>
</tr>
<tr>
<td>Unexpected Death</td>
<td>Unexpected Death on or immediately following (i.e. unsuccessful resus attempt) re-contact.</td>
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Policy Review

Part of the audit included a request for ambulance services to provide their non-conveyance policies. A total of seven policies were provided. Due to the high variance in the structure and content of the policies, it was difficult to make direct comparisons or complete any form of structured analysis. A more qualitative review was undertaken with the following findings:
1. A number of the policies dealt with both transport and non-transport decisions, which resulted in the two topics becoming interwoven and a loss of clarity. The length of the policies also varied significantly – ranging from seven to thirty five pages. Some policies were prescriptive in determining the actions required by staff whereas others left it to the discretion of the clinician.

2. Some policies provided specific lists of clinical observations to be undertaken for all patients, whereas other policies stated that required clinical observations were dependant on the patient’s condition. One policy provided a list of clinical observation with normal physiological values.

3. The majority of policies provided some form of decision making framework for staff to use. These were broadly categorised into two sections; defining available care/referral pathways and assessment of patient’s mental capacity. Again, some policies provided lists of actual pathways available and other simply stated that pathways should be used where available.

4. All policies contained guidance on the completion of documentation and the importance of this for non-conveyed patients.

JRCALC Clinical Guidelines (2006 and 2013) currently provides limited guidance or information on the non-conveyance of patients.

**Audit Results**

A total of 42,298 999 calls were received during the two 24 hour periods (24th October 2011 and 2012). Of the 999 calls received, 30,872 (72.9%) were attended by an ambulance resource. 30% of the incidents attended were not conveyed that day, with 5% (447) re-contacting the same ambulance service within 24 hours. Figures 2 and 3 show the audit results for each of the years; 2011 and 2012 respectively. The 2012 flow chart includes the results of the severity rating for the 5 Trusts that completed this aspect.
Total 999 Calls received during 24 hour Audit period

21,416

Total 999 calls received and attended

15,232 (71.1%)

Total calls eligible for inclusion in audit (deaths and public places removed)

14,364

Transported

10,377 (70%)

Not Transported

4,346 (30%)

Re-contact within 24 hours (public place incidents removed)

189 (4.3%)

Total 999 calls received and not attended

6,184 (28.9%)

1 Calculation Not transported/Total 999 calls received and attended
2 Calculation Number of Re-contacts/Not transported

Figure 2
NANA 2012

Total 999 Calls received during 24 hour Audit period
10/10 Trusts

20,882

Total 999 calls received and attended

15,640 (74.9%)

Total 999 calls received and not attended

5,242 (25.6%)

Total calls eligible for inclusion in audit
(deaths and public places removed)

15,163

Transported
10,595 (69.9%)

Not Transported
4,568 (30.1%)

Re-contact within 24 hours
(public place incidents removed)

Severity Rating for Re-contact (n=74³)
5/10 Trusts

258 (5.6%)²

Expected Death 0/74
Minor 32/74
Moderate 35/74
Severe 5/74
Unexpected Death 2/74

1 Calculation Not transported/Total 999 calls received and attended
2 Calculation Number of Re-contacts/Not transported
3 Figure doesn’t include unable (n=8)

Figure 1
Chart 1 below provides a comparison of the 2011 and 2012 national and individual ambulance trust data for non-conveyance and re-contact rates. Non-conveyance rates ranged from 17.5% to 48.5% and re-contact rates from 1.7% to 10.1%. There is a correlation co-efficient of 0.73 for 2011 and 0.64 for 2012, demonstrating that there is a positive relationship between the non-conveyance rate and re-contact rate i.e. the re-contact rate increases as the non-conveyance rate increases. The $R^2$ values for both years also suggest that between 38% and 52% of the variability of re-contact rates can be explained by the change in non-conveyance rates.

Analysis of the first and second incident types was completed following a review of the clinical records. Table 2 shows the first and second incident types including the relationship between the two. Table 2 provides a comparison of first incident types against second incident types based on the attending clinician’s assessment (based on 100% of the clinical data submitted by 9 Trusts).

