CLINICAL GUIDELINES FOR

DENTAL RADIOLOGY

Version 2

Issue date: 31/12/2025

Effective date: 01/03/2026

Health Policies and Standards Department

Health Regulation Sector (2025)

ACKNOWLEDGMENT

The Health Policy and Standards Department (HPSD) developed this Guideline in collaboration with Subject Matter Experts and would like to acknowledge and thank these health professionals for their dedication toward improving quality and safety of healthcare services in the Emirate of Dubai.

Health Regulation Sector

Dubai Health Authority

TABLE OF CONTENTS

ACKNOWLEDGMENT 2

INTRODUCTION 4

EXECUTIVE SUMMARY 5

DEFINITIONS 6

ABBREVIATIONS 6

1. BACKGROUND 8

2. SCOPE 8

3. PURPOSE 8

4. APPLICABILITY 9

5. RECOMMENDATION ONE: BASIC PRINCIPLES 9

6. RECOMMENDATION TWO: RADIATION PROTECTION IN DENTAL RADIOLOGY 12

7. RECOMMENDATION THREE: JUSTIFICATION AND REFERRAL CRITERIA 14

8. RECOMMENDATION FOUR: CLINICAL APPLICATION OF CBCT IN DENTISTRY 14

9. RECOMMENDATION FIVE: CONTRAINDICATION FOR THE USE OF CBCT 19

10. RECOMMENDATION SIX: ROLE AND RESPONSIBILITY 19

11. RECOMMENDATION SEVEN: CONCLUSION 20

12. RECOMMENDATION EIGHT: RECOMMENDATIONS 20

KEY PERFORMANCE INDICATORS (KPIs) 22

REFERENCES 27

INTRODUCTION

Health Regulation Sector (HRS) forms an integral part of Dubai Health Authority (DHA) and is mandated by DHA Law No. (6) of 2018 to undertake several functions including but not limited to:

- Developing regulation, policy, standards, guidelines to improve quality and patient safety and promote the growth and development of the health sector;
- Licensure and inspection of health facilities as well as healthcare professionals and ensuring compliance to best practice;
- Managing patient complaints and assuring patient and physician rights are upheld;
- Governing the use of narcotics, controlled and semi-controlled medications;
- Strengthening health tourism and assuring ongoing growth; and
- Assuring management of health informatics, e-health and promoting innovation.

The Clinical Guideline Implant Dentistry aims to fulfil the following overarching DHA Strategic Priorities (2022-2026):

- Pioneering Human-centered health system to promote trust, safety, quality and care for patients and their families.
- Make Dubai a lighthouse for healthcare governance, integration and regulation.
- Foster healthcare education, research and innovation.
- Strengthening the economic contribution of the health sector, including health tourism to support Dubai economy.

EXECUTIVE SUMMARY

Clinical guidelines are increasingly becoming part of current practice and will become more common over the next decade. These Clinical Guidelines aim to improve the quality and the level of healthcare provided to the clients. Healthcare providers can use these guidelines to answer specific questions in day-to-day practice and as an information source for continuing professional education.

This document presents a framework for dental healthcare providers to:

- To raise awareness regarding the appropriate use of dental Cone Beam Computed Tomography (CBCT) in the clinical practice, to develop a comprehensive referral criteria, and provide recommendation on the use of CBCT.

DEFINITIONS

Cone Beam Computed Tomography: is imaging provides three-dimensional, volumetric data of dental and associated maxillofacial structures with isotropic resolution and high dimensional accuracy

Radiographic Referral: is simply a means for a healthcare practitioner to obtain a radiograph by a referral sent to a radiology specialist, the referral should have adequate description of the history, clinical signs and symptoms of the patient to enable the CBCT practitioner to proceed with the justification process.

