

PEER REVIEW HISTORY

BMJ Open publishes all reviews undertaken for accepted manuscripts. Reviewers are asked to complete a checklist review form (<http://bmjopen.bmj.com/site/about/resources/checklist.pdf>) and are provided with free text boxes to elaborate on their assessment. These free text comments are reproduced below.

ARTICLE DETAILS

TITLE (PROVISIONAL)	Temporal changes in the documentation of neurological findings among acute ischaemic stroke patients in a single centre in Japan: a retrospective cross-sectional study
AUTHORS	Komagamine, Junpei; Komagamine, Tomoko

VERSION 1 – REVIEW

REVIEWER	louis r caplan md Beth Israel Deaconess Medical Center Boston MA, USA
REVIEW RETURNED	08-Sep-2017

GENERAL COMMENTS	In order to place the results in perspective for those not in japan- 1) What is the average stay of stroke patients in the hospital of the study? Were there a significant number of patients discharged before day 7 that would not b entered in this study? Were there requirements that a physician had to write a note each day? What neurological training and experience did the internists have?
-------------------------	---

REVIEWER	Prof Argye Hillis Johns Hopkins
REVIEW RETURNED	15-Sep-2017

GENERAL COMMENTS	<p>This paper seems to document a potential “missed opportunity” to learn optimally from stroke patients, with respect to changes in the neurological exam over time in different types of stroke. After stroke, some survivors improve, others decline, others fluctuate. The exam often reflects changes in blood flow in the brain, either in response to intervention or spontaneously. However, the observations may only reflect the diminished necessity of documentation of findings when there is no change. It is possible that physicians did complete thorough neurological exams, but did not feel it necessary to document the full exam when there were no new findings.</p> <p>As the authors point out, it would have been very useful to determine if the quantity or quality of documentation was associated with outcome, or associated with actual changes (or lack of change) in the exam, as documented by an unbiased observer.</p> <p>In many places, stroke patients are admitted to neurology wards, where neurologists are the attending physicians.</p>
-------------------------	--

	<p>Neurologists may have the greatest interest in learning from their patients and thoroughly documenting findings each day (although this probably varies across academic and non-academic hospitals). Therefore, the implications of this study likely only apply to places where patients are admitted to neurosurgeons or internists. Because it is unclear how commonly (across countries) stroke survivors are admitted to neurosurgeons or internists, the paper may be more appropriate for a more local journal.</p> <p>The authors note the other weaknesses of the study, but also note that it is unique in its findings. The message seems to be that physicians could learn more about the brain by carefully evaluating (and documenting) a comprehensive examination of stroke patients on a daily basis. While I am very sympathetic with this view, the importance of carrying out the examination may be more important than documenting it. And the two were not distinguished in this study.</p> <p>Minor points</p> <p>I did not really understand the relevance of references to Pokemon, magazines disappearing, or chocolates.</p>
--	---

REVIEWER	John Kellett Adjunct Professor Acute and Emergency Medicine University of Southern Denmark
REVIEW RETURNED	23-Sep-2017

GENERAL COMMENTS	<p>This is a really interesting paper, that is well written and easy to read. Although the amount of documentation in patients, at least in my experience, has grown enormously, almost no one has seriously looked at the quality of information recorded or its clinical value. This is an important, indeed a first and landmark paper, in this area. The poor documentation observed after initial assessment and diagnosis does suggest that doctors are more interested in diagnosing their patient, than what happens to them after that. However, I am sure if the authors challenged their colleagues as to why they did not document their response would be "what is the evidence that there is value in continued documentation after the diagnosis has been made and treatment begun?". As I read the paper the authors only imply that continuing documentation of neurological signs is of prognostic value – it would help their case considerably if they had a reference to support this, rather than anecdotal evidence from C. Miller Fisher. Can they give clear examples of how a change in neurological findings would 1. accurately indicate prognosis and/or 2. The need for an intervention. Also what about the documentation of other things – like vital signs? Level of consciousness is a vital sign, and failure to record it would certainly imply poor clinical care and the Rapid Response Systems literature is full of examples of how failure to record and/or respond to abnormal vital signs leads to poor outcomes. The authors might consider referencing this literature to strengthen their argument.</p> <p>Whilst amusing I thought the reference to Pokemon GO a bit flippant, and undermined an otherwise excellent paper.</p>
-------------------------	--

VERSION 1 – AUTHOR RESPONSE

Response to Reviewer #1

Comment 1: What is the average stay of stroke patients in the hospital of the study? Were there a significant number of patients discharged before day 7 that would not be entered in this study? Were there requirements that a physician had to write a note each day?

