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Processes and procedures in CBCT referrals

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DDU dental advisory committee member Simon Harvey looks at the clerical and medico-legal aspects of radiological referrals.

Since the development of cone beam computed tomography (CBCT), the quality of images and availability of the technique has increased rapidly. This has been in part due to the relatively low price of scanners and the technical improvements by manufacturers.

As a clinician, there are many situations in which you may decide to take a CBCT scan. Some practices may have their own scanner, while others might refer patients to a different practice or imaging centre. In both circumstances, it is possible for the image to be sent off-site for a report. This multi-centre imaging is called teleradiology, and in this article we will discuss its clerical aspects.

CBCT has been shown to be beneficial in a wide number of treatments, with common ones outlined below.

Implant dentistry

- Clinical indications: bone volume measurements, detection of local anatomy
- Example selection criteria: SEDENTEXCT section 442

Endodontics

- Clinical indications: root canal anatomy, equivocal 2D images
- Example selection criteria: European Society of Endodontology position statement: Use of cone beam computed tomography in Endodontics, Patel et al

Orthodontics

- Clinical indications: location of ectopic teeth and any resorption of adjacent teeth
- Example selection criteria: Impact of cone-beam computed tomography on orthodontic diagnosis and treatment planning, Hodges et al

Wisdom tooth removal

- Clinical indications: Root morphology and proximity to the ID canal
- Example selection criteria: SEDENTEXCT section 441

Oral surgery

- Clinical indications: Diagnosis of pathology and surgical planning

Dental trauma

- Clinical indications: Assessment of fractures
- Example selection criteria: SEDENTEXCT section 435

Selection criteria is evidence-based guidance on what type of imaging may be useful in which clinical scenarios. The useful nature of CBCT is outlined in selection criteria, which has been included above.

The imaging chain

The imaging chain is the name for the processes involved in imaging. It starts with the decision to take an image, and ends with the image being reported. For dental intraoral radiography, the dentist often acts as the referrer, practitioner, operator (radiography) and operator (reporting).

From an administrative point of view, this imaging chain is very simple. For CBCT, however, it is unlikely these roles will be carried out by the same person and a whole team is likely to be involved across different sites.

Brief recap of the legislation

The Ionising Radiations Regulations (IRR) is the legislation which protects workers and members of the public. It is enforced by HSE in England, Wales and Scotland and HSENI in Northern Ireland. As part of the compliance with IRR, an imaging centre needs to have 'local rules'.

The Ionising Radiation (Medical Exposure) Regulation (IRMER) is the legislation that protects patients. It is enforced by the CQC (in England), the

Healthcare Inspectorate Wales (in Wales), The Regulation and Quality

Improvement Authority (in Northern Ireland) and Healthcare Improvement Scotland (in Scotland). As part of compliance with IRMER an imaging centre needs to have 'written procedures'.

Key roles

There are five key roles within IRMER.

1. Legal person: person or body corporate.

Key roles:

- enforce the local rules
- ensures training compliance
- ultimately responsible for radiation safety.

2. Referrer: registered health care professional. Entitled to refer in the local rules. Aware of relevant selection criteria.

Key roles:

- must provide the practitioner with sufficient information.

3. Practitioner: registered health care professional. Expert in selection criteria.

Key roles:

- justifies the scan based on the risk/benefit to the patient.

4. Operator – radiography: any person involved in the practical

aspects of taking the scan. May include employees (receptionist, nurse, dentist, DCP) or others (scanner engineer, IT expert).

Key roles:

- practical aspects of taking the scan, maintenance and QA of the scanner, and IT support.

5. Operator - reporting: registered health care professional. A dentist who has undergone extra training.

Key roles:

- report on the dataset.

Advice on referrals

CBCT scans 'in house'

Ensure that your local rules set out which staff members can refer for CBCT. Written procedures provide guidance for which staff members are involved in the different aspects of the imaging chain.

Sending referrals to other imaging centres

Ensure you have prior agreement from the imaging centre in the form of a Service Level Agreement (SLA) so everyone involved in the imaging chain knows their role. This would mean you are 'entitled' to refer the patient to the imaging centre.