ABBREVIATIONS

2D	:	Two Dimensional
3D	:	Three Dimensional
ALARA	:	As Low As Reasonably Achievable
CBCT	:	Cone beam computed tomography
DHA	:	Dubai Health Authority
FANR	:	Federal Authority for Nuclear Regulation
HPSD	:	Health Policy and Standards Department
HRS	:	Health Regulation Sector
PHCSS	:	Primary Healthcare Services Sector
TMJ	:	Temporomandibular Joint

A. GUIDELINES FOR CLINICAL APPLICATION OF CONE-BEAM COMPUTED TOMOGRAPHY (CBCT) IN DENTISTRY

1. BACKGROUND

One of the fundamental tools that aids a clinician in diagnosis is the use of radiographs. Furthermore, it also plays a role in treatment planning, monitoring disease progression and assessing treatment efficacy. In dentistry, radiographical investigations are often essential in the management of patients for clinical examination alone can be misleading and insufficient. Dental radiographs are images of teeth and surrounding structures which is commonly used by dentists to evaluate your oral health. Dental x-rays can be in the form of bitewing, periapical, orthopantogram, and recently introduced Cone-Beam Computed Tomography (CBCT). Both the patient and the clinical staff are at risk of x-ray exposure; therefore, it should be utilized properly to maximize its diagnostic value and minimize its radiation dose.

2. SCOPE

2.1. To raise awareness regarding the appropriate use of dental CBCT in the clinical practice and to develop a comprehensive referral criteria.

3. PURPOSE

3.1. To raise awareness regarding the appropriate use of dental CBCT in the clinical practice and to develop a comprehensive referral criteria.

3.2. Provide recommendation on the use of CBCT.

3.3. Selecting the appropriate imaging pathway in regards to CBCT to improve patients care by reducing error and radiation dose.

3.4. To clarify the clinical situation in which CBCT investigation method would be found useful to both the clinician and patient.

4. APPLICABILITY

4.1. DHA licensed Dental Radiologist.

4.2. DHA licensed Dental Implantologists.

4.3. DHA licensed Oral Maxillofacial Surgeons.

4.4. DHA licensed Periodontist.

4.5. DHA licensed Endodontist.

4.6. DHA licensed Orthodontist.

4.7. DHA Licensed Dental Assistant.

5. RECOMMENDATION ONE: BASIC PRINCIPLES

5.1. CBCT examinations must not be carried out unless a history and clinical examination have been performed.

5.2. CBCT examinations must be justified for each patient to demonstrate that the benefits outweigh the risks.

5.3. CBCT examinations should potentially add new information to aid the patient's management.

5.4. CBCT should not be repeated 'routinely' on a patient without a new risk/benefit assessment having been performed.

5.5. 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.

5.6. CBCT should only be used when the question for which imaging is required cannot be answered adequately by lower dose conventional (traditional) radiography.

5.7. CBCT images must undergo a thorough clinical evaluation ('radiological report') of the entire dataset.

5.8. 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.

5.9. 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.

5.10. Where CBCT equipment offers a choice of resolution, the resolution compatible with the lowest achievable dose should be used.

5.11. A quality assurance programme must be established and implemented for each CBCT facility, including equipment, techniques and quality control procedures.

5.12. Aids to accurate positioning (light beam markers) must always be used.

5.13. 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.

5.14. CBCT equipment should undergo regular routine tests to ensure that radiation protection, for both practice/facility users and patients, has not significantly deteriorated.

5.15. For staff protection from CBCT equipment, the guidelines detailed in the European Guidelines on Radiation Protection in Dental Radiology' should be followed.

5.16. 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.

5.17. Continuing education and training after qualification are required, particularly when new CBCT equipment or techniques are adopted.

5.18. Dentists 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).

5.19. 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 Dental Radiologist or, where this is impracticable, an adequately trained CBCT prescribing clinician or provider.

5.20. For non-dento-alveolar small fields of view (e.g. temporal bone) and all craniofacial CBCT images (fields of view extending beyond the teeth, their supporting structures, the mandible, excluding the Tempro mandibular Joint (TMJ), and the maxilla up to the floor of the nose), clinical evaluation ('radiological report') should be made by a specially trained Dental Radiologist or by a Clinical Radiologist (Medical Radiologist).

