## Assessment of the success of radiological reduction of intussusception in children

## Descriptor

An audit to assess the success rates of radiological reduction for ultrasound-confirmed intussusception in children. The primary outcome is comparison of centre-specific success rates with published national survey results [1,4]. Secondary outcomes include assessing if there is a significant difference in success rates between reductions performed by paediatric or general radiologists and between contrast (hydrostatic) and air (pneumatic) reductions.

## Background

Intussusception of the GI tract can occur at any age but 75% occur below the age of two years. Although most cases are idiopathic (90%), intussusception is occasionally caused by an underlying lead point such as a Meckel's diverticulum or duplication of the GI tract.

Imaging plays an important role in both diagnosing and treating this condition. Initial assessment of children with suspected intussusception is usually with ultrasound. Ultrasound has a sensitivity of 98-100% and a specificity of 88% for detecting intussusception [2].

Following confirmation of the diagnosis on ultrasound, radiological reduction of intussusception is often initially attempted, thereby avoiding the need for surgery if reduction is successful. Reduction is usually performed with contrast or air enema depending on the preferences of the performing radiologist. Depending on local service provision, the reduction can be performed/ supervised by either a paediatric radiologist or general radiologist. This is usually performed in a tertiary centre with paediatric surgical support in the event of complications such as intestinal perforation.

## The Cycle

### The Standard

Successful radiological reduction of intussusception, avoiding the need for surgery.

### Target

Success rates of up to 90% have been described but a 1999 national survey suggested that a success rate of at least 70% should be set as the target in most centres. A success rate below 50% is considered unacceptable [1,3].

## Assess local practice

### Indicators

1. Percentage of cases of successful radiological reduction of intussusception

2. Percentage of successful radiological reductions performed by paediatric radiologists and by general radiologists

3. Percentage of successful radiological reductions performed using hydrostatic reduction and pneumatic reduction

4. To aid review if the target is not met, it is also useful to note the presence of contributory features such as delayed presentation or lead point in cases of failed radiological reduction

### Data items to be collected

1. List and demographics of children who underwent radiological reduction of intussusception following confirmation of diagnosis on ultrasound

2. Overall outcome of radiological reduction

3. Performing / supervising consultant (paediatric or general radiologist)

4. Method of attempted reduction (hydrostatic or pneumatic)

5. Radiation dose and time of fluoroscopic procedure

6. Review of operation records for an underlying lead point in cases of failed radiological reduction

### Suggested number

All consecutive paediatric patients undergoing attempted radiological reduction of intussusception over the previous 12 months. For smaller centres it may be more appropriate to look at the last 3-5 years’ experience.

## Suggestions for change if target(s) not met

1. Departmental discussion of techniques to assess if any improvements could be made

2. Limiting attempted reductions to paediatric radiologists, although this may not be possible due to limitations in service provision

3. If performed in a non-specialist unit, consider referring patients to a tertiary centre

4. A surgeon being present in the screening room at the time of the procedure has been reported as being associated with a significantly higher reduction rate [4]

## Resources

IT support to generate a list of appropriate patients

- PACS

- RIS

- Electronic patient record access

6 hours for data analysis

## References

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## Editors’ Comments

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