Response: Thank you very much for your valuable comments. In our hospital, the average stay of ischemic stroke patients, excluding those with a transient ischemic attack, was 25.1 days (SD 19.9) during the study period. Among all 474 ischemic stroke patients, 46 patients were discharged before day 7. In our hospital, like most other hospitals, physicians were not required to write a note each day. However, according to the Japanese Medical Physicians' Act, physicians who care for and examine the patient must document the content of the examination in the medical records as soon as possible. Therefore, theoretically, the medical record documentation reflects the physicians' actions regarding examination and assessment in Japan. This information is presented in the methods and results sections of this revised manuscript.

Comment 2: What neurological training and experience did the internists have?

Response: Thank you very much for your valuable comments. All of the internists included in the study had received formal neurological training for one to two months during a two-year junior residency. However, no internists had received additional formal neurological training. It is common in Japan for physicians to have no additional formal neurological training after the junior residency unless they want to be neurologists. For neurology experience, most internists care for common neurological diseases (such as migraine, Alzheimer-type and vascular-type dementia and stroke) on a regular basis in our hospital. However, degenerative diseases, such as Parkinson disease or spinocerebellar ataxia, as well as neurological emergencies other than stroke and encephalitis, are referred to other hospitals with neurologists. This is also a common practice in Japan because approximately 50% of hospitals have no neurologists even in certified training institutions of the Japan Neurosurgical Society, the Japanese Society of Neurology, and/or the Japan Stroke Society (PLoS ONE 2014;9(5):e96819). This information is presented in the methods sections of this revised manuscript.

Response to Reviewer #2

Comment 1: This paper seems to document a potential “missed opportunity” to learn optimally from stroke patients, with respect to changes in the neurological exam over time in different types of stroke. After stroke, some survivors improve, others decline, others fluctuate. The exam often reflects changes in blood flow in the brain, either in response to intervention or spontaneously. However, the observations may only reflect the diminished necessity of documentation of findings when there is no change. It is possible that physicians did complete thorough neurological exams, but did not feel it necessary to document the full exam when there were no new findings.

Response: Thank you very much for your valuable comments. As you point out, we need to consider the possibility that physicians performed complete and thorough neurological exams but did not feel that it was necessary to document the full exam when there were no new findings. However, we think that any neurological findings from patients should be documented in medical records. Even if neurological findings do not appear to be important or unnecessary when examining patients, these findings sometimes become important retrospectively.

In these terms, we think that the documentation of neurological findings may be of interest to both neurology studies and patients. In addition, according to the Japanese Medical Physicians' Act, physicians who care for and examine the patient must document the content of the examination in the medical records as soon as possible. Therefore, theoretically, the medical record documentation reflects the physicians' actions regarding examination and assessment in Japan. Nonetheless, we think that this is an important limitation of this study as you point out.

Comment 2: As the authors point out, it would have been very useful to determine if the quantity or quality of documentation was associated with outcome or associated with actual changes (or lack of change) in the exam, as documented by an unbiased observer.

Response: Thank you very much for your valuable comments. We did not evaluate the association between the quantity or quality of documentation and patient outcomes due to the lack of accurate information on the severity and morbidities of stroke patients at admission and discharge. Moreover, because of the retrospective design, the association between the documentation and actual changes for neurological findings were unclear. Therefore, the documentation may have decreased due to a lack of changes in neurological findings. These issues need to be evaluated in the future.

Comment 3: In many places, stroke patients are admitted to neurology wards, where neurologists are the attending physicians. Neurologists may have the greatest interest in learning from their patients and thoroughly documenting findings each day (although this probably varies across academic and non-academic hospitals). Therefore, the implications of this study likely only apply to places where patients are admitted to neurosurgeons or internists. Because it is unclear how commonly (across countries) stroke survivors are admitted to neurosurgeons or internists, the paper may be more appropriate for a more local journal.

