

22 November 2010

Dear Practitioner,

Consultation on a Proposed Statement on the Use of Cone Beam Computed Tomography in Dentistry

Cone Beam Computed Tomography (CBCT) represents an advance for dental and maxillofacial radiology and is becoming increasingly popular in dental practice. The three-dimensional information appears to offer the potential of improved diagnosis for a wide range of clinical applications with the possible benefit of improved clinical outcomes.

While there is a rapidly accumulating body of literature on CBCT, the development of evidence-based guidelines on its use has not kept pace with this.

In view of Dental Council's purpose to protect the health and safety of the public by ensuring that oral health practitioners are competent and fit to practise their professions, Council considers it should have guidelines for dentists and dental specialists who use this technology. The guidelines, which will be published as a Council Statement, are based on current best evidence and relate to the legislative requirements that dentists/dental specialists work under.

The aim of this consultation is to gather views from the sector in order for Council to make a final decision on the proposed Council Statement. The Council therefore seeks any comments on the proposal by **31 January 2011**. Copies of this letter and the consultation document have been sent to all dentists, dental specialists, relevant associations and societies, the Ministry of Health, District Health Boards and other organisations with an interest in this area. This letter and attachment will also be published on the Council's website, with a similar invitation to comment.

Responses should be sent to:

Dental Council
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Wellington 6043
Fax: 04 499 1668
Email: marie.warner@dcnz.org.nz

Yours sincerely



Marie Warner
Chief Executive

Consultation Document

Proposed Statement on the Use of Cone Beam Computed Tomography in Dentistry

RELEASED 22 NOVEMBER 2010
SUBMISSIONS DUE 31 JANUARY 2011

Introduction

Cone Beam Computed Tomography (CBCT) represents an advance for dental and maxillofacial radiology and is becoming increasingly popular in dental practice. The three-dimensional information appears to offer the potential of improved diagnosis for a wide range of clinical applications with the possible benefit of improved clinical outcomes.

While there is a rapidly accumulating body of literature on CBCT, the development of evidence-based guidelines on its use has not kept pace with this.

Dental Council notes from the literature that, in addition to general risks around x-ray irradiation;

- there is a risk of inappropriate examinations being performed;
- that CBCT usually gives increased radiation doses to patients compared with conventional dental radiographic techniques; and
- the amount of information gathered by the technique may be outside of a practitioner's expertise or scope of practice though for patient safety this information should be reported on

In view of Dental Council's purpose to protect the health and safety of the public by ensuring that oral health practitioners are competent and fit to practise their professions Council considers it should have guidelines for dentists and dental specialists who use this technology. The guidelines are based on current best evidence and relate to the legislative requirements that dentists/dental specialists work under.

Guideline principles:

1. Practitioners using CBCT must conform to the requirements of the Radiation Protection Act 1965 and amendments, and its Regulations 1982, the National Radiation Laboratory Code of Safe Practice for the use of X-rays in Dentistry, Section 8 of the Health Practitioners Competence Assurance Act 2003, and the Dental Council's Policy on Advanced and new areas of practice and Code of Practice on Informed consent.
2. CBCT examinations must not be carried out unless a history and clinical examination have been performed
3. CBCT examinations must be justified for each patient to demonstrate that the benefits outweigh the risks
4. CBCT examinations should potentially add new information to aid the patient's management
5. CBCT should not be repeated 'routinely' on a patient without a new risk/benefit assessment having been performed]
6. A referring dentist/dental specialist must supply sufficient clinical information (results of a history and examination) to allow the practitioner performing the CBCT procedure to be able to justify the procedure
7. CBCT should only be used when the question for which imaging is required cannot be answered adequately by lower dose conventional (traditional) radiography
8. CBCT images must undergo a thorough radiological report of the entire image dataset
9. 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
10. 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
11. Where CBCT equipment offers a choice of resolution, the resolution compatible with adequate diagnosis and the lowest achievable dose should be used
12. A quality assurance programme must be established and implemented for each CBCT facility, including equipment, techniques and quality control procedures
13. Aids to accurate positioning (light beam markers) must always be used

14. 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
15. CBCT equipment should undergo regular routine tests to ensure that radiation protection, for both practice/facility users and patients, has not significantly deteriorated.
16. It is the responsibility of the practice to ensure that the scanner is maintained so as to ensure optimal image quality at dose rates which are as low as reasonably achievable. Regular quality assurance test results must be retained as a permanent record on-site.
17. 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
18. Continuing education and training after qualification are required, particularly when new CBCT equipment or techniques are adopted
19. 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).
20. For dento-alveolar CBCT images of the teeth, their supporting structures, the mandible and the maxilla up to the floor of the nose (i.e. 8cm x 8cm or smaller fields of view), a radiological report should be made by a specially trained DMF Radiologist* or, where this is impracticable by an adequately trained general dental practitioner/dental specialist
21. 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, including the TMJ, and the maxilla up to the floor of the nose), a radiological report should be made by a specially trained DMF Radiologist* or by a Medical Radiologist
22. Any practitioner who provides a radiological report must hold an appropriate current Annual Practising Certificate under the Health Practitioners Competence Assurance Act 2003

*Dental Council recognises that Dentomaxillofacial Radiography is not a recognised speciality in New Zealand at the current time

Resources

Carter L, Farman AG, Geist J, Scarfe WC, Angelopoulos C, Nair MK, et al. American Academy of Oral and Maxillofacial Radiology executive opinion statement on performing and interpreting diagnostic cone beam computed tomography. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 2008; 106: 561–562.

Horner K, Islam M, Flygare L, Tsiklakis K, and E Whaites. Basic principles for use of dental cone beam computed tomography: consensus guidelines of the European Academy of Dental and Maxillofacial Radiology. *Dentomaxillofac Radiol* 2009; 38: 187-195

Basic principles for use of dental cone beam computed tomography: consensus guidelines of the European Academy of Dental and Maxillofacial Radiology January 2009.
<http://www.eadmfr.org/Basic%20Principles%20for%20Use%20of%20Dental%20Cone%20Beam%20CT.pdf>

Radiation Protection Act (Reprint of principal act, 1965 and amendments 1973, 1974, 1977, 1981, 1986). Wellington, Government Printer, 1987.
The Radiation Protection Regulations 1982. Wellington, Government Printer, 1982.
<http://www.legislation.govt.nz/act/public/1965/0023/latest/DLM372539.html>
<http://www.legislation.govt.nz/regulation/public/1982/0072/latest/DLM81126.html>

National Radiation Laboratory Code of Safe Practice for the use of X-rays in Dentistry.
<http://www.nrl.moh.govt.nz/regulatory/regulatorypublications.asp> NRL C7

Health Practitioners Competence Assurance Act 2003. <http://www.moh.govt.nz/hpca>

Dental Council Policy Advanced and New Areas of Practice.
http://www.dentalcouncil.org.nz/Documents/Policy/DCNZPolicy_StatementAdvancedAndNewAreasOfDentistry.pdf

Dental Council Code of Practice Informed Consent.
http://www.dentalcouncil.org.nz/Documents/Codes/COP_InformedConsent.pdf

Discussion/Consultation points

The Council invites all stakeholders to comment on this consultation document by responding to the following questions:

1. Do you agree/disagree with the proposal that Council should have a Statement regarding the use of cone beam computed tomography in dentistry?
2. Do you agree/disagree with the content of the proposed Statement?
3. Any additional comments regarding the proposed Statement?