

IMPROVING CT HEAD EXAMINATION EYE LENS EXCLUSION AT PRINCESS ALEXANDRA HOSPITAL

Sarah Khan, Mark Gregory, James K. Diss, Varanasi V.R. Krishna

Radiology Department, Princess Alexandra Hospital NHS Trust, Harlow, Essex, United Kingdom



INTRODUCTION

Ionizing radiation has a deterministic effect on the eye lens resulting in radiation-induced cataract. Direct eye lens exposure during CT Head Examination is of no discernible diagnostic benefit; the lenses should always be excluded from the main beam, reducing lens dose ~8-fold.

AIMS

Assess & improve current compliance at PAH with RCR Guidance on Eye Lens Exclusion.

METHODS

All CT Head Examinations performed in a 2-week period in June 2017 were reviewed. Re-audit was performed in August 2017 and again in February 2018, after the implementation of a number of changes.

RESULTS & INTERVENTIONS

Only 2 % (4/229) of examinations included in our initial study complied with the Eye Lens Exclusion standard.

Two improvement areas were highlighted:

- (1) Encouraging patient 'chin-down' head positioning.
- (2) Increasing Radiographers' awareness of axial CT appearance and the importance of Eye Lens Exclusion (Figure 1).

Measures were taken to address these, including:

- (i) Utilising a gantry head-cushion (Figure 2).
- (ii) Asking Radiographers to instruct patients to 'chin tuck'.
- (iii) Updating the Hospital Intranet CT Head Protocol (Figure 3).

Re-audit in August 2017 demonstrated Lens Exclusion in 21.2 % (39/184) cases.

Improving Radiographer awareness was further targeted by:

- (1) Organising several dedicated small-group teaching sessions involving all Radiographers over the next months.
- (2) Displaying a reminder poster in the CT Control Room (Figure 4).

Subsequent re-audit in February 2018 showed further improvement with Lens Exclusion in 46% (105/229) examinations.

