

# Changing indications for breast MRI over a 6 year period in a district general hospital

Simon Lowes, Jane Potterton, Nikhil Birdi, Richard Morrell, Preet Hamilton, Alan Redman, and Alice Leaver

Queen Elizabeth Hospital, Gateshead

Gateshead Health **NHS**  
NHS Foundation Trust



## Background & Aim

- In line with a general increase in workload in our breast unit, we have in particular noticed an increase in the number of breast MRI studies carried out.
- The aim of this study was to characterise the extent of this increasing demand over a 6 year period, together with any explanation for this.

## Methods

- Contemporaneous written records of completed breast MRI scans were analysed over the 6 year period covering 2012 to 2017 inclusive.
- Preliminary data from the first 9 months of 2018 (Jan-Sept inclusive) were also used and extrapolated to predict overall MRI workload for this year.
- Descriptive statistics were performed.

## Results

- A steady year on year increase was observed in the number of MRI scans carried out between 2012 and 2017, from 60 to 206 (Figure 1).
- Extrapolated data from the first 9 months of 2018 suggests that a plateau is now forming.
- A major contributor to the increasing trend in recent years was the increase in imaging for patients undergoing neoadjuvant chemotherapy (NAC), which over 2012 to 2017 increased from 2 to 58 scans (Figure 2).
- The number of MRIs for cancers deemed mammographically occult also showed a steady increase over this period.

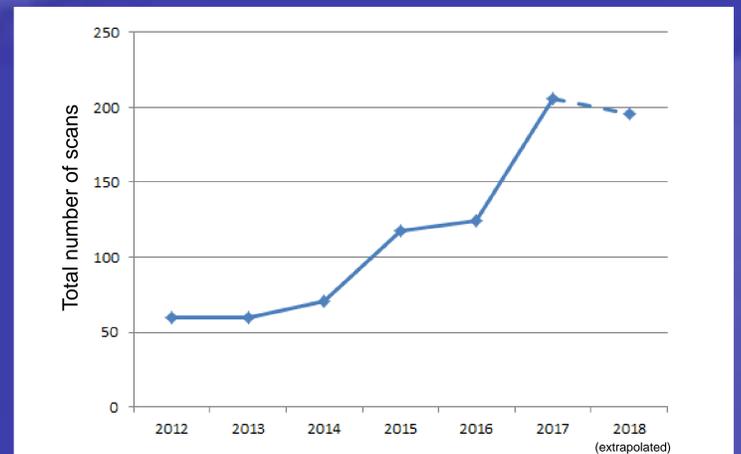


Figure 1: Number of MRI scans with time

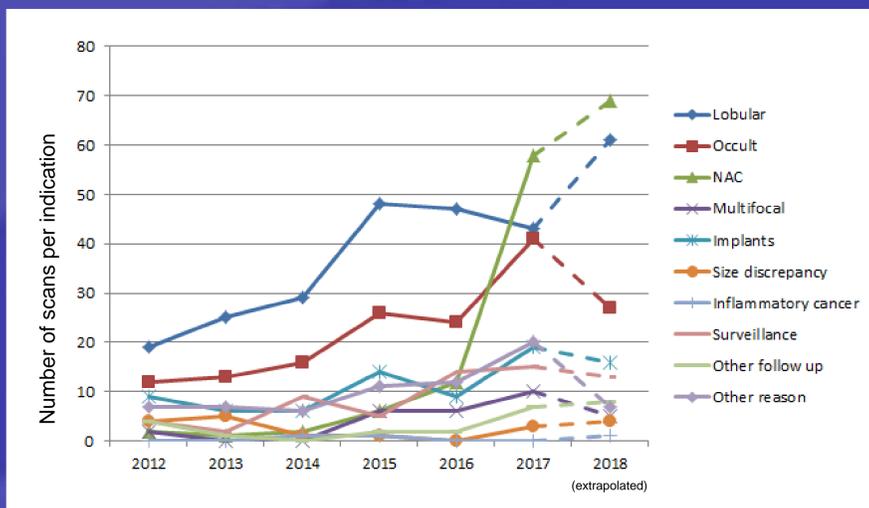


Figure 2: Number of scans per indication

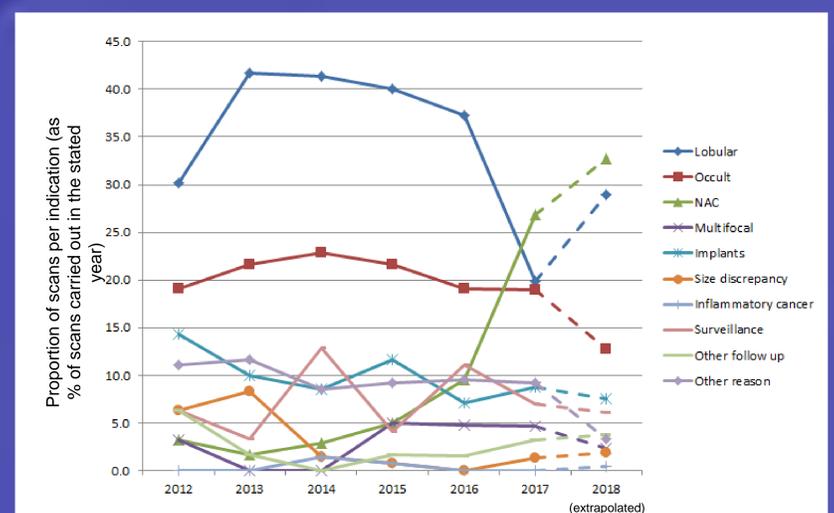


Figure 3: Proportion of MRI scans per indication

- A smaller increasing trend was also seen for multifocal cancers, implant assessment, post cancer surveillance, and a variety of other miscellaneous reasons outwith the standard indications for breast MRI, which included problem-solving and cases of complex benign disease.
- The number of lobular cancers assessed peaked in 2015 and subsequently appeared to plateau by the end of 2017. However, 2018 data suggests that lobular MRI numbers are again increasing.
- Prior to 2017, lobular cancers accounted for the greatest proportion of breast MRIs, but now pre- and post-NAC scans account for the greatest proportion.
- There was no overall change in the number of scans carried out for size discrepancy on ultrasound versus mammography or for inflammatory cancers.

## Discussion

- The 3.4-fold increase in MRI scans seen between 2012-2017 resulted from multiple factors, but notably by a large increase in scans for patients undergoing NAC.
- At our centre, MRI the primary modality of choice to assess response to NAC, with each patient normally having scans both pre and post treatment, which helps to account for the significant impact of NAC on our workload.
- Although a steady increase in MRI workload was seen over the 2012-2017 period for which we have complete data, extrapolated data from the first 9 months of 2018 suggests a plateau is now forming.
- Because of MRI scanner capacity, we do not currently carry out MRI breast screening for high risk patients, but when the scanning capacity becomes available, this will clearly add further to our reporting workload.