**Safety and Outcomes of Cerebrovascular Digital Subtraction Angiography**

**Descriptor:**

An audit of the procedural aspects, post-operative complications, and outcomes of cerebrovascular digital subtraction angiography

**Background:**

Digital subtraction angiography (DSA) is an invasive technique used to visualise the cerebral vascular anatomy in selected patients. Indications include aneurysm detection, when non-invasive imaging has been negative, or to delineate arteriovenous malformation anatomy prior to treatment. The Society of Interventional Radiology, American Society of Neuroradiology and Society of NeuroInterventional Surgery have published joint quality thresholds for quality assurance from which these audit standards have been derived.

## The Cycle

**The standard:**

All performed procedures should be in keeping with local indication guidelines

All patients should have written consent documented in the notes

Complication rates should not be in excess of that within the published literature

Diagnostic success rates should be in keeping with that within the published literature

**Target:**

100% in line with local guidelines

100% written consent

Diagnostic success rate ≥ 98%

**Neurological complications**

Reversible neurological deficit ≤2%

Permanent neurological deficit ≤1%

**Access site complications**

 Hematoma (requiring transfusion, surgery, or delayed discharge) ≤3%

 Occlusion ≤1%

 Pseudoaneurysm/av fistula ≤1%\*

**Systemic complications**

 Contrast-induced nephropathy ≤5%

 Major contrast reaction ≤5%

**Catheter-induced complications**

 Arterial dissection/subintimal passage ≤1%

 Subintimal injection contrast ≤1%

## Assess local practice

**Indicators:**

Each component of the target outcomes

**Data items to be collected:**

Radiologists’ reports from the procedure, with indication and diagnostic outcome

Collect patient notes for review of consent and post-operative complications

**Suggested number:**

100 cases, or all procedures over one year

**Suggestions for change if target not met:**

Review of departmental acceptable indications

Review of the assessment of patient fitness for procedure

Consideration of whether number of cases performed is sufficient to maintain skill base / low complication rate

Consideration of further specialist refresher training

**Resources:**

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**References:**

1. Wojak, J. C. et al. Quality Improvement Guidelines for Adult Diagnostic Cervicocerebral Angiography: Update Cooperative Study between the Society of Interventional Radiology (SIR), American Society of Neuroradiology (ASNR), and Society of NeuroInterventional Surgery (SNIS). Journal of Vascular and Interventional Radiology 26, 1596–1608 (2015) <https://www.ncbi.nlm.nih.gov/pubmed/26372000>

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