The College of Dental Surgeons of Saskatchewan Standard For Cone Beam Computed Tomography

1. As Cone Beam Computed Tomography (CBCT) is a method of radiographic imaging for dental diagnosis, it falls under all the same guidelines as standard two-dimensional imaging:
2. Members ‘connected’ to and operating in a College of Dental Surgeons of Saskatchewan (CDSS) licensed facility must ensure that radiation exposure to staff, patients, and the public in general is kept as low as reasonably achievable (ALARA).
3. All members must follow the guidelines in The Radiation Health and Safety Act.
4. All dental radiographic units must be registered with, and meet the requirements of, the Radiation Safety Unit, Ministry of Labour Relations and Safety, Government of Saskatchewan.
5. The dentist/specialist who prescribes any radiograph is responsible for everything in the image. If the prescribing dentist is unable to interpret the image appropriately, it must be referred to a licensed professional who is able to.
6. The frequency and technique for any radiographic exposure is left to the discretion of the dentist/specialist in agreement with the patient. The goal of any radiographic exposure is to provide a sufficient amount of diagnostic information while exposing the patient to the least radiation that is reasonable. Any radiographic exposure must be selected based on what is best for that particular patient.
7. Any radiographic imaging must follow the appropriate taking of a medical history and case history as well as a clinical examination.
8. In addition to the points outline in (1.), the following guidelines must be followed for all CBCT imaging regardless of the field of view or voxel size:
9. Any member of the CDSS who plans to operate a CBCT unit in his or her clinic(s), must have a valid Radiation Safety Unit Facility Permit for the CBCT unit (effective January 1, 2018).
10. CBCT imaging is not to be used for routine “screening purposes” and there must be a clinical indication for the acquisition of an CBCT image.
11. For CBCT imaging, all CDSS members must follow the guidelines found in the SEDENTEXT Project. Below are a summary of the basic principles that are applicable to CDSS members:
12. CBCT examinations must not be carried out unless a history and clinical examination have been performed.
13. CBCT examinations must be justified for each patient to demonstrate that the benefits outweigh the risks.
14. CBCT examinations should potentially add new information to aid the patient’s management.
15. CBCT should not be repeated ‘routinely’ on a patient without a new risk/benefit assessment having been performed.
16. When accepting referrals from other dentists for CBCT examinations, the referring dentist must supply sufficient clinical information (results of a history and examination) to allow the CBCT practitioner to perform the justification process.
17. CBCT should only be used when the question for which imaging is required cannot be answered adequately by lower dose conventional (traditional) radiography.
18. CBCT images must undergo a thorough clinical evaluation (‘radiological report’) of the entire image dataset.
19. Where it is likely that evaluation of soft tissues will be required as part of the patient’s radiological assessment, the appropriate imaging should be conventional medical CT or MR, rather than CBCT.
20. CBCT equipment should offer a choice of volume sizes and examinations must use the smallest that is compatible with the clinical situation if this provides less radiation dose to the patient.
21. Where CBCT equipment offers a choice of resolution, the resolution compatible with adequate diagnosis and the lowest achievable dose should be used.
22. A quality assurance program must be established and implemented for each CBCT facility, including equipment, techniques and quality control procedures.
23. Aids to accurate positioning (light beam markers) must always be used.
24. All new installations of CBCT equipment should undergo a critical examination and detailed acceptance tests before use to ensure that radiation protection for staff, members of the public and patient are optimal.
25. CBCT equipment should undergo regular routine tests to ensure that radiation protection, for both practice/facility users and patients, has not significantly deteriorated.
26. All those involved with CBCT must have received adequate theoretical and practical training for the purpose of radiological practices and relevant competence in radiation protection.
27. Continuing education and training after qualification are required, particularly when new CBCT equipment or techniques are adopted.
28. Dentist responsible for CBCT facilities who have not previously received ‘adequate theoretical and practical training’ should undergo a period of additional theoretical and practical training that has been validated by an academic institution (University or equivalent). Where national specialist qualifications in DMFR exist, the design and delivery of CBCT training programs should involve a DMF radiologist.
29. For dento-alveolar CBCT images of the teeth, their supporting structures, the mandible and the maxilla up to the floor of the nose (e.g. 8cm x 8cm or smaller fields of view), clinical evaluation (‘radiological report’) should be made by a specially trained DMF Radiologist or, where this is impracticable, an adequately trained general dental practitioner.
30. For non-dento-alveolar small fields of view (e.g. temporal bone) all all craniofacial CBCT images (field of view extending beyond the teeth, their supporting structures, the mandible, including the TMJ, and the maxilla up to the floor of the nose) clinical evaluation (‘radiological report’) should be made by a specially trained DMF Radiologist or by a Clinical Radiologist (medical Radiologist).

🡪 In XVIII and XIX, all dentists and specialists who are licensed to practice in Saskatchewan receive training in interpreting radiographs. All members should refer to Section 1. d) for clarification and implementation of these two principles.

🡪 The entire SEDENTEXCT project document can be viewed at <http://www.sedentexct.eu/files/radiation_protection_172.pdf> and all members prescribing CBCT imaging should read this entire document.