Improving patient safety of Lumbar Puncture procedures in Neurology

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Introduction:

A Lumbar Puncture (LP) is an invasive procedure commonly performed in Neurology to analyse various chemicals and biomarkers in a patient's cerebrospinal fluid (CSF). It is thus often used as a diagnostic tool for many neurological conditions.

Patients routinely attend the Neurosciences Investigations Unit (NIU) to have this procedure as a day case. It is the responsibility of Neurology junior doctors (ranging from F2 to CMT3 grades) to perform such procedures.

The Problem:

Within the JR, Neurology doctors will perform the largest number of LPs in the hospital, performing a minimum of 40 LPs in a 4 month rotation. Despite this, there is no set method of documenting the LP procedure in patient's medical notes. As a result, there are large discrepancies in the details documented with often crucial omissions (for example documenting contra indications).

The poor documentation not only negates the importance of detailed and accurate medical record keeping, but also poses a patient safety issue. Key facts, such as what samples were collected, are crucial to document so that future doctors, involved in the patient's care, can chase the result and subsequently act on it.

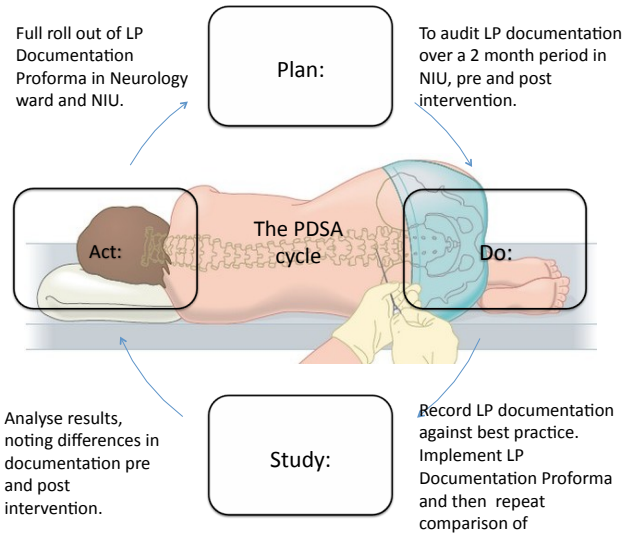
In other fields of medicine and surgery, the use of proformas have been shown to improve the quality and consistency of patient documentation, triggering the scribing doctor to enter all required details (1). This model will therefore be used to achieve similar improvements in LP documentation.

Aim:

To improve the safety and efficiency of the documentation process associated with lumbar puncture procedures in NIU.

Methods:

1. Using data capture sheet, all LPs preformed and documented in NIU for one month, were compared to national standards.
2. Noting differences and gaps in documentation, a proforma was made to aid in LP documentation.
3. This proforma was piloted and colleagues gave advice and feedback, with changes made before distribution in NIU.
4. Junior doctors were informed to use the new proforma to document all LPs in NIU.
5. A repeat month of LP procedures and documentation was noted in NIU using the proforma.
6. A comparison was made and data analysed noting the difference of LP documentation pre and post proforma implementation.

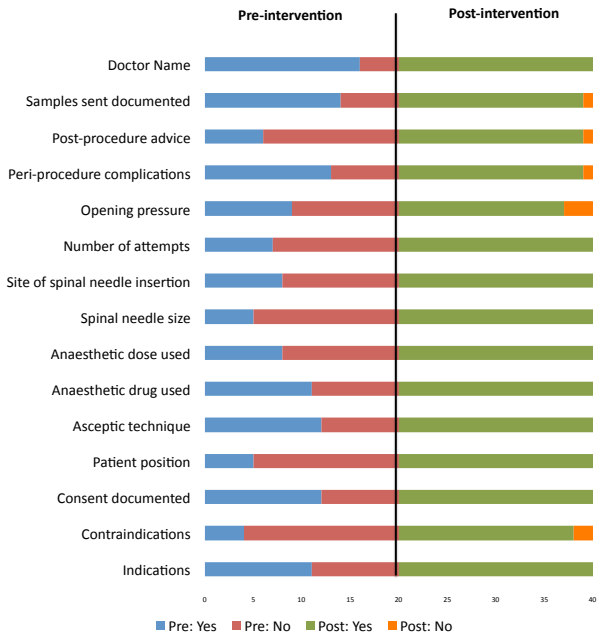


The Gold Standard:

16 core areas were found through literature review, Royal College of Emergency Medicine guidelines and experience on NIU, which make the standard to which LP documentation is compared against (2,3). These include:

- ✓ Indication
- ✓ Any contraindications
- ✓ Consent
- ✓ Patient position
- ✓ Sterility
- ✓ Anaesthetic type
- ✓ Anaesthetic dose
- ✓ Procedure site
- ✓ Needle size or type
- ✓ Number of attempts
- ✓ Opening pressure
- ✓ Any complications
- ✓ Post-procedure advice given
- ✓ Samples sent documented
- ✓ Physician name and grade.

Results:



Conclusion:

Two PDSA cycles were completed. Following the initial pilot of the proforma, several changes were made, including: adding drug history, an option for consent not obtained for those patients having the procedure in their best interest, and whether post-LP advice was given. The final intervention resulted in a significant improvement ($p<0.0001$) in lumbar puncture documentation. This will improve patient safety, team communication and act as a reminder to those carrying out the procedure. The next step will involve adding the tool to EPR to allow easy access across the trust.

References:

1. Chow J, Yvon C, Stranger T. 2014. How complete are our clerkings? A project aimed at improving the quality of medical records by using a standardised proforma. BMJ Qual Improv Rep. 25;2(2)
2. Rolinski M, Rowe H. 2013. Documentation of lumbar punctures- Neurology DIU. Available from: http://www.rcplondon.ac.uk.
3. Hewett R, Counsell C. 2010. Documentation of cerebrospinal fluid opening pressure and other important aspects of lumbar puncture in acute headache. Int J Clin Pract; 64: 930-5