An example SLA is included as appendix C in the Health Protection Agency's Guidance on the Safe Use of Dental Cone Beam CT (Computed

Tomography) Equipment.

Accepting referrals from others

Accept referrals only from those who you have a prior arrangement and SLA. It would be prudent to hold a record of the referrer's CPD relating to radiation protection and CBCT as well as their GDC registration. If you are satisfied with the information you have, you can formally record them as a referrer in the local rules. You may also ask for a referral pro forma (click here to download an example).

Reporting

Ensure it is clear who is providing the report (ie, acting as the operator - reporting). More 'straightforward' scans can be reported by dentists who have undergone extra training if they feel confident in doing so.

It is strongly advised there is a formal reporting pathway in place for scans outside the area of expertise of the reporter. This will likely involve large volume scans (>10cm height), those outside the dentoalveolar region (ie, including pharynx, skull base, orbits, temporal bones) and equivocal dentoalveolar pathology. It is important to consider the security of data transfer and the training, registration and indemnity of the reporter, as per the guidelines from the Royal College of Radiology.

Dento-legal referrals for CBCT

The above guidance applies to clinical/diagnostic radiology. Any aspect of imaging for the purpose of dento-legal work is covered by a different set of rules. This is a very complex area, so it might be best that this is only

undertaken under the direction of a GDC registered specialist in dental and

maxillofacial radiology.

Training

There are comprehensive guidelines produced by the European Academy of DentoMaxilloFacial Radiology which outlines a 2 tier system for CBCT training (level 1 = referrer, level 2 = reporting).

Example of a multi-centre imaging chain

A **GDC registered** dentist (1) has a **valid and applicable SLA** for referring small volume CBCT to The Imaging Centre. She **provides the relevant information** to enable justification, refers to named selection criteria and is **entitled to refer** in the local rules.

Another **GDC registered** dentist (2) works at The Imaging Centre and has an interest in CBCT. He is **authorised in the working procedures** by the legal person to undertake this role. He is an expert in selection criteria and **justifies** and protocols the scan.

A **receptionist** (3) at The Imaging Centre is **authorised in the working procedures** to correctly identify the patient and show them to the CBCT room. The **nurse** (4) is **authorised in the working procedures** to position the patient in the scanner. A third **GDC registered dentist** (5) carries out final checks, exposes the patient, and records the exposure details.

A **GDC registered specialist** in dental and maxillofacial radiology (6) reports the scan remotely using a **secure, transparent, rapid** reporting solution (see RCR standards for more on this).

The receptionist at The Imaging Centre (3) shares the images with the original referrer (1) using a **secure, transparent, rapid** data transfer.

Finally, an **IT specialist** (7) has trained the referring dentist (1) on manipulating the images and also ensures IT security.

Other aspects to take into consideration

Payment

There is potential for embarrassment to all parties if the payment terms, location and amounts are not agreed in advance.

Referral urgency

If you are referring it is paramount to express the urgency. One simple way to do this is with a traffic light system; for example, Red = within two weeks, Amber = six weeks, Green = within 20 weeks.

COVID-19

It would be prudent to have all parties in the imaging chain aware of your current standards and practices relating to COVID-19. Communication with all the people in the chain is key.

This page was correct at publication on 02/09/2020. Any guidance is intended as general guidance for members only. If you are a member and need specific advice relating to your own circumstances, please contact one of our advisers.

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A passionate educator, Simon has been employed in dental education for over a decade. He lectures regularly to dental professionals and designed and runs the British Dental Association CBCT reporting Masterclass. He is published in several peer reviewed journals and has co-authored a best selling textbook on CBCT use in Endodontics, translated into four languages.

He is an examiner at The Royal College of Surgeons and sits on the committee of the education charity Teeth Relief. He has an interest in dento-legal disputes and holds a Masters degree in Medical Law and Ethics from the King's College London School of Law. He sits on the DDU dental advisory committee and acts as an independent expert witness.

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