48.5% of the incidents had the same first and second incident type. Of the 208 first attendances, falls were the predominant incident type (33.6%), followed by respiratory problems (6.25%) and abdominal pain (5.7%). The following points were noted:

- 43.3% of cases were recorded as having refused treatment and/or transport, with only 25.3% having had mental capacity assessment completed.
- 42.1% of cases ended with clinical advice being provided.
- 77.7% of cases had a paramedic as the most senior clinician present.
- 11.6% cases had drug interventions recorded.
- Referrals were made in 19.7% of cases.
From an operational perspective, chart 2 below shows the percentage of 999 demand generated through the re-contact incidents. This is typically the amount of activity you would expect to see the following day, as a result of non-conveyance. Nationally, the re-contact rate of 1.44% generates just over 100,000 of the 6.98 million 999 calls responded to annually. (based on 2012/13 data).
Conclusions

The audit has been a learning experience for all ambulance Trusts. The process of identifying and collecting data presented challenges (to varying degrees) for all trusts involved. The pilot sampling process did assist but, there were still issues encountered during the actual audit – mainly the clinical review element. The two main issues that emerged were; access to the data (often an IM&T issue) and capacity to resource and support the audit.

The review of ambulance non-conveyance policies highlighted a lack of consistency across services, with varying degrees of guidance available for staff. This ranged from highly prescriptive ‘checklists’ to vague guidance left to the discretion of the clinician. Policy coverage of both transport and non-transport options also seemed to lead to a lack of clarity in terms of clinical decision making. A lack of national guidance for non-conveyance was also identified.

The high degree of variance between organisations in relation to non-transportation rates and existing policy or practice has been reflected in the recent Keogh review of emergency and urgent care, which recommends further improvements to ensure greater consistency across areas (DH 2013).

While there are variations, the comparison of non-conveyance and re-contact rates does, on the whole, show a strong correlation (0.73 for 2011 and 0.64 for 2012); where higher rates of non-conveyance generally result in increasing re-contact rates. Almost half of the re-contacts (48.5%) were for the same clinical condition as the first call, with falls being the most common type of incident.

Only half the number of patients (51.3%) had their mental capacity assessed following refusal of further assistance or transport. The same low number of patients had clinical advice provided prior to discharge at scene. The lack of mental capacity assessments and failure to provide on-going clinical advice are areas of clinical risk, which may increase the likelihood of re-contact.

Nearly a quarter of patients (22.3.0%) were assessed and discharged at scene by an unregistered, non-paramedic clinician. This again, is a potential area of risk for organisations in terms of the lack of knowledge, competencies and professional standards to safely underpin decisions about non-conveyance. There were a relatively low number (19.7%) of referrals made to other services. However, the limitations of the audit meant it was not possible to identify whether this was due to a lack of pathways being available, patient’s being refused access to a pathway or staff not attempting to access a pathway.

The severity rating of the 2012 re-contact cases identified a significant level of risk associated with non-conveyance. 56.7% (42 out of 74) of the re-contact cases were rated as moderate and above in terms of harm to the patient. This included 2 unexpected deaths.

The audit shows that re-contact rates (within 24 hours) increase as non-conveyance rates increase, with evidence of risk of harm to patients. This is a significant quality and patient safety risk that ambulance Trusts will increasingly face (and need to mitigate against) in the context of the Keogh report. The report suggests that 40% of patients discharged from Emergency Departments could receive care closer to home and that ambulance services should be seen more as community-based
urgent care services (DH 2013). The operational implications area also evident with nearly 1.5% of activity generated from re-contacting non-conveyed patients.

The audit has highlighted a number of areas that would benefit from further collaborative working between ambulance services to achieve greater safety and consistency in relation to non-transportation decisions including:

- Defining competency levels of clinicians to make decisions
- Establishing minimum clinical assessment criteria
- Assessing and recording mental capacity
- The provision of clinical advice to patients
- Access to and utilisation of referral/care pathways
- Development of specific guidance around falls, mental health and breathing problems

**Recommendations**

The following recommendations are presented in order of descending importance:

1. The audit is expanded to create a single national ‘7 day working week’, which will help provide a representative national snapshot of the level of risk (i.e. more accurate estimate of likelihood/frequency of occurrence) associated with non-conveyance.