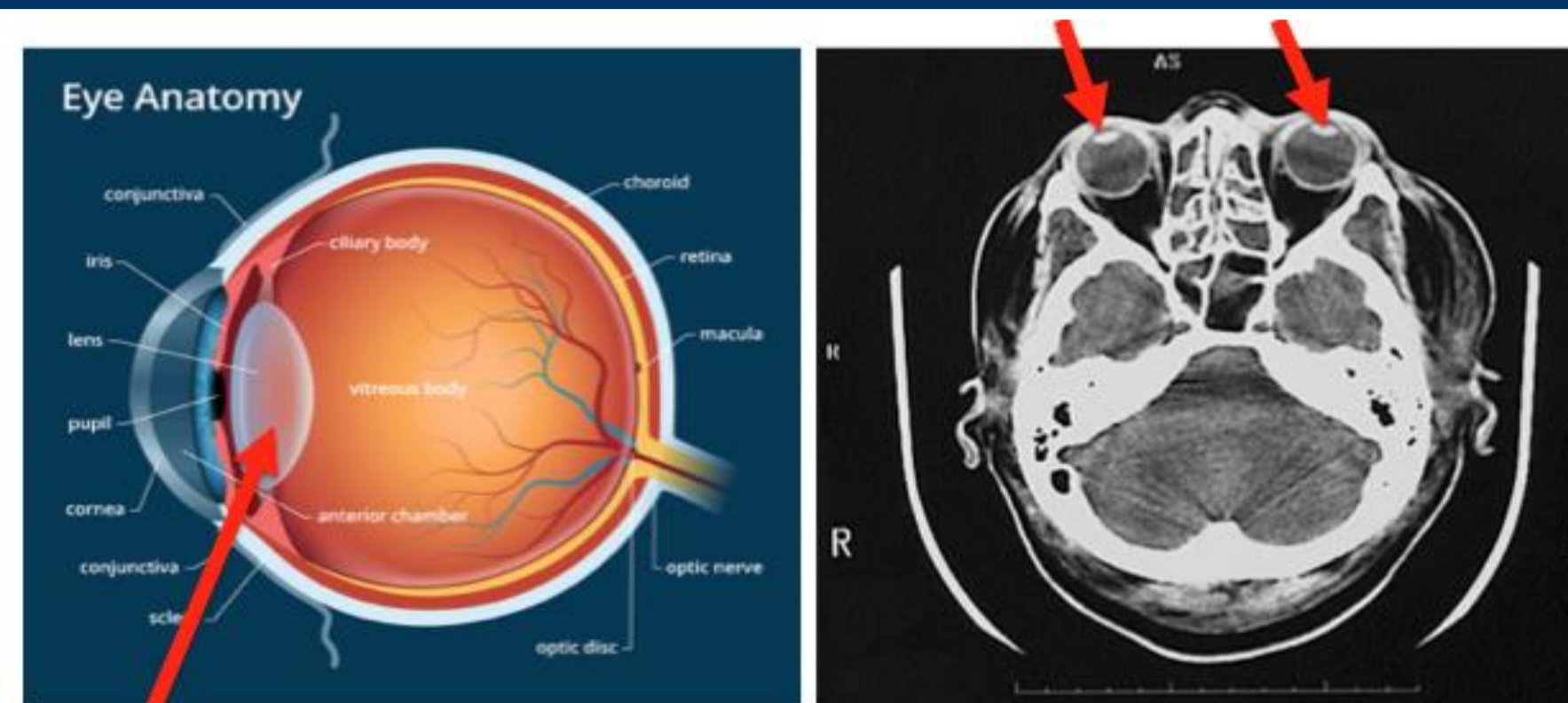


Figure 1. Eye Lens Anatomy (left) and axial CT appearance (right)

Results Table	June 2017	Aug 2017	Feb 2018
Included CT scans	229	184	229
Cases with Lenses Excluded	4	35	105
% Cases with Lens Exclusion	1.8	21.2	45.9
Mean patient age (yrs)	66.5 ± 1.6	68.4 ± 1.5	67.6 ± 1.2

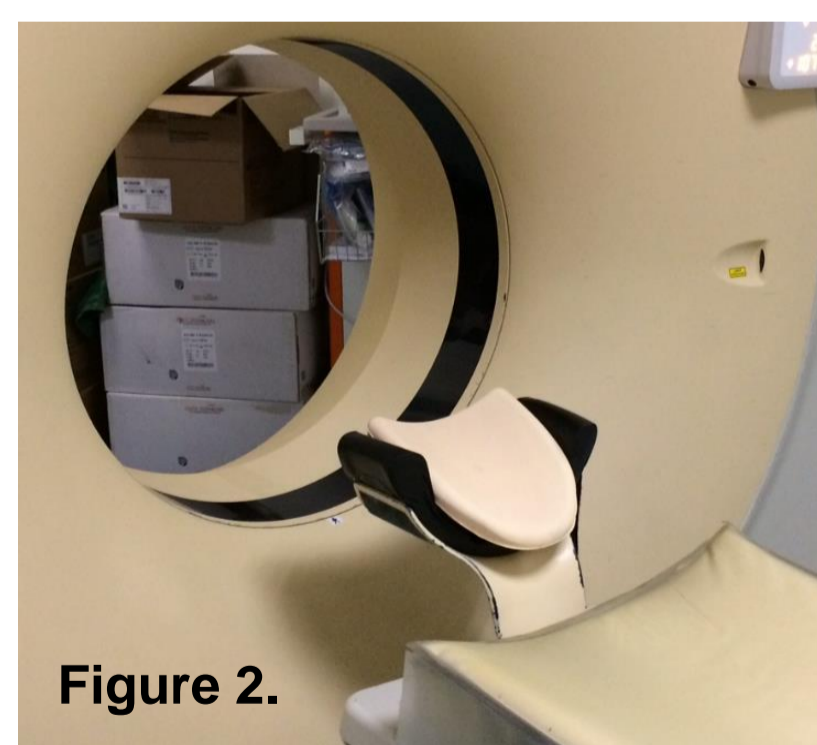


Figure 2.

Figure 2. Gantry head cushion.

