

PEER REVIEW HISTORY

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ARTICLE DETAILS

TITLE (PROVISIONAL)	National Audit of Seizure management in Hospitals (NASH): results of the national audit of adult epilepsy in the United Kingdom
AUTHORS	Dixon, Peter; Kirkham, Jamie; Marson, Tony; Pearson, Michael

VERSION 1 - REVIEW

REVIEWER	Tony Rudd Guy's and St Thomas' NHS Foundation Trust UK I have worked with Professor Pearson in the past when he was the Director of the Clinical Effectiveness and Evaluation Unit at the RCP
REVIEW RETURNED	14-Dec-2014

GENERAL COMMENTS	<p>This paper reports the results of a national audit of seizure management in the UK and demonstrates major variations in practice presenting a case that improvements in care are needed. Overall the methodology of the audit is sound. It is retrospective data collection of a consecutive series of patients presenting with seizures and therefore has the limitations associated with this method but as a way of identifying the principal issues that need addressing this is a legitimate way to start</p> <p>The issues I have with the paper are:</p> <ol style="list-style-type: none">1. I think for a non specialist readership not familiar with the way that seizures should be managed it would be helpful in the results and discussion sections to state what standards are recommended by the guidelines and how performance in the audit deviates from these standards. At the moment big variations in practice are demonstrated without it being clear how services need to improve.2. More information is needed about how recruitment was undertaken. 154 sites were include; it is not stated how many were approached and whether the sites that participated differed significantly from non participating sites (size, teaching hospital, geographically etc).3. I am not clear why the two data sets (from the two audits are either not presented combined as a single set of data if there really are no significant differences between them (to increase the power of the study) or as 2 comparative sets showing either change or no change over a two year period. Presumably there was some activity in terms of quality improvement following the release of the first data set. Would it not be of interest to show that despite this no change had occurred and discuss why not4. It is important that the definitions of epilepsy and seizures used for the study are included5. There is a worryingly high rate of patients in the non epilepsy groups on anticonvulsants (17.3% and 4.5%). It is suggested that his might be due to patients being on anticonvulsant drugs for other
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	<p>reasons. This seems unlikely at this sort of rate which raises the issue of data quality. What checks of quality were included in the audit? Was the audit tool designed with internal validation included for example that required the user to justify answering no the epilepsy diagnosis question when they had stated that the patient was taking an anticonvulsant.</p> <p>6. What plans are there to use the data to change practice and close the audit loop?</p>
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REVIEWER	<p>Professor Dieter Schmidt Epilepsy Research Group Berlin, Germany</p> <p>Consulting and speaking fees and hospitality from the following companies during the last three years: UCB, Novartis, Eisai, Viropharm, Sun Pharma</p>
REVIEW RETURNED	13-Jan-2015

GENERAL COMMENTS	<p>The authors are to be commended to have analyzed epilepsy care in emergency departments. The results document below-standard (NICE) care for a large minority of patients with great variability in many centres. I fully agree with the conclusions.</p> <p>I have two minor comments that need to be addressed by the authors, in my view.</p> <ol style="list-style-type: none"> 1. What proportion of centres which were asked to participate did actually contribute data? 2. As each visit was considered separately, it is not possible to estimate how many of the visits were repeat visits by the same patient. Do the authors have information on repeat visits?
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VERSION 1 – AUTHOR RESPONSE

Tony Rudd's comments:

1. I think for a non specialist readership not familiar with the way that seizures should be managed it would be helpful in the results and discussion sections to state what standards are recommended by the guidelines and how performance in the audit deviates from these standards. At the moment big variations in practice are demonstrated without it being clear how services need to improve.

Response: There were no specific guideline standards for many of the variables when this project was conceived. But, for example, measuring temperature on arrival (seizures may be related to infection), or seeking a history from an eyewitness (patients cannot describe their own seizure) have been standard teaching for many years and are almost too obvious to be stipulated. While we can speculate that there is a laxness in approach to managing seizures, perhaps because many are already recovering from the acute episode by the time they are seen, we have been reluctant to be too critical based on speculation. We think that is for the reader to infer (or not). Since the project began, NICE quality standards have been produced and (we believe) have been influenced by this work and 7 of 9 NICE standards relate to variables we record.

We have tried to reflect this in the discussion with an extra paragraph. In terms of future change, epilepsy is on not on any priority lists – and it will take time for that to happen. There are new challenges which we allude to, including that secondary care and tertiary care commissioning is separate and there are few neurologists in secondary care to champion change, but we did not feel it was for a paper to go into the politics in any more detail.

2. More information is needed about how recruitment was undertaken. 154 sites were included; it is not stated how many were approached and whether the sites that participated differed significantly from non-participating sites (size, teaching hospital, geographically etc.).

Response: The number of sites who were approached is now included in methods section. The hospitals were evenly scattered across the 4 home countries of the UK. The lists of a decade ago that classified trusts as teaching or non-teaching have gone, probably because most trusts claim teaching status of some degree. However, we can examine the lists of hospitals who took part a) in NASH1 but not NASH2, b) in NASH2 but not NASH1, in both rounds, or in neither. There was no systematic difference in hospital size or geographic distribution. The lists of participants could be made available for a web resource if you wished or we could add a map as a figure, but we doubt it enhances the paper.

