The discrepancy meeting as a valuable educational tool within the radiology department

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Learning objectives

To review cases discussed in the departmental discrepancy meetings and identify common learning points made in order to help reduce the incidence of further errors in the future.
Background

The Royal College of Radiology produced the document "Standards for Learning from Discrepancies meetings" in 2014 in which it highlights learning from discrepancy meetings (LDMs) as an important process for self improvement in the radiology department. These meetings incorporate aspects of quality assurance and clinical governance but are also highly valuable as a process of shared learning which, if used in an appropriate manner, can contribute to patient safety (1).

In Torbay Hospital, the LDM is held twice a month and held across different days and times to encourage maximum participation through the year. All staff are encouraged to attend and submit cases for discussion. In addition to "discrepancies", staff may also contribute "plaudit" cases (also called "golden spots" in other departments), as well as "learning cases", where staff can submit unusual cases they have seen themselves.
Findings and procedure details

All cases discussed at LDMs over a 12 month period were retrospectively reviewed. In total, 109 cases were discussed as discrepancies. 10 of these were deemed not to be discrepancies on review, leaving 99 cases.

Of these, 42 cases (42.4%) were from plain film reports, 38 (38.4%) from CT, 15 (15.2%) from MRI and 5 (5.1%) from "others" which included nuclear medicine and ultrasound. These numbers are roughly comparable to those found in other studies but with a slightly higher proportion of MRI discrepancies (2,3).

The main cause of these discrepancies came under the heading of "observational discrepancies"(i.e. where a feature has not been spotted) in 71 cases (71.7%), followed by "interpretation" (where a feature seen has been incorrectly interpreted) in 17 cases (17.2%), and a combination of these processes in 5 cases (5.1%). The remainder were split between "reporting" (where the wording of a report has been ambiguous or misleading and led to unnecessary further investigations or treatment), "technique/protocolling/organisation" (for example, where an inappropriate investigation for the request has been performed or an inappropriate followup investigation has been suggested in the report), and "failure to act" (where followup investigations have not been ordered or the results of an investigation not fed back to the clinical team in an appropriate manner).

Many learning points were identified from these cases and shared with the department for everyone to learn from. We have chosen a selection of these, with appropriate imaging, as examples of what learning points can be gained from the appropriate use of an LDM.

One common learning point was using all windowing options available when reviewing CT scans. Examples of this included altering window levels for better assessment of liver lesions, especially for suspected metastatic lesions. However, there were also incidences where bony metastases were missed and this was presumed to be due to a lack of using the correct windows to assess all skeletal anatomy on the acquired images. An example of this discrepancy is in figure 1 where a large sacral metastasis can be seen with appropriate window settings on the sagittal section.

Another learning point that commonly arose was the use of review areas for specific scans. All radiologists will use review areas for assessment of any imaging modality, whether consciously or unconsciously, so these learning points can be useful to highlight additional areas to consider for specific differentials but also remind us why we use them to help prevent misses. For example, in figure 2, there are multiple displaced, posterior rib
fractures which were not reported. **Figure 3** shows a subsequent pneumothorax that the patient developed secondary to these injuries. This highlights that assessment of the ribs should always be a review area on assessment of a plain chest radiograph, particularly in the context of falls as in this case.

Occasionally, a discrepancy highlights a number of learning points and **figure 4** shows a combination of the above two points. In this instance, a CT abdomen/pelvis was performed but the pneumothorax seen here was not reported. As such, it is important to remember to assess the lung bases, with appropriate window settings, on all scans to avoid missing pathology that may not have been the focus of the investigation.

Other general themes were also identified from review of the LDM cases such as the importance of relating findings to the request card and using previous imaging for comparison. However, some cases also highlighted more specific learning points such as checking venous sinuses for thrombus in pre-contrast CT head scans.

**Figure 5** shows another example of a more specific learning point as it was reported that the cardiac pacemaker leads were correctly positioned but **figure 6** shows the position that they should have been in from a previous film. This suggests that they should only have been reported in that way if the radiologist knew this to be certain. Previous imaging could also have been used to help confirm the position but in this case there had been a number of previous plain films where they were also incorrectly reported as being in the right position.

It should also be remembered that LDMs are used as an opportunity for staff to submit "plaudit" cases and that these also offered learning points of their own. For example, **figure 7** shows slight cortical irregularity and a fluid level which was correctly interpreted as a fracture of the right frontal sinus, while **figure 8** was reported as showing findings consistent with an atrial septal defect (namely, an enlargement of the pulmonary outflow tract and proximal pulmonary arteries, with a small aortic knuckle) which was subsequently confirmed with further investigations and could easily have been missed.
Images for this section:

**Fig. 1:** A missed sacral metastasis which can be seen with the correct windowing.

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Fig. 2: Multiple, displaced rib fractures which were not initially reported in a patient following a fall.

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Fig. 3: A pneumothorax that subsequently developed in the patient from figure 2.
**Fig. 4:** A pneumothorax that was subsequently identified but not reported on this CT abdomen/pelvis.

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Fig. 5: A chest x-ray where the cardiac pacemaker leads were incorrectly reported as appropriately positioned.

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**Fig. 6:** Previous imaging of the patient in figure 5 which shows the correct positioning of the cardiac pacemaker leads.

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Fig. 7: A magnified axial section of a CT head in which a right frontal sinus fracture was reported.

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Fig. 8: A chest x-ray demonstrating findings consistent with an atrial septal defect.

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Conclusion

The LDM is a well recognised educational tool within the radiology department. Plain films and CT imaging are the most common imaging modalities in which discrepancies occur and these are most commonly due to observational issues (2).

Individual LDMs are useful in looking at isolated discrepancies and highlighting ways to minimise similar errors in the future and act as a process of self improvement within the department. This can only be achieved, however, if these meetings are recognised as an educational opportunity and that care is taken to avoid apportioning blame to the staff member whose discrepancy is discussed.

They are also a useful step to ensure that where any discrepancies have occurred, that the subsequent management of the patient has been appropriate following their discovery, and that all necessary remedial actions have been performed.

This poster also aims to demonstrate the importance of review of the LDMs themselves so that recurrent issues or learning points are recognised in order to ensure that the educational benefits of the LDM makes a difference in the long term.
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References