2. The audit should be established as a national twice yearly or quarterly activity, which would help monitor clinical risk associated with non-conveyance and measure the impact of increased non-conveyance rates. All Trusts should commit to completing all aspects of the audit. There is potential for this to help inform any future reviews of the National Ambulance Clinical Quality Outcome Indicators. In addition, Trusts may wish to develop their own internal re-contact audit processes and management systems to reduce the associated risks. One Trust now audits a 24 hour period every month on a rolling basis. An example of a management system to review all non-transported cases that result in an R1 and R2 re-contact on a live basis is included in appendix 3.

3. Development of a similar audit for patients managed through ambulance hear and treat systems (including where 111 services are provided).

4. The report should be shared with other national ambulance/urgent care groups (including AACE) where alternative strategies to reduce Emergency Department admissions are currently being reviewed.
References


Appendix 1
Audit Methodology

A. For initial attendances, identify total number of 999 calls received in 24 hour period (from 00-00 to 23-59 on the defined audit date) including activations.

B. From A, identify the total calls received and attended by ambulance service (ambulance, response car or other ambulance resource deployed and arrived at scene) in 24 hour period (exclude ‘hear and treat’ telephone HCP handled calls and Card 33 & 35 calls).

C. From B, remove and exclude from the audit; Diagnosis of Death/Recognition of Life Extinct and public place incidents (pubs, shopping centres, football stadia, schools etc.).

NB If this is not possible at this stage then they can be identified at stage G.

D. Total calls eligible for inclusion in audit (B minus C). If stage C could not be completed then B should be used at this stage.

Stage D should be filtered to provide the total number of 999 Calls that were conveyed (Di) and not conveyed (Dii)

E. (Optional) Analysis of call categories for D (Red/Green and AMPDS/Pathways code)

F. (Optional) Proportion of incidents in D with frequent caller flags or other warning/instruction flags

G. From sample D, identify the total number of patients who re-contacted via 999 (including re-contact via HCP handled calls or diagnosis of death on re-contact) within a 24 hour period from the time of the first call (from 00-00 on the 24th October to 23:59 on 25th October). Filters for deaths and public places on the first incident (Stage C) may be performed at this stage if not performed earlier.

The patient report forms (or electronic records system) must be reviewed for first and second calls to ensure the incidents involved the same patient.

Incidents must be removed from the sample where the second (re-contact) incident does not involve the same patient (for addresses such as nursing homes).

H. (Optional) Re-contact analysis to include call category and AMPDS/Pathway code and conveyance to hospital.
Appendix 2
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<tbody>
<tr>
<td>Total 999 Calls received and attended</td>
<td>1820</td>
<td>1965</td>
<td>946</td>
<td>666</td>
<td>1040</td>
<td>833</td>
<td>2541</td>
<td>2652</td>
<td>1349</td>
<td>1341</td>
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<td>Total 999 Calls received and not attended</td>
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<td>367</td>
<td>496</td>
<td>646</td>
<td>1658</td>
<td>839</td>
<td>4050</td>
<td>3978</td>
<td>1658</td>
<td>1686</td>
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**Non-Conveyance Rate**
- WMAS: 34.0%
- SCAS: 37.7%
- LAS: 40.0%
- YAS: 41.0%
- SECamb: 24.0%

**Re-contact within 24 hours**
- WMAS: 4.3% (24/562)
- SCAS: 2.8% (19/667)
- LAS: 2.4% (9/372)
- YAS: 3.1% (19/605)
- SECamb: 3.1% (19/605)

### Total

<table>
<thead>
<tr>
<th>Total 999 Calls received during 24 hour period</th>
<th>2011</th>
<th>2012</th>
</tr>
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<tbody>
<tr>
<td>Total 999 Calls received and attended</td>
<td>21,416</td>
<td>20,882</td>
</tr>
<tr>
<td>Total 999 Calls received and attended</td>
<td>15,232</td>
<td>15,640</td>
</tr>
<tr>
<td>Total 999 Calls received and not attended</td>
<td>6,184</td>
<td>5,242</td>
</tr>
</tbody>
</table>

**Non-Conveyance Rate**
- Total: 30.0%
- Re-contact within 24 hours: 4.3% (189/4346)
Check List:
First call Confirm: Pathway applied, Key Observations recorded, Crew designation, C2C, Advice Referral documented
Second call Confirm: relationship between 1&2 and actions required and Risk severity rating