

# Improving pain assessment and management in stroke patients

Julian Nesbitt, Sian Moxham, gopinath ramadurai, Lucy Williams  
Great Western Hospital, Swindon

## Abstract

Stroke patients can experience a variety of pain. Many stroke patients have co-morbidities such as osteoporosis, arthritis or diabetes causing diabetic neuropathy. As well as pain from other long term conditions, stroke patients can experience central post-stroke pain, headaches, and musculoskeletal issues such as hypertonia, contractures, spasticity, and subluxations. These stroke patients can also have communication difficulties in the form of expressive dysphasia and/or global aphasia. Communication difficulties can result in these patients not expressing their pain and therefore not having it assessed, leading to inadequate pain relief that could impact their rehabilitation and recovery.

By implementing an observational measurement of pain such as the Abbey pain scale, patients with communication difficulties can have their pain assessed and recorded. Initially 30% of patients on the acute stroke ward did not have their pain assessed and adequately recorded and 15% of patients had inadequate pain relief. The patient was assessed if they were in pain and therefore not receiving adequate pain relief by measuring their pain on the Abbey pain scale. After introducing the Abbey pain scale and creating a nurse advocate, an improvement was shown such that only 5% of patients did not have their pain recorded and all had adequate pain relief.

## Problem

Pain in stroke patients is hard to assess due to communication difficulties such as expressive/receptive dysphasia, global aphasia, and concurrent dementia. Around a third of stroke patients have communication difficulties which can affect their ability to verbally express pain.[1] As a result, stroke patients' pain was not always assessed and recorded on the patient's observation chart while they were on the acute stroke unit at The Great Western Hospital. By not assessing the patients' pain and then not recording their pain scores, these patients can receive inadequate analgesia. This can cause increased agitation and reluctance to engage in rehabilitation.[2,3]

## Background

The literature estimates the prevalence of chronic post-stroke pain ranges from 32-42% at four to six months and 11-21% at twelve to sixteen months after a stroke.[4,5,6] Stroke patients can suffer pain from a variety of sources.[7,8] These include central post-stroke pain, headaches, shoulder pain from subluxation, and muscle contractures. Post-stroke patients may also experience hypertonia and spasticity as well as contractures of the muscles and joints, these can all cause pain. As well as stroke specific pains, patients may have painful co-morbidities such as diabetic neuropathy, arthritis, and osteoporosis.

When stroke patients with communication difficulties are not able to express their pain this can lead to their pain not being adequately assessed and recorded, resulting in them receiving inadequate analgesia.

## Baseline measurement

To identify if this was a problem, I conducted an initial audit of the 18 patients on the acute stroke unit in the Great Western Hospital in Swindon. This initial measurement was taken in October 2014. Out of 18 patients, six did not have their pain recorded on the observation chart (33%). These six patients all had communication difficulties; four with expressive dysphasia and two with aphasia. Out of these six patients with no pain recorded, three did not have adequate pain relief (17% of the ward). To ascertain if adequate pain relief was prescribed, I then measured whether these six patients were in pain by using an observational pain measurement tool: the Abbey pain scale.

See supplementary file: ds5001.png - "Abbey pain scale"

## Design

After discussion with the nursing staff, it seemed that the underlying cause of the problem was due to certain stroke patients not being able to communicate their pain to the nursing staff. Therefore the nursing staff were not assessing or recording the pain, resulting in some of these patients receiving inadequate pain relief.

To rectify this I researched ways of measuring pain by observation, eliminating the need for the patients to communicate their pain. The Abbey pain scale was created as an observational measurement tool to be used in patients with dementia who are unable to communicate their pain.[9] This scale uses six observational measurements including vocalisation, facial expression, change in body language, behavioural change, physiological change, and physical changes (see box 1). A score is given for each and added up to calculate the degree of pain present. It has been shown to be easy to use, quick and reliable in assessing pain in patients with communication difficulties, and it can be used both to screen pain and to monitor pain.[10] I chose this scale as it is easy to use, reliable, valid[9] and is already being used at the Great Western

Hospital for assessing pain on the dementia ward.