5.21. Regardless of the volume dimensions of a CBCT exam, if a CBCT prescribing clinician/provider of the CBCT service comes across findings (anatomical or pathological) beyond their level of training in interpreting CBCT exams, it is highly recommended that they request a formal radiology report from a dental radiologist or medical radiologist.

6. **RECOMMENDATION TWO:** RADIATION PROTECTION IN DENTAL RADIOLOGY

6.1. Staff protection measurements should be carried out by the chief dental practitioner in order to guarantee that the requirements are following the country's law and in accordance with a qualified expert.

6.2. limit for occupationally exposed workers is 20 mSv (millisievert) per year averaged over defined periods of 5 years not to exceed 50 mSv in a single year.

6.3. Pregnant clinical staff may take radiographs while following all routine radiation safety protocols. Dose limit for pregnant staff is 1 mSv to the fetus for the reminder of pregnancy. Pregnant staff are to declare their pregnancy in writing as soon as possible. Upon such declaration, the staff member must be issued a

personal dosimeter. The dosimeter should be read every month to ascertain that the dose does not exceed 0.25 mSv per month and fetus dose does not exceed 1 mSv for the remainder of the pregnancy. If needed, her work be organized in a way to limit fetus dose to 1 mSv for the reminder of the pregnancy

6.4. The limitation of the dose is achieved by As Low As Reasonably Achievable (ALARA) principle. ALARA principle is mainly attained by keeping adequate distance, in order to achieve that goal a designated area should be marked for staff not to enter during the x-ray exposure.

6.5. Dental practices involved with excessive workloads, using cephalometry, and requiring patient assistance should pursue guidance from a certified expert.

6.6. Written instructions on radiation safety should be provided to all the staff.

6.7. When planning new facilities or making significant changes it is essential to consult a qualified expert to ensure the protection of the dental x-ray facility and obtain appropriate Federal Authority for Nuclear Regulation (FANR) approvals.

6.8. Radiation awareness and protection training is required from all the staff in the dental practice.

7. **RECOMMENDATION THREE:** JUSTIFICATION AND REFERRAL CRITERIA

7.1. Any CBCT acquired must be justified to the patient to show that the benefits outweigh the risks. In order to go ahead with the selection of a radiograph it is crucial to take history and undergo clinical examination for the patient.

8. **RECOMMENDATION FOUR:** CLINICAL APPLICATION OF CBCT IN DENTISTRY

8.1. **Implantology:**

8.1.1. Preoperative

a. Cross sectional view CBCT is considered in the site of the potential implant, for assessment of the location and relationship to anatomical structures.

b. In cases that might require augmentation such as sinus augmentation, block grafting, ramus or symphysis grafting, assessment of site with previous traumatic injury or area involving impacted teeth

c. Sites that were previously treated with bone graft for bone reconstruction or ridge augmentation procedures.

d. Evaluation of autogenous bone donor sites.

e. Fabrication of static surgical guides and dynamic navigation of implant placement.

8.1.2. Postoperative

a. In the presence of signs and symptoms; for example, implant mobility or altered sensation.

b. Routine post-implant CBCT imaging – approximately 1 year from implant placement.

c. Implant retrieval.

8.2. **Oral and maxillofacial surgery:**

8.2.1. Third Molar Assessment

a. To evaluate the relationship between the lower third molar and inferior alveolar canal in case of an overlap CBCT may be taken.

8.2.2. Impacted Teeth

a. One of the common teeth impacted is the maxillary canine. CBCT is used to allow proper treatment planning by the oral surgeon and orthodontist.

8.2.3. Maxillofacial trauma

a. CBCT for zygomatic complex fracture, maxillary and mandibular bone fracture, dentoalveolar fracture is useful for both diagnosis and treatment planning.

b. Bone pathosis

8.2.4. Bone graft assessment

a. Used to estimate the defects size and shape to determine the amount of graft needed.

8.2.5. Craniofacial surgery

a. CBCT may be used for cleft palate cases to assess the size of the cleft, dental age and arch segment positioning.

