Data-driven process improvement had been made since last year’s report, but also revealed clear differences in pediatric radiation exposure across three Image Gently hospitals.

The increased risks of radiation exposure in children have recently recognized the following challenges:

1. Awareness is the first step
2. Need for diagnostic reference levels
3. Tools from statistical process control
4. Future efforts will continue to test the ability to reduce exposure

Data-driven approach to optimizing radiation use

**ABSTRACT**

The increased risks of radiation exposure in children prompted a systematic and data-driven approach to optimizing radiation exposure. In this poster, we describe the differences in pediatric radiation exposure across three different hospitals. The results indicated that improvements had been made since last year’s report, but also revealed clear opportunities for further improvement.

**PURPOSE**

Data-driven approach to optimizing radiation use

1. Collect and analyze data
2. Use the resulting knowledge to propose improvements
3. Test those hypotheses through small tests of change
4. Repeat steps 1-3

**RESULTS**

**Most Frequent Exams**

- Identified frequent CT at all three hospitals (hospitals 1 and 3 were adult-focused; hospital 2 was pediatric-focused).
- The most frequent exams at each hospital were CT Head and CT abdomen and pelvis.
- While every exam is an opportunity to improve, the most frequent exams were the primary focus of the subsequent analysis.
- Hospital 1 (an adult-focused facility) performed more abdominal/pelvic CTs than head CT exams. This suggests that CT was often the primary modality for evaluating children with abdominal pain.

**Head and Abdom/Pelvic CT Results — DLP values**

- DLP values were available for all 3 hospitals.
- Only the second hospital (a pediatric-focused facility) had a sizable number of patients <11yrs.
- Younger age groups had greater variation. This likely reflects efforts to match scan parameters to patient size.

**RESULTS**

A comparison of the three hospitals highlighting their DLP values over the last six months for CT Head. The width of each bar reflects the number of exams available for this analysis. The younger age groups were not frequently scanned at the two adult focused facilities.

**DISCUSSION**

A scatter plot over time of the three hospitals’ DLP values over a six month time interval. The first and third hospitals’ values are fairly constant over the time frame, with a few outliers and insignificant variation. The second hospital, however, shows more variation during this time period.

**REFERENCES**

2. Larent DB et al, Increasing use of CT in children visiting emergency departments Radiology 2011; 258:164

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