I therefore introduced the Abbey pain scale onto the stroke ward and initially trained the nurses on the ward how to use it. It was hoped that by using this scale all patients would be able to have their pain assessed and therefore have adequate pain relief.

## Strategy

PDSA cycle 1: Initially I personally trained the nurses on the stroke ward to use the Abbey pain scale. I printed out copies of it and liaised with the ward clerk to create a section in the nurses' station to store these. I discussed with the ward manager and implemented a system that any patient with communication difficulties who has had a stroke should have an Abbey pain scale put into the front of their observation chart so as to remind the nursing staff to use it on their observation rounds. After implementing this change I re-audited our 18 stroke patients in November 2014 and found that now 100% of the acute stroke patients (including those with communication difficulties) had their pain recorded, and that 100% these patients had adequate pain relief prescribed. At this point I was satisfied with the result and made no further changes.

PDSA cycle 2: In December 2014 I moved to a new job and was interested to see if the Abbey pain scale was still being used now I had left. On auditing again I found that four out of the 18 patients (22%) did not have their pain recorded and one out of the 18 patients (5%) did not have adequate pain relief. While this was an improvement from the original audit, standards had slipped and the Abbey pain scale was not being used in some of the patients.

A nurse advocate for pain in stroke patients was created and it was planned that a copy of the pain scale would be put in all patients' admission paperwork. It was also encouraged that nurses trained each other to use the scale and inspire change based on improving patient care.

## Results

The endpoint was a fourth audit after two PDSA cycles. This was carried out in January 2015 by measuring how many of the 18 patients on the ward had their pain recorded and how many of these had adequate pain relief. Adequate pain relief was measured using the Abbey Pain Scale. If a patient scores above 2 on this scale, this indicates that the patient is in pain and therefore does not have adequate pain relief.

The final results showed one out of 18 (5%) patients did not have their pain recorded but all patients had adequate pain relief. This was an improvement from the data point before where 22% did not have their pain recorded and 5% did not have adequate pain relief.

## Lessons and limitations

This quality improvement project has highlighted a number of lessons. Firstly, patients with communication difficulties may not have their pain recorded and this can result in them not having

adequate pain relief. The Abbey pain scale can be used as an observational pain assessment tool for patients with communication difficulties.

This project has also demonstrated that when working on a ward where you are implementing changes, you may see good results initially. However, these changes may not be sustained when you leave the ward. To try to prevent this and promote a lasting beneficial change, the nursing staff permanently based on the ward need to be actively engaged and involved in the process. I found that it can be helpful to create a nurse advocate to achieve this.

The Abbey pain scale is a subjective measure and so a degree of training is required. It also may meet some resistance in that it takes a few minutes to calculate and could be seen to add extra workload onto the nursing staff. However it is not difficult to perform and is quick to calculate. In order for it to be successfully implemented, nursing staff need to be engaged in the process and understand the benefits of completing it. If they are not, it will be neglected in an already paperwork-heavy world.

This was a small study looking at 18 patients on a single stroke ward. However, it did demonstrate that pain assessment and management can be challenging in patients with communication difficulties. The use of this pain measurement tool could be transferred to any ward where there are patients with communication difficulties so that these patients can get their pain recorded and then hopefully adequately treated.

## Conclusion

The Abbey pain scale is a reliable and effective way of measuring pain in patients with communication difficulties. Stroke patients can experience a variety of pain and also communication difficulties. By using the Abbey pain scale in these patients, they get their pain adequately assessed and identified and subsequently receive adequate pain relief. The principle of using an observational pain measurement tool could be expanded to include all wards with patients with communication difficulties.

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## Declaration of interests

None of the authors have any interests to declare.

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