8.2.6. Orthognathic surgery

a. Used for orthodontic analysis to determine the treatment plan and prognosis.

8.2.7. Temporomandibular Joint (TMJ) Imaging.

8.3. **Periodontics:**

8.3.1. Patient in need of implants

a. “As previously mentioned above in the implantology section”

8.3.2. Periodontics diagnosis and treatment planning

a. Tooth with advanced furcation lesion and might be replaced with an implant.

b. Advanced bone loss involving anatomical structures such as the sinus and IAN canal.

c. Periodontal cases that did not favourably react to the repeated localized periodontal therapy.

d. Root fracture, root resorption, and periodontal -endodontic lesion not viewed in the 2D radiography or detected by examination.

e. Certain peri-implantitis cases for improved diagnosis and treatment.

8.3.3. Periodontal-Orthodontic Therapy:

a. When the orthodontic patient is skeletally mature and presents with a malocclusion requiring fixed orthodontic appliances for decompensation.

b. When the orthodontic patient has a thin dentoalveolar phenotype and dentoalveolar bone deficiencies are suspected.

c. When the malocclusion patient requires advanced tooth movement and there is increased risk for positioning the roots outside of the orthodontic boundary conditions.

d. When the orthodontic patient is skeletally immature and requires an interdisciplinary approach to treatment (i.e., periodontal-orthodontic-restorative, or multispecialty care)

e. When the orthodontic patient presents with concomitant mucogingival deformities (recession).

8.4. **Endodontics:**

8.4.1. In the diagnosis of endodontically-involved teeth whether previously treated or untreated with opposing or nonspecific signs and symptoms.

8.4.2. Cases that may use limited field of vision CBCT are extra canals, complex morphology, dental anomalies (e.g. dens invaginatus), calcified

canals, external and internal root resorption, or invasive cervical resorption.

8.4.3. Vertical root fracture that couldn't be identified by examination and 2D imaging.

8.4.4. Management of non-healing lesion in association with previously endodontically treated tooth to decide on the treatment modality.

8.4.5. Limited Field Of View CBCT can be considered for non-surgical retreatment to assess endodontic treatment complications such as overextended root canal obturation material, separated endodontic instruments, and localization of perforations..

8.4.6. Assessment of endodontic treatment complications (for example, post- perforations) for treatment planning purposes when existing conventional radiographic views have yielded insufficient information.

8.4.7. Assessment and/or management of root resorption, which clinically appears to be potentially amenable to treatment.

8.4.8. Considered when the patient needs to undergo surgical endodontic retreatment to pinpoint the location of the root apex and its relationship to the adjacent anatomical structure.

8.4.9. Management of dentoalveolar trauma resulting in root fracture, luxation, tooth displacement or alveolar fracture.

8.4.10. Confirmation of non-odontogenic causes of pathosis.

8.4.11. CBCT can be requested as follow up imaging if the initial assessment was based on CBCT imaging.

8.5. **Orthodontics:**

8.5.1. CBCT may be used to view the juxtaposition of impacted teeth to the vital structure that my obstruct tooth movement during active orthodontic treatment

8.5.2. Placement of mini implants used for anchorage CBCT may be taken to avoid injury to the dental roots.

8.5.3. Analysis prior to orthognathic surgery as mentioned previously.

9. RECOMMENDATION FIVE: CONTRAINDICATION FOR THE USE OF CBCT

9.1. Soft tissue involvement

9.2. Follow ups

1.1.2. Follow ups can be carried out with intraoral, panoramic, or cephalometric radiographs. However, CBCT can be requested in certain cases such as recurrence, unexpected outcome, and if the initial assessment was based on CBCT imaging.

10. RECOMMENDATION SIX: ROLE AND RESPONSIBILITY

10.1. Every healthcare provider having a part with the process of CBCT should have the appropriate knowledge whether in theory or practice.

10.2. Responsible individuals who did not gain the knowledge or training must enrol in institutions or programs that are accredited in those aspects.

