



PRACTICE STATEMENT

Practice Statement
Number: 4.12

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TOPIC: ULTRASOUND

PREMABLE/DEFINITION:

ULTRASOUND is a form of mechanical energy which directs waves to tissues to achieve thermal or non-thermal therapeutic effects. The output of Ultrasound therapy devices in Canada is restricted to a maximum value of 3 W/cm². (Health Canada Consumer and Clinical Radiation Protection publication “Selling Ultrasound Therapy Devices in Canada?”)

Education/who can use it:

Ultrasound is used by Physiotherapists for a wide variety of tissue disorders, and is included in the undergraduate curricula in Physiotherapy training programs.

Physiotherapists may delegate the application of Ultrasound to Physiotherapy students/interns and to Rehabilitation Assistants who are competent to apply Ultrasound.

Delegation to any other individuals is considered unprofessional and a breach of the CPM code of conduct (see Practice Statement 4.8 – Physiotherapists Assigning Physiotherapy care and Code of Ethics 1.3)

Indications and contraindications:

Physiotherapists are expected to maintain their competence by keeping up to date with the best available evidence to determine indications for use, parameter selection, contraindications and precautions, and potential adverse effects when using ultrasound.

Physiotherapists must determine the presence of contraindications prior to applying ultrasound to a patient. In addition, the physiotherapist must warn each patient regarding potential adverse effects.

From time to time the Therapeutic Directorate of Health Canada issues warnings regarding agents such as ultrasound. Therapists are advised to check the Health Canada web site regularly for updates.

A Practice Statement is a formal position of the College with which members shall comply.

Guidelines:**1. Concerning performance of Ultrasound therapy devices**

Ultrasound therapy devices must meet standards set out by the Radiation Emitting Devices (RED) Act, the Food and Drugs Act and the Medical Devices Regulations of Health Canada. They can not be sold in Canada unless they comply with the Ultrasound Therapy Devices Standard, a regulation under the RED Act. These standards define “performance requirements” for these devices which include output accuracy, timer accuracy, output stability and output limits.

Actual output of new and old Ultrasound units may deviate from the indicated output by as much as 30%. Published reports indicate that the actual ultrasound energy being emitted is LOWER than that indicated on the output dial (see Belanger, page 237.) Therefore, the discrepancy between actual and indicated output does not seem to pose a risk to the patient.

Loss of calibration has been attributed to frequent movement of the Ultrasound equipment.

Recommendations:

- All new ultrasound machines should be calibrated for output before they are used for the first time.
- Machines should be re-calibrated regularly:
 - each clinic manager should set up a schedule for recalibration
 - **each clinic manager shall maintain a record of calibration results**
 - frequency of recalibration should be determined by
 - frequency of use
 - amount of wear and tear/movement of the unit
 - known accidental damage to the unit
 - performance on previous calibration tests

Calibration can be performed by the Radiation Protection Officer, Medical Physics Department at Cancer Care Manitoba.

Clinics could also consider purchasing a Hydrophone and checking the calibration of their equipment on site.

2. Concerning infection control and Ultrasound gel

Health Canada has issued reports of serious infection from ultrasound and medical gels. While the cause was traced back to a problem in the manufacturing plant, and while the ensuing recommendations pertain more directly to invasive or internal uses of ultrasound, the following practice is recommended:

- Reusable ultrasound gel containers must be emptied, washed in hot soapy water or hospital-grade disinfectant, rinsed thoroughly and dried prior to refilling. Bottles should not be “topped up”. Cracked reusable bottles should be discarded.

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- When filling a reusable container, ensure that the large bulk container has not passed the expiration date.
- Bottles should be filled using a dispensing device on the large bulk container, not by inserting the tip of the refillable bottle into the bulk container to aspirate the contents.
- When opening a new gel bottle or a newly refilled bottle, date the bottle and discard unused gel after one month.
- **Tip of containers or dispensing nozzles must not come in direct contact with a patient, staff, or instrumentation.**

Reