

## The CT Nerve Root Block Procedure

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### Introduction

Nerve Root Block (NRB) is a therapeutic procedure that injects local anesthesia and steroid on the area where the nerve root exits, to reduce pain and swelling on the affected nerve roots. This pain management procedure officially started in our Neuroradiology department in May 2017, under CT guidance.

### Background

By the end of 2018, a total of 25 NRB procedure cases performed in our department. Among these cases, there were 4 procedural errors reported. The aims of this project were to:

1. Review our work processes to ascertain its reliability and safety since this is a fairly new procedure in our department.
2. Achieve effective communication throughout the procedure, which will further contribute towards patient's safety.

### Methodology

To investigate why this procedural error happened repeatedly, our team did some brainstorming and came up with a 5 WHYS diagram (Figure 1) to identify the root causes. This is so that the root causes can be addressed individually.

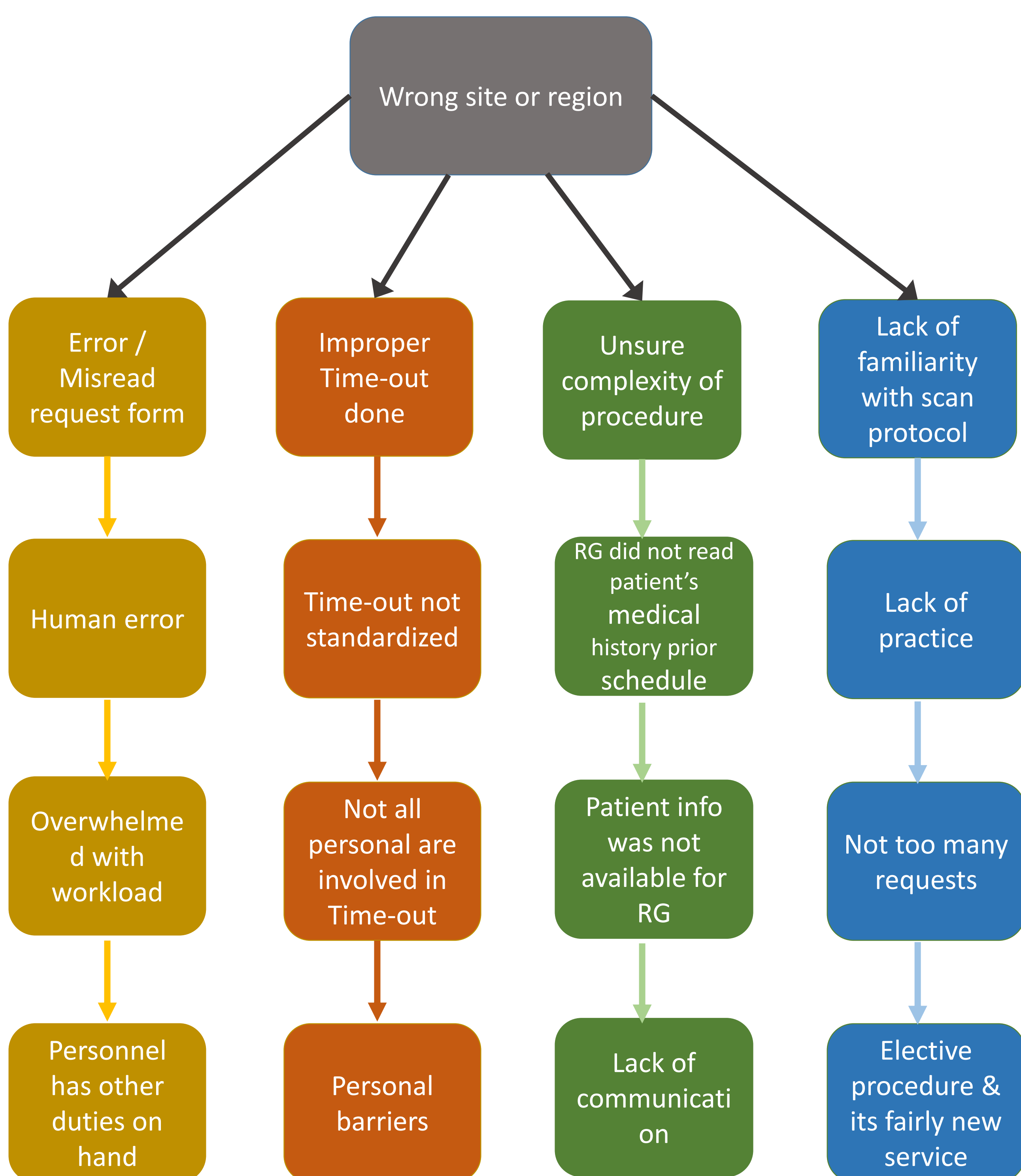


Figure 1. The FIVE WHYS diagram

### Results

As of May 2019, zero incidence of error or near misses was reported after the implementation. Radiographers expressed high level of interest and enthusiasm and requested for more demonstrations and practice sessions to be conducted. Discrepancies in the request forms were rectified prior to the scheduled procedure.

### Conclusions

Radiological procedures present additional and special challenges when it comes to safeguarding patient's safety. This is because other than preventing the likelihood of wrong-patient, wrong-procedure or wrong-site procedure error, we need to avoid unnecessary radiation dose to our patients. It is inappropriate to place full reliance on the proceduralist, or assume that doctors cannot be questioned. We should work closely as a team to safeguard our patient's safety.

#### The implementations that we proposed that will result in improvements of the procedure



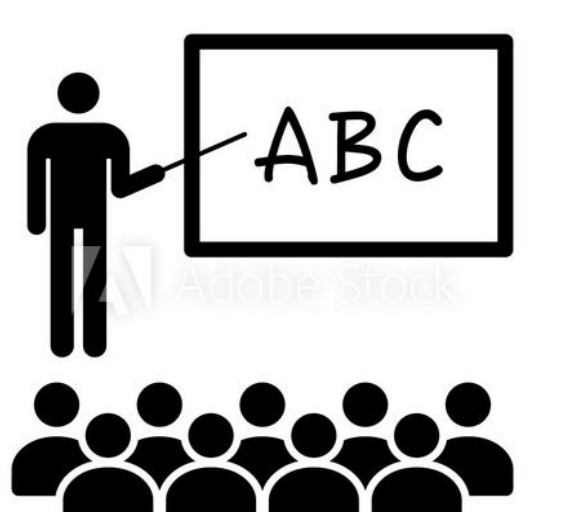
NRB procedures to be scheduled on the day when the interventionalist is reporting CT, instead of on intervention angiography on call. This is to **prevent** any unnecessary **distractions** during procedure.

Time out to be done systematically at the beginning of the procedure. **Procedural Safety Checklist** is used to ensure all steps are followed, all involved personnel must pay full attention during Time-out.



A well recognized source of human error is excessive stress and fatigue. More personnel to be trained to do the procedure, so that there will be **adequate backup** to relieve individuals when diminished work performance is detected.

When new equipment and protocols are introduced, all relevant staff must be **trained and practiced** to extent their involvement. A summarized workflow of the procedure can be found in the procedural room. Lectures and demonstrations for radiographers are arranged during monthly journal clubs to familiarize with the procedure.



Radiographers should be informed and given the request form to check on patient's past medical history and medical imaging that was done at least a week prior the schedule appointment. Any **discrepancies** can be **addressed** before patient's appointment date.

Our team believe that **patient involvement** during the procedure is an essential element for patient safety. As only LA will be given, the patient is fully conscious during the procedure. Verification of signs and symptoms, or site of injection will ensure that correct patient, correct site and correct procedure is done.

