PREHOSPITAL CARE

Introduction of non-transport guidelines into an ambulance service: a retrospective review

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Background: Recent government policy has looked at improving the role of ambulance services in delivering alternative care models for patients.
Objective: To review the outcomes of the introduction of some specific non-transport guidelines into an ambulance service.
Methods: A retrospective review was undertaken of the documentation produced from the use of these protocols in the first 4 months following introduction for appropriateness of use, and potential for risk of adverse outcome.
Results: Of 354 uses of the guidelines, 140 (39.5%) were considered inappropriate. A large number of these were cases where the issue was refusal of transport rather than a use of the guideline. Of the rest the more focused guidelines showed better adherence (hypoglycaemia 2/69 inappropriate, epilepsy 1/23 inappropriate) than the more non-specific guidelines (no apparent injury 17/84 inappropriate, minor limb injury 28/58 inappropriate).
Conclusions: This short study suggests that focused guidelines can help support ambulance staff decision making; however, care must be taken to ensure safe practice and that these guidelines are not used to add legitimacy to poor practice.

The report *Taking healthcare to the patient*, published in 2005,[1] started to look toward ambulance services in England managing patients differently. This has since been supported by *Our health, our care, our say*[2] which looks to move patient care back into the community. Traditional English ambulance response has had patients being transported to secondary care units and only left at home in cases where the patient refused to travel. This review looks at guidelines introduced in response to the publication of the above documents seeking to enable ambulance crews to leave patients safely at home in specific defined clinical scenarios.

Non-transport rate of patients has been recorded at around 17% nationally,[3] and this is a combination of refusal to transport or a decision not to transport either by the patient or the crew attending. Until now, in the South Yorkshire area, these latter decisions have generally been unsupported by clinical guidelines. Lack of a coherent clinical governance framework might expose patients and ambulance Trusts to risk potentially opening up the services and individuals to legal challenge in the event of a clinical problem.

This review looks at the application of non-transport guidelines and the lessons learnt from this. The setting for this review was a mainly urban population with some outlying rural areas. Ethical approval was not required for this review.

METHOD

Four non-transport guidelines were written by the authors using best available evidence including peer reviewed literature, Joint Royal Colleges Ambulance Liaison Committee Guidelines (JRCALC), and other guidance such as that published by the Scottish Intercollegiate Guidelines Network (SIGN) and the National Institute for Health and Clinical Excellence (NICE). These covered the patient with no injury, minor limb injuries, resolved hypoglycaemia in the patient with known diabetes, and resolved fit in the patient with known epilepsy. Specific documentation was produced for use with these guidelines to ensure these were easily auditable and to support recording of specific information such as patient agreement and advice given to the patient.

These were introduced for emergency medical technicians (EMTs) and paramedics across South Yorkshire.

Staff were consulted on this process and it was approved by the Clinical Governance Committee and the Trust board. Specific teaching sessions were delivered by the Trust medical advisor for paramedic trainers and technicians. Paramedics were taught on the use of the guidelines by their trainers. Teaching materials were provided and learner outcomes recorded.

After a period of 4 months all of the completed forms were reviewed by the authors for correct application of the guidelines and to ensure that they were not being used inappropriately. The forms did not allow indication of the grade of staff applying the guidelines so it was not possible to look for differences between EMTs and paramedics.

RESULTS

A total of 354 completed forms were reviewed by the authors against the original guidelines to which they were related. There was no indication on 120 of the forms (unclassified in table 1) which specific guideline was being applied. In these cases the documentation was compared against all four to see if any one was appropriately used. The forms were reviewed independently by the authors and results compared. There was complete agreement in all cases. Out of the total number, 141 (39.8%) were considered to represent an inappropriate use of the guideline documentation. Table 1 summarises the results.

Abbreviations: AMPDS, Advance Medical Priority Despatch Systems; EMT, emergency medical technician; JRCALC, Joint Royal Colleges Ambulance Liaison Committee Guidelines; NICE, National Institute for Health and Clinical Excellence; SIGN, Scottish Intercollegiate Guidelines Network

Table 1 Summary of results

Protocol	Total number (100%)	Number appropriate (%)	Number inappropriate (%)
No apparent injury	84	67 (79.8)	17 (20.2)
Hypoglycaemia	69	67 (97.1)	2 (2.9)
Minor limb injury	58	30 (51.7)	28 (48.3)
Epilepsy	23	22 (95.7)	1 (4.3)
Unclassified	120	27 (22.5)	93 (77.5)
Total	354	213 (60.2)	141 (39.8)

Group 1: no apparent injury

Seventeen of 84 cases were not considered appropriate, of which 12 cases were refusals to travel rather than a guideline supported decision to leave at home. In these cases a refusal to travel form should have been completed. The remaining five forms were used outside of the remit of the guideline including a patient with a urinary tract infection and a case of back pain in which Entonox was required for analgesia.

Group 2: hypoglycaemia in the known diabetic

Two of 69 cases were not considered appropriate. Of the other two, one was a refusal to transport and the other was an elderly patient who had suffered a fit, which was documented as being due to the hypoglycaemia and so did not fit the guidelines.

Group 3: patients with epilepsy

One of 23 cases was not considered appropriate due to a refusal of transport, the patient's family preferring to provide the transport themselves. While this was recorded as use of the protocol as the patient had refused to travel, it was not an appropriate application.