3. I am not clear why the two data sets (from the two audits are either not presented combined as a single set of data if there really are no significant differences between them (to increase the power of the study) or as 2 comparative sets showing either change or no change over a two year period. Presumably there was some activity in terms of quality improvement following the release of the first data set. Would it not be of interest to show that despite this no change had occurred and discuss why not?

Response: There are minor differences in some questions that make combining the two audits difficult. We have looked at both data sets together and at a comparison of the 101 sites who participated twice. But faced with a need to keep within reasonable word limits, we took the option of showing the most recent data. The differences between hospitals and indeed the variation from expected norms are so wide that we believed there was no need to increase the study power - no conclusions are changed. Such wide variability cannot be consistent with best practice.

We do have a graph comparing the data from the two audits in the 101 trusts that took part in each phase. It shows a statistically positive improvement in 7 key variables. However the change, while encouraging, is at a level that would probably not be noticed by patients – the variance is just as wide across sites and indeed between different variables. We have added a short paragraph and figure at the end of the results section, but would not be offended if you did not include it.

4. It is important that the definitions of epilepsy and seizures used for the study are included.

Response: The ICD10 codes used as part of the inclusion criteria are listed.

5. There is a worryingly high rate of patients in the non-epilepsy groups on anticonvulsants (17.3% and 4.5%). It is suggested that this might be due to patients being on anticonvulsant drugs for other reasons. This seems unlikely at this sort of rate which raises the issue of data quality. What checks of quality were included in the audit? Was the audit tool designed with internal validation included for example that required the user to justify answering no the epilepsy diagnosis question when they had stated that the patient was taking an anticonvulsant.

Response: We disagree that the proportions were worryingly high. The diagnosis of syndromes related to blackouts, loss of consciousness and seizures is difficult, and given the low involvement of neurology expertise noted elsewhere in the study we had expected some overlap, which is one of the reasons for treating this as a separate group in the study. This is a group where, from audit data, it was not possible to be sure what the diagnosis was. We cannot, from audit data, judge the accuracy of diagnosis; indeed we deliberately avoided adding many more questions to the audit because we did not want to burden participants unduly. Hypotheses include that these are patients in the early stages of diagnosis and all may have been resolved a few weeks later, that a relative dearth of

neurology specialist expertise had left the diagnosis open, or that data recording was too vague to make a firmer diagnosis allocation.

So we agree with your reviewer that there should be worry about the diagnosis in this group. It is an area for future study and we have added a sentence to the discussion to cover this.

6. What plans are there to use the data to change practice and close the audit loop?

Response: There are a series of initiatives supported by NHSE's lead for Neurology and by the Strategic Clinical Networks that commission regionally. They have the data and are discussing it actively and a few areas are implementing specific action plans. None of this is dependent on the NASH team who have no funding for such work, but we continue to liaise with the professional and patient organisations to push for action. Reviewing the various activities is beyond the remit of this paper although it might make a topic for another article - in discussion format.

Professor Dieter Schmidt's comments:

1. What proportion of centres which were asked to participate did actually contribute data? Response: The response rate is given in results section.

2. As each visit was considered separately, it is not possible to estimate how many of the visits were repeat visits by the same patient. Do the authors have information on repeat visits?

Response: We did not collect data that would allow us to identify repeat attenders. There will be some patients who appear more than once but the process of care should be similar each time. We do know that 35% of the cohort had attended ED for a similar episode in the preceding year, and yet for the majority no attempt is made to refer them on to neurology services for further assessment and management. This further highlights the disconnect between services that has to be fixed.

VERSION 2 – REVIEW

REVIEWER	Tony Rudd Professor Stroke Medicine Kings College London, Stroke Programme Lead Clinical Standards Department, Royal College of Physicians, London
REVIEW RETURNED	24-Feb-2015

GENERAL COMMENTS	<p>I thank the authors for addressing the issues raised in my first review. They have clearly shown major variations in the standards of care being delivered to patients presenting with seizures. My only remaining concern is that I don't agree with the statement made in response to the review is that the authors should not be too 'political'. I would have thought that were in a position to be more specific about the ways that quality could be improved e.g. better education and training, clear management guidelines to be used by specialists and non specialists alike including exactly when and who should be referred for specialist assessment, repeated cycles of audit against these standards, publication of process data by named hospital etc. So I still think a clearer more didactic conclusion about how to solve the problems is justifiable</p> <p>The only other question I have is whether there are any similar audits published from other countries that might be worth citing. If there are there may be some lessons that would be worth leaning and if not then it is worth saying that to show that this is the first such audit internationally. Either way it might the paper of more interest to an international audience</p>
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VERSION 2 – AUTHOR RESPONSE

We thank the reviewer for taking the time to review our revised submission. Please find below our responses to the two issues raised .

1. “I don't agree with the statement made in response to the review is that the authors should not be too 'political'. So I still think a clearer more didactic conclusion about how to solve the problems is justifiable.”

On reflection, we agree with the reviewer, and have therefore added a paragraph at the end of our conclusion section to specifically make the case for “acute neurology”, whilst acknowledging the issues this would face in terms of commissioning. This recommendation is in line with a previous report by the RCP, which we have also added to our list of references.

2. “The only other question I have is whether there are any similar audits published from other countries that might be worth citing.”

We are unaware of any other adult epilepsy audits from outside the UK. We have amended our text to reflect that.