Response: Thank you very much for your valuable comments. Our results may be only applicable to places where patients are admitted to neurosurgeons or internists, as you point out. However, this practice is common at least in Japan because approximately half of hospitals have no neurologists even in certified training institutions such as the Japan Neurosurgical Society, the Japanese Society of Neurology, and/or the Japan Stroke Society (PLOS ONE 2014;9(5):e96819). A previous German study, although conducted in 2004, also reported that acute ischemic stroke patients were admitted to the internal medicine ward in approximately half of 225 acute care hospitals that participated in a stroke registry (JAMA 2004;292(15):1831-8). Furthermore, although we do not have an accurate number indicating how commonly stroke survivors are admitted to neurosurgeons or internists across countries, the number of neurologists is not sufficient worldwide (World Health Organization. Atlas: country resources for neurological disorders 2004); thus, non-neurologists may care for stroke patients in many countries. Therefore, we think that our findings are important for non-neurologists even on the worldwide level. Nonetheless, due to a small sample size and a single-centre study, we think that these findings should be confirmed in the hospitals of other countries. This information is added in the discussion sections of this revised manuscript.

Comment 4: The authors note the other weaknesses of the study, but also note that it is unique in its findings. The message seems to be that physicians could learn more about the brain by carefully evaluating (and documenting) a comprehensive examination of stroke patients on a daily basis. While I am very sympathetic with this view, the importance of carrying out the examination may be more important than documenting it. And the two were not distinguished in this study.

Response: Thank you very much for your valuable comments. This is an important limitation. However, a past study to investigate the spending time of duty hours by internal medicine interns reported that the spending time for direct patient care was significantly longer in the hospital in which interns spend more time on indirect patient care including writing notes (J Gen Intern Med 2013;28:1042-7.).

Comment 5: I did not really understand the relevance of references to Pokeman, magazines disappearing, or chocolates.

Response: We apologize for this point. Before submitting to BMJ Open, our original manuscript was previously submitted to this year's Christmas issue of the British Medical Journal and was rejected (August 29, 2017). We then submitted the original manuscript to the BMJ Open without removing the humour for the Christmas issue in the manuscript. We removed these references from this revised manuscript. We are very sorry.

Response to Reviewer #3

Comment 1: This is a really interesting paper, that is well written and easy to read. Although the amount of documentation in patients, at least in my experience, has grown enormously, almost no one has seriously looked at the quality of information recorded or its clinical value. This is an important, indeed a first and landmark paper, in this area. The poor documentation observed after initial assessment and diagnosis does suggest that doctors are more interested in diagnosing their patient, than what happens to them after that. However, I am sure if the authors challenged their colleagues as to why they did not document their response would be "what is the evidence that there is value in continued documentation after the diagnosis has been made and treatment begun?". As I read the paper the authors only imply that continuing documentation of neurological signs is of prognostic value – it would help their case considerably if they had a reference to support this, rather than anecdotal evidence from C. Miller Fisher. Can they give clear examples of how a change in neurological findings would 1. accurately indicate prognosis and/or 2. The need for an intervention. Also what about the documentation of other things – like vital signs? Level of consciousness is a vital sign, and failure to record it would certainly imply poor clinical care and the Rapid Response Systems literature is full of examples of how failure to record and/or respond to abnormal vital signs leads to poor outcomes. The authors might consider referencing this literature to strengthen their argument.

Response: Thank you very much for your helpful suggestions. To specify the clinical benefit of continuing documentation after diagnosis, we added the need for an early intervention in the introduction and discussion section, as you suggest. In addition, we also added the Rapid Response Systems literature to the references in this revised manuscript.

Comment 2: Whilst amusing I thought the reference to Pokemon GO a bit flippant, and undermined an otherwise excellent paper.

Response: We apologize for this point. Before submitting to BMJ Open, our original manuscript was previously submitted to this year's Christmas issue of the British Medical Journal and was rejected (August 29, 2017). We then submitted the original manuscript to BMJ Open without removing the humour for the Christmas issue in the manuscript. We removed these references from this revised manuscript. We are very sorry.

VERSION 2 – REVIEW

REVIEWER	louis r caplan md Harvard University- USA
REVIEW RETURNED	22-Oct-2017

GENERAL COMMENTS	Are the notes all electronic or are some hand-written in the hospital record?
-------------------------	---

REVIEWER	John Kellett University of Southern Denmark
REVIEW RETURNED	16-Oct-2017

GENERAL COMMENTS	I am very happy with the revisions made to this paper.
-------------------------	--

VERSION 2 – AUTHOR RESPONSE

Response to Reviewer #1

Comment : Are the notes all electronic or are some hand-written in the hospital record?

Response: Thank you very much for your valuable comments. In our hospital, all medical records have been electronic since September 2014. This information is added in the Methods section of the revised manuscript.

Response to Reviewer #3

Comment: I am very happy with the revisions made to this paper.

Response: Thank you very much for saying so.