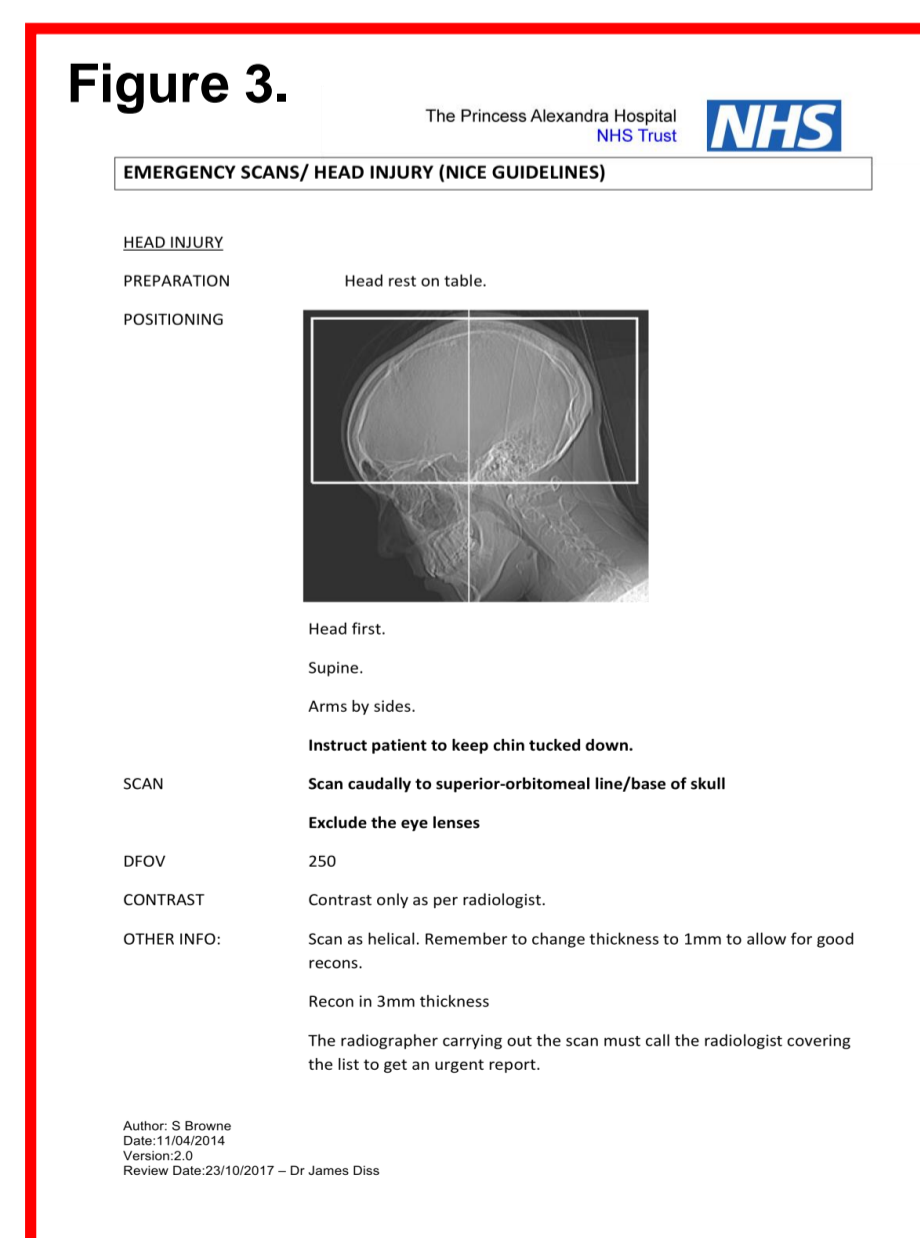
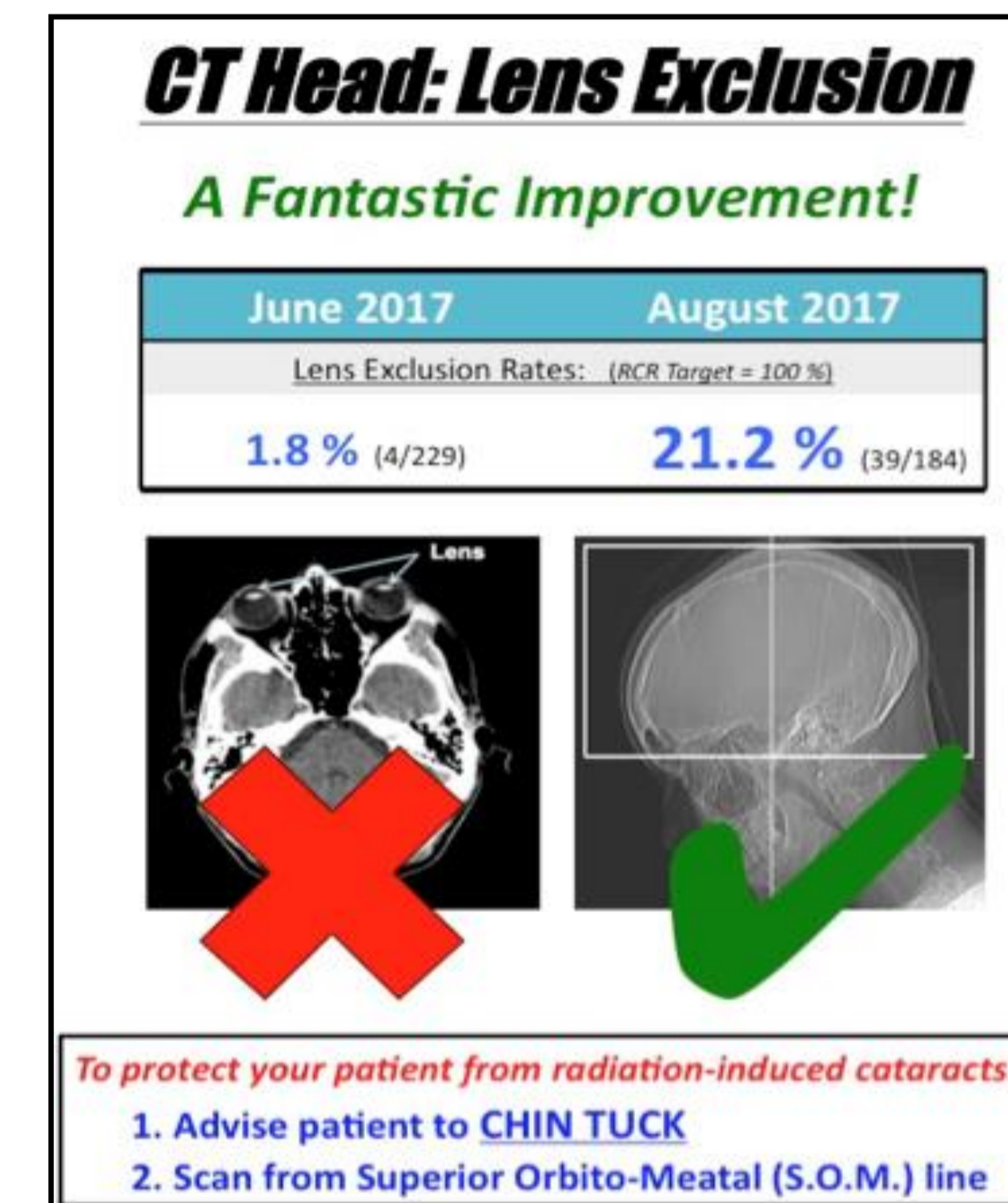


Figure 3. Hospital Intranet Protocol

Figure 4. Reminder Poster displayed in CT Control Room.



CONCLUSIONS

We have significantly improved Eye Lens Exclusion at our hospital using a number of measures, with particular focus on increasing Radiographers' awareness of the importance of appropriate CT Head Examination planning.

Compliance is still very far from the 100% target.

FURTHER WORK

To further increase compliance with CT Eye Lens Exclusion we aim to continue to focus on improving Radiographer awareness with regular Teaching sessions and regular surveillance/audit.

ACKNOWLEDGEMENTS

We are grateful to the Radiographers for their enthusiasm and engagement, & thank all the patients involved. No funding source.