Group 4: minor limb injury

Twenty-eight of 58 cases were not considered to be appropriate. Of these 28, 26 were used for non-limb injuries, mainly head, facial, or back injuries, and the remaining two were inappropriate clinically, with one involving a patient who had suffered a fit but was not known to be epileptic who was refusing transport, and the other being a collapse in an epileptic with no injury. In the latter case, if no history of a fit was present then the no apparent injury guideline could have been appropriately applied.

Unclassified

One hundred and twenty forms were not immediately identified as specific to a particular guideline and considered as a separate group. Of these, 93 were not considered to be an appropriate use of either the non-transport guidelines or the documentation. Nine of these 93 cases were refusals of transport rather than crew decisions. The remaining 84 of these 93 cases were alternative clinical diagnoses which were outside the remit of any of the non-transport guidelines. These included 12 possible chest infections, 10 cases of hyperventilation (where diabetic complications were excluded), and nine cases in which there was a history of chest pain. In many cases there was documentation which supported the decision not to transport on clinical grounds; however, this was outside the remit of the guidelines. In two cases the clinical information provided was suggestive of a potential critical incident to the patient concerned; however, in one of those it was a refusal to travel rather than a non-transport issue. These cases are documented in box 1.

Box 1

- **Case 1:** Heroin user had had a possible respiratory arrest and friend gave mouth to mouth. On arrival of the crew, however, the patient was alert and conscious and then refusing to travel but consented to 1200 μg of naloxone intramuscularly. Naloxone has a shorter half life than heroin so cannot be considered protective; however, in this case it is a refusal to travel with an attempt by the crew to minimise the clinical risk.
- **Case 2:** A patient with terminal lung cancer fallen out of bed with no injury. An ECG was done which showed an irregular rhythm with ischaemia, but this was assumed to be normal for the patient due to the concurrent illness and they were kept at home on the basis of the no injury protocol. There was no documenting that the family were informed of the risk of ischaemia and given the option to transport.

DISCUSSION

There is no obligation on ambulance services in England to transport all patients they attend. An epidemiological study of patients in the East Midlands ambulance region in 2002[4] showed that half of these are refusals to travel (more recent work puts refusal to travel against medical advice rate at 8%)[5] while falls account for over one third of non-transported calls. This review also noted that 48% of the calls that were not transported were assigned either an AMPDS (Advance Medical Priority Despatch Systems) delta (most urgent) or category A, and other studies have previously noted difficulties in the prioritisation of calls by these types of systems which are designed to be risk averse.[6 7]

The concern arises in the group of patients who are not transported but did not refuse to travel. Several studies have been performed, mainly in the USA, reviewing whether paramedics are able to safely decide which patients do not need ambulance transport.[8 9] In two of these the conclusion was that paramedics without any additional training are not able to reach this decision safely; however, in one study they did feel that the under triage rate was low, suggesting a level of safe practice being exhibited by the frontline crews.[10]

The key issue for us in introducing these guidelines was to support ambulance crews in deciding, in partnership with the patient, that transport was not required, thereby improving patient care by minimising unnecessary emergency department attendances. Such guidelines also protect the organisation medico-legally because if a patient had a critical incident after being advised not to travel, without such guidance this would be difficult to defend in law. In a previous study, between 3–11% of patients initially categorised as not requiring an ambulance by the crew, had a critical event in the ambulance en route to the emergency department.[11] Other studies have shown that up to 65% of patients who are not transported require medical care in the following week, with up to 20% being hospitalised.[12] One study commented upon the fact that 30% of patients, or their relatives, who were not transported did not remember being given the option to transport, questioning the issue of informed consent not to travel.[13] Our forms require the patient or their advocate to sign to support the documented care plan, thus improving on this issue.

A study was carried out in the London area assessing ''Treat and refer'' guidelines for 23 different clinical conditions; however, only 101 cases were recorded as having used a guideline and, of these, 57 related to fallers. Interestingly the

study showed no significant difference in the proportion of patients left at the scene between the intervention and control groups, as well as increased on scene times in the intervention group possibly questioning the financial benefits of such a process.[14] A second paper[15] which then explored the views of ambulance staff showed some interesting information which may help explain some of our findings. They found that experienced ambulance crews felt their experience allowed them to make safe decisions about conveyance of patients and some of the crews questioned felt that their practice remained driven by their intuition rather than the guidelines, although the guidelines themselves gave legitimacy to an informal practice that already occurred. This may explain why we found a high proportion of forms completed which, while clinically reasonable, were outside the correct remit of the guidelines with crews wanting to add legitimacy to their decisions. Through this study we have been able to assess the conditions where ambulance crews felt they could safely leave the patient at home, outside the guidelines in the case of this study, but where further guidelines might be of benefit to support and allow safe practice—for example, hyperventilation.

It is interesting that in spite of a clear teaching strategy there was only 60% compliance with the guidelines, although the results would suggest that the more focused the guideline the better the compliance. In response to this it is crucial that future guidance is more specifically targeted towards defined clinical areas and that the education delivered is very clear on the parameters to be applied to the clinical scenario. The natural evolution of ambulance services in England is towards the development of practitioner roles in which holistic patient assessment and decision making should remove some of the need for such rigid guidance.

CONCLUSION

We have introduced four non-transport guidelines into the ambulance service with mixed results. While they have been used appropriately 60% of the time, there have been many cases of the documentation being outside the remit of the guidelines or used incorrectly when the issue is refusal to travel. Further training needs to occur to minimise clinical risk and maximise the potential, with appropriate care pathways being established to support this work. There may also be scope to extend the range of guidelines to allow more patients to be managed in this way; however, it is clear that these would need to be focused in their remit and outcomes.

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