RADIATION DOSE IN HEAD CT IN CHILDREN

AUDIT DESCRIPTION
• An audit of the dose received per Head CT scan in children*

Standard
There should be no more than 25% variation in dose between operators using the same scanner and no more than 25% variation between different scanners.

SOURCE OF STANDARD
Consensus – may need to be modified depending on local circumstances

IMPORTANCE
Children’s brains are more sensitive to the effects of radiation. departments should have agreed standards for optimisation of dose

TARGET
Less than 25% variation in dose between individual operators on the same scanner.
Less than 25% variation in dose between scanners for the same operator

THE INDICATOR
The range of doses received for a sample of children's head scans of all operators for an individual scanner
The range of doses of a sample of children's head scans for different scanners performed by the same operator

DATA TO BE COLLECTED
The dose records of children’s head CT scans

SAMPLE
25 consecutive children’s head scans per CT scanner

METHOD
Review of inter-operator dose variation
Review of inter-scanner dose variation

SUGGESTED ACTIONS IF TARGET NOT MET
• Training of operators
• Scanner protocol optimization
• Technical evaluation of scanner

REFERENCES
• Mathews JD et al (2013) Cancer risk in 680,000 people exposed to computed tomography scans in childhood or adolescence: data linkage study of 11 million Australians. BMJ. 346:f2360

*A child is considered to be a person below the age of eighteen years old. Childhood ages could be divided as follows: neonatal (birth to 28 days); infant (1 to 12 months); toddler (1 to 2 years); early childhood (2 to 5 years); middle childhood (6 to 11 years); adolescence (12 to 18 years)