10.3. Continuous education will still be required for new and updated aspects regarding CBCT.

11. RECOMMENDATION SEVEN: CONCLUSION

11.1. CBCT is a tool that provides great advantages and applications in dentistry. However, It should not be the first selection of imaging over the day to day standard radiographs such as intraoral periapical, bitewings or panoramic X-rays. The role of a physician is to decide when a CBCT should be undertaken and that is basically in cases that 2D radiographs fail to provide sufficient details.

11.2. Appropriate documentation of X-ray forms plays a major criteria to a radiologist since it improves the image quality and reduces mishap which eventually aids in ALARA principle.

12. RECOMMENDATION EIGHT: RECOMMENDATIONS

12.1. 2D radiographs in most clinical scenarios are the x-rays selected, CBCT is chosen in the cases where 2D images cannot provide the details or answers required.

12.2. The link between a radiologist and managing physician is through a radiology request form. Filling a request form accurately is very crucial, since it helps in the following:

12.2.1. Reducing radiation dose and the investigation time.

12.2.2. Improve the quality of service offered to the patient.

12.2.3. Failure to properly complete these forms may therefore result in misdiagnosis.

12.3. To achieve ALARA, the field of view and area of interest should be mentioned within the request CBCT form to avoid error.

12.4. In order to request a CBCT, the following physician should be able to interpret CBCT thoroughly to avoid any mishaps or delay.

KEY PERFORMANCE INDICATORS (KPIs)

1. Patient Happiness: Overall Assessment	
DHA Pillar	Patient Happiness
Indicator Name	Overall Assessment
Measure Type	Outcome
Data Source	Survey data
Measure Description	People who had a very favorable overall assessment of the facility during measurement period
Measure Denominator	All survey respondents who meet inclusion criteria
Measure Numerator	Survey respondent whose overall assessment of the facility was very high - patients with the highest possible score (scale has 2-7 options) or the two highest options (scale has 8+ options)
Measure Inclusion Criteria	Total number of valid responses to surveys that ask a patient to give their overall assessment of a facility
Measure Exclusion Criteria	None
Source	DHA
International Benchmark	None: Dubai facility surveys are not sufficiently uniform to allow benchmarking
Higher is Better	Yes
Risk Adjust This Measure	No

2. Patient Happiness: Recommendation to Others	
DHA Pillar	Patient Happiness
Indicator Name	Recommendation to Others
Measure Type	Outcome
Data Source	Survey data
Measure Description	Percentage of patients who were very likely to recommend the facility to other people during measurement period
Measure Denominator	All survey respondents who meet inclusion criteria
Measure Numerator	Survey respondent whose recommendation was very high - patients with the highest possible score (scale has 2-7 options) or the two highest options (scale has 8+ options)
Measure Inclusion Criteria	Total number of valid responses to surveys that ask whether the patient would recommend the facility to others
Measure Exclusion Criteria	None
Source	DHA
International Benchmark	None: Dubai facility surveys are not sufficiently uniform to allow benchmarking
Higher is Better	Yes
Risk Adjust This Measure	No

3. Patient Happiness: Doctors Made Sure Patient Understood All Information	
DHA Pillar	Patient Happiness
Indicator Name	Doctors Made Sure Patient Understood All Information
Measure Type	Outcome
Data Source	Survey data
Measure Description	Percentage of patients who answered favorably ('yes') that doctors made sure he/she understood all information
Measure Denominator	All survey respondents who met inclusion criteria
Measure Numerator	Survey respondent indicated 'yes,' doctors made sure that the patient understood all information
Measure Inclusion Criteria	Valid response to the survey question ('yes' or 'no')
Measure Exclusion Criteria	None
Source	DHA
International Benchmark	None: Dubai facility surveys are not sufficiently uniform to allow benchmarking
Higher is Better	Yes
Risk Adjust This Measure	No

4. Patient Safety: Rate of Medication Error	
DHA Pillar	Patient Safety
Indicator Name	Rate of Medication Error
Measure Type	Outcome
Data Source	Internal facility records, reports, or survey data
Measure Description	Rate of prescriptions per 100,000 with a dispensing error during measurement period
Measure Denominator	Number of medication prescriptions during measurement period
Measure Numerator	Number of prescriptions in which a medication error occurs (e.g. dispensing error, prescribing error, administering and preparing error, patient compliance error, vaccine error, administering a medicine for a known allergy patient, dose-related adverse drug reaction)
Measure Inclusion Criteria	All filled prescriptions
Measure Exclusion Criteria	Unsafe condition and near miss incident, adverse drug reactions
Source	TEC required measures http://apps.who.int/iris/bitstream/10665/252274/1/9789241511643-eng.pdf
International Benchmark	2.28 Per 100,000 (in the U.S.) Source: https://www.nationwidechildrens.org/newsroom/news-releases/2017/07/study-finds-rate-of-medication-errors-resulting-in-serious-medical-outcomes-rising . One medication error occurs for every five doses given in US hospitals and 1-2% of patients admitted to US hospitals are harmed by medication errors. Source: http://stateclaims.ie/wp-content/uploads/2017/11/Medication-Incidents-Report-2016.pdf
Higher is Better	No
Risk Adjust This Measure	No

5. Patient Safety: Rate of Medical Error	
DHA Pillar	Patient Safety
Indicator Name	Rate of Medical Error
Measure Type	Outcome
Data Source	Internal facility records, reports, or survey data
Measure Description	Rate of medical errors (errors in diagnosis, medication, surgery, equipment use, lab findings interpretation) per 100,000 patients in measurement period
Measure Denominator	All qualifying patients in measurement period
Measure Numerator	Medical errors as defined through proven reports (e-medical systems) during measurement period
Measure Inclusion Criteria	All patients with at least one medical encounter in measurement year
Measure Exclusion Criteria	None
Source	TEC required measures http://apps.who.int/iris/bitstream/10665/252274/1/9789241511643-eng.pdf
International Benchmark	To be discussed with DHA
Higher is Better	No
Risk Adjust This Measure	No

REFERENCES

1. Akintomide AO, Ikpeme AA. (2015). An audit of the completion of radiology request forms and the request practice. J Family Med Prim Care; 4:328-30. Available at: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4535088/ (accessed on: 18/06/2025).
2. Alamri HM, Sadrameli M. (2012). Applications of CBCT in dental practice: a review of the literature. Gen Dent; 60(5): 390–400. Available at: https://www.researchgate.net/publication/231861878_Applications_of_CBCT_in_dental_practice_A_review_of_the_literature (accessed on: 18/06/2025).
3. Coşkun İ, Kaya B. (2018). Cone Beam Computed Tomography in Orthodontics. Turkish journal of orthodontics; 31(2): 55–61. Available at: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6046632/pdf/tjo-31-2-55.pdf (accessed on: 18/06/2025).
4. Horner K, Islam M. (2009). Basic Principles for Use of Dental Cone Beam CT: Consensus Guidelines of the European Academy of Dental and Maxillofacial Radiology. Dentomaxillofacial Radiology; 38: 187-195. Available at: https://pubmed.ncbi.nlm.nih.gov/19372107/ (accessed on: 18/06/2025).
5. Horner K. (2011). Highlights from the Evidence-Based Guidelines on Cone Beam CT for Dental and Maxillofacial Radiology. By the SEDENTEXCT project. Available at: https://www.odont.uio.no/iko/om/organisasjon/fagavd/kjeve-

ansiktsradiologi/cbct-seminar-oslo-2012/presentasjoner/Oslo%20-intro%20and%20justification.pdf (accessed on: 18/06/2025).

6. Mohamed Abbas, A. Omer. (2016). Adequacy of clinical information on radiology request cards from medical assessment unit. Clinical Audit. Nucl Med Biomed Imaging; 1(1): 5-6. Available at: https://www.oatext.com/Adequacy-of-clinical-information-on-radiology-request-cards-from-medical-assessment-unit-Clinical-Audit.php#gsc.tab=0 (accessed on: 18/06/2025).
7. Radiation protection 136. (2004). European guidelines on radiation protection in dental radiology : the safe use of radiographs in dental practice Directorate H - Nuclear Safety and Safeguards,– Section 6. Available at: https://ec.europa.eu/energy/sites/ener/files/documents/136.pdf (accessed on: 18/06/2025).
8. Special Committee to Revise the Joint AAE/AAOMR Position Statement on use of CBCT in Endodontics. (2015). AAE and AAOMR Joint Position Statement: Use of Cone Beam Computed Tomography in Endodontics 2015 Update. Oral Surgery Oral Med Oral Pathology Oral Radiology; 120(4): 508-12. Available at: https://www.aae.org/specialty/wp-content/uploads/sites/2/2017/06/conebeamstatement.pdf (accessed on: 18/06/2025).
9. Takafumi Hayashi, Yoshinori Arai. (2018). Clinical guidelines for dental cone-beam computed tomography. A Committee on Clinical Practice Guidelines. Japanese

Society for Oral and Maxillofacial Radiology. Oral Radiology; 34:89–10. Available at: https://link.springer.com/article/10.1007/s11282-018-0314-3 (accessed on: 18/06/2025).

10. Vandenberghe B, Jacobs R. (2007). Diagnostic validity (or acuity) of 2D CCD versus 3D CBCT-images for assessing periodontal breakdown. Oral Surgery Oral Med Oral Pathology Oral Radiology Endod; 104(3): 395–40. Available at: https://pubmed.ncbi.nlm.nih.gov/17613257/(accessed on: 18/06/2025).
11. 'The use of cone-beam computed tomography in dentistry' (2012) The Journal of the American Dental Association, 143(8), pp. 899–902. Available at: https://doi.org/10.14219/jada.archive.2012.0295 (Accessed: 18/06/2025).
12. Standard of Practice – Dental CT Scanners (2011) Royal College of Dental Surgeons of Ontario, Available at: Standards of Practice – Dental CT Scanners (msecnd.net) (Accessed: 18/06/2025).
13. Mandelaris, G.A. et al. (2017) 'American Academy of Periodontology Best Evidence Consensus Statement on Selected Oral Applications for Cone-Beam Computed Tomography', Journal of Periodontology, 88(10), pp. 939–945. Available at: https://doi.org/10.1902/jop.2017.170234 (Accessed: 18/06/2025).
14. AAE/AAOMR Joint Position Statement -Use of Cone Beam Computed Tomography in Endodontics | (no date). Available at: https://www.aae.org/specialty/wp-content/uploads/sites/2/2017/06/conebeamstatement.pdf (Accessed: 18/06/2025).

15. Gurgel ML, Junior CC, Cevidanes LHS, de Barros Silva PG, Carvalho FSR, Kurita LM, Cunha TCA, Dal Fabbro C, Costa FWG. Methodological parameters for upper airway assessment by cone-beam computed tomography in adults with obstructive sleep apnea: a systematic review of the literature and meta-analysis. Sleep Breath. (2023) Mar;27(1):1-30. Available at: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9392812/ (Accessed: 18/06/2025)

16. Zimmerman JN, Lee J, Pliska BT. Reliability of upper pharyngeal airway assessment using dental CBCT: a systematic review. Eur J Orthod. (2017) Oct 1;39(5):489-496. doi: 10.1093/ejo/cjw079. https://academic.oup.com/ejo/article-abstract/41/1/101/5090428?redirectedFrom=fulltext (Accessed: 18/06/2025).

17. Alsufyani NA, Al-Saleh MA, Major PW. CBCT assessment of upper airway changes and treatment outcomes of obstructive sleep apnoea: a systematic review. Sleep Breath. 2013 Sep;17(3):911-23. doi: 10.1007/s11325-012-0799-7. https://pubmed.ncbi.nlm.nih.gov/23344828/ (Accessed: 18/06/2025).