Over an 18 month period, approximately 500,000 records have been collected from five hospitals in the North West using RIS systems. Using a statistical package, impossible data was removed and processes were performed to identify and remove suspect data. The aim of the project was to replicate reports produced by the Health Protection Agency (HPA) approximately every five years, and to identify if any further analysis could be done. Following refinement of the data, a regional DRL was established for this group of hospitals and compared to national references. This method of collecting data is extremely time and cost effective and with some refinement of the process it will be used to establish regional DRLs more frequently and with larger data sets than is currently done.

Chauvenet’s Criterion
After removing impossible entries from our data set there still remained some extreme values, both high and low, that seemed unlikely. To determine what entries were outliers and would be beneficial to be removed Chauvenet’s criterion was applied to the data set. This process ensured more accurate mean values and smaller standard deviations for each of the examinations.

Room Mean Analysis
The examinations used in the HPA reports and calculated room means for these were chosen to look at. Descriptive statistics were then calculated from these room means and compared to reference DRLs set by HPA and IPEM.

Further Analysis
It was also decided to look at other things that are not included in the HPA reports such as the difference between ESD measurements taken from different rooms in a single hospital.

The idea of analysing the most common examinations in this data set instead of those used in the HPA reports was also looked at.

References: