CHIROPRACTORS REGISTRATION BOARD OF VICTORIA
STANDARDS OF PRACTICE GUIDELINES

RADIATION (X-RAY) SAFETY GUIDELINES

DIAGNOSTIC IMAGING

May 2008

INTRODUCTION

These guidelines were developed for and approved by the Chiropractors Registration Board of Victoria (CRBV). The CRBV provides these guidelines for use by registered chiropractors in the State of Victoria, Australia but recognises that these guidelines have wider application.

These guidelines have taken into account the educational training of chiropractors in Victoria at RMIT University (Bundoora) which operates at or above the standards determined by the Chiropractic Council on Chiropractic Education Australasia (CCEA) Inc. which is the Australasian chiropractic education accreditation assessment agency.

The CCEA standards are informed, to a considerable extent, by similar chiropractic accreditation agency's standards in the USA, Canada, United Kingdom and Europe.

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SCOPE

The Radiation (X-ray) Safety Guidelines relate primarily to the use of plain film radiography either by the registered chiropractor or by referral to a radiology facility. The guidelines relate secondarily to the use of computed tomography (CT) scanning by referral.

These guidelines do not relate to the use of:

- dual energy x-ray absorptiometry (DEXA)
- magnetic resonance imaging (MRI)
- radioisotope bone scans
- ultrasound (musculoskeletal)
- ultrasound (Doppler)
- myelography
- discography

GUIDELINES Plain film

When considering using, or referring for the use of, plain film radiography, the following matters will be observed:

1. Each and every use of plain film radiography must be clinically indicated. In each case, the chiropractor must determine that the use of x-rays on the patient is necessary for the effective management of the patient. A proper history and clinical evaluation of each patient must be performed prior to determining the need for a radiological examination. Examples of clinical indications for radiography are listed in Appendix A.

2. The ALARA principle will be adhered to in each case. The radiation dose to the patient should be kept As Low As Reasonably Achievable (ALARA).

3. In order to adhere to the ALARA principle, the number of films obtained should be kept to a minimum and be consistent with current guidelines (see “Useful Links”). Radiographic positioning, shielding, filtration and collimation are factors to be considered. Exceeding the minimum number of films may be the result of producing a non-diagnostic image. It may be the result of taking a view that is not going to later the management of the patient.

4. A radiographic study of any area should include at least two views that are at right angles to each other. This will allow a finding to be localised in three-dimensional space.

5. Prior to taking a film, the radiographic equipment and materials used should be in good working order. If the chiropractor is unable to perform such an assessment and any necessary corrections, then a suitably qualified technician should be engaged to do it.

6. The chiropractor taking the films must be currently registered to do so by the relevant authority.

7. Informed consent from the patient must be properly obtained and documented prior to radiography. If the patient is a legal minor or not competent to give consent, then that patient’s legal guardian must provide informed consent prior to any radiography.

8. For each set of radiographs obtained, a radiology report must be written or obtained and included in the patient’s clinical file. The nature of such a radiology report is outlined in Appendix B.

9. Some examples of when radiography is not clinically indicated are provided in Appendix C.

10. For any radiographs taken, there should be a reasonable expectation that the results will influence the management of the patient. In other words, if the management of the patient is determined and will not be affected by the outcome of the radiographs, then those radiographs should not be taken.

11. Once a decision to obtain clinically-indicated radiographs has been made, consideration of the relevant American College of Radiology (ACR) Appropriateness Criteria for the particular anatomical region being examined should be given.

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Example:
An elderly patient with a known malignancy, back pain, and a partially collapsed vertebral body on recent radiographs who is otherwise healthy presents to you. The ACR Appropriateness Criteria suggest that the most appropriate imaging to request is MRI of the spine followed by a whole body bone scan.

GUIDELINES Computed tomography (CT) scans.

When considering referring a patient for CT scans, the following matters will be observed:

1. Each and every use of CT imaging must be clinically indicated. In each case, the chiropractor must determine that the use of x-rays on the patient is necessary for the effective management of the patient. A proper history and clinical evaluation of each patient must be performed prior to determining the need for a radiological examination. Examples of clinical indications for radiography are listed in Appendix A.

2. The ALARA principle will be adhered to in each case. The radiation dose to the patient should be kept As Low As Reasonably Achievable (ALARA).

3. In order to adhere to the ALARA principle, the number of films obtained should be kept to a minimum and be consistent with current guidelines (see “Useful Links”). Radiographic positioning, shielding, filtration and collimation are factors to be considered.

4. Informed consent from the patient must be properly obtained and documented prior to radiography. If the patient is a legal minor or not competent to give consent, then that patient's legal guardian must provide informed consent prior to any radiography.

5. For each set of radiographs obtained, a radiology report must be written or obtained and included in the patient's clinical file. The nature of such a radiology report is outlined in Appendix B.

6. Some examples of when radiography is not clinically indicated are provided in Appendix C.

7. For any radiographs taken, there should be a reasonable expectation that the results will influence the management of the patient. In other words, if the management of the patient is determined and will not be affected by the outcome of the radiographs, then those radiographs should not be taken.

8. Once a decision to obtain clinically-indicated CT scans has been made, consideration of the relevant American College of Radiology (ACR) Appropriateness Criteria1 for the particular anatomical region being examined should be given.

9. Consider the appropriateness of another health care practitioner ordering the CT scans if the clinical indication is suspicion of a pathology that would ordinarily be managed by that practitioner,

10. CT is considered more appropriate than MRI in those cases in which the patient is being assessed for bone detail (eg spinal fracture fragments) or soft tissue calcification (eg paraspinal ligament calcification).

[1] See web links at the end of the document.

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Appendix A

Clinical Indicators for Radiography

Part A Red flags

Age greater than 50 years old
Neurological deficit.
History of recent trauma (any age).
Rapid / unexplained weight loss.
History of malignancy.
Unexplained fever (> 37.8^{0}C).
Pain that wakes the subject and/or is unrelenting during the night.
Fever, infection or swelling suggestive of osteomyelitis.
Long term use of corticosteroids or methadone.
Osteoporosis.
Immunosuppression.
Intravenous drug abuse
Suspicion of pathology (based on history and physical examination)
Known pathology (based on history and reports)
History of spinal surgery.

Part B Yellow flags

Mental Illness which may cause a compromised ability to give a complete history, e.g. schizophrenia.
Seeking compensation.

Part C Other

Painful scoliosis or kyphosis.
Night sweats.
Prior treatment for the same condition with no positive outcome.
Positive clinical findings that suggest nerve entrapment and/or spinal instability.
Minor trauma where there was a transient loss of consciousness, or was unconscious.
Persistent cervical pain if ligamentous instability is suspected.
Low back pain worse with rest.
Non weight bearing low back pain.
Prolonged nutritional deficiency or a past history of an eating disorder.
Suspicion of congenital anomalies from history and/or examination.
Genetic / chromosome disorders.
Blood dyscrasias.
Medicolegal requirements

Suggested References

Deyo RA, Rainville J, Kent DL. What can the history and physical examination tell us about low back pain? JAMA 1992;268:760 – 765
Spitzer WO, LeBlan FE, Dupuis M. Spine 1987;12 (Suppl 7) S16 – 12
Isaacs DM, Marinac J, Sun C. J Emerg Med 2004;26:37-45
Rowe LJ, Yochum TR. (2005) 'Principles of radiologic interpretation' in Yochum, T. and Rowe L. eds., *Essentials of skeletal radiology (3ed)*, Baltimore: Lippincott Williams & Wilkins, 679 – 719.
Royal Australian and New Zealand College of Radiologists (2001), "Imaging Guidelines", 4th Edition

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Appendix B

The Radiology Report

In general chiropractic practice, all externally-produced radiographs should be accompanied by a radiology report. If no report is located, the centre at which the radiographs were taken should be contacted for a copy of the report. The radiographs taken at the chiropractor's office should have a report prepared for inclusion in that patient's file with a copy kept with the films.

The report should include the following components:

Details about the patient and the facility at which the radiographs were produced
Radiographs obtained
Impression of findings
Recommendations

Details

Patient's name, gender, age or date of birth, date radiographs were taken, and name of facility.

Radiographs obtained

Specifically list the radiographs that were taken and include the date.

Impressions

In this section, your findings are reported in such a way that the reader will be able to develop a reasonably accurate mental image of the radiographic findings such as the patient's posture, weight-bearing, scoliosis (if any), size and morphology. All significant deviations from normal structure should be reported with particular attention to any finding that may constitute pathology (grossly abnormal anatomy).

Recommendations

Based on the findings under 'impressions', further imaging or laboratory testing may be indicated so should be detailed here.

A detailed guideline on producing diagnostic imaging reports is presented in the ACR Practice Guideline for Communicating of Diagnostic Imaging Findings.

Suggested References

ACR Practice Guideline for Communication of Diagnostic Imaging Finding (http://www.acr.org/SecondaryMainMenuCategories/quality_safety/guidelines/dx/comm_diag_rad.aspx)
Taylor JAM. Writing radiology reports in chiropractic. J Can Chirop Assoc 1990;34:30-34
Rowe LJ, Yochum TR, Maola CJ. (2005) 'Report writing and risk management strategies in skeletal radiology' in Yochum, T. and Rowe L. eds., *Essentials of skeletal radiology (3ed)*, Baltimore: Lippincott Williams & Wilkins, 1547 – 1580.

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Appendix C

Contraindications for radiography

Pregnancy (relative)
Absence of clinical indications for radiography.

Non-indications for Radiography

Routine screening.
Patient education
Routine biomechanical analysis
Pre-employment radiographs
Financial gain
Post-adjustment radiographs to observe / demonstrate immediate result.

Suggested References

Rowe LJ, Yochum TR. (2005) 'Principles of radiologic interpretation' in Yochum, T. and Rowe L. eds., *Essentials of skeletal radiology (3ed)*, Baltimore: Lippincott Williams & Wilkins, 679 – 719.

Suggested web links.

American College of Radiology

Home page http://www.acr.org/

ACR Guidelines and Standards
http://www.acr.org/SecondaryMainMenuCategories/quality_safety/guidelines.aspx (see General Diagnostic Radiology group)

ACR Appropriateness Criteria
http://www.acr.org/SecondaryMainMenuCategories/quality_safety/app_criteria.aspx (see list of topics)

Royal Australian and New Zealand College of Radiologists

Home page http://www.ranzcr.edu.au/index.cfm

Guidelines and Policies http://www.ranzcr.edu.au/about/guidelinesandpolicies/index.cfm ?

WorkCover

SA: Imaging guidelines June 2007 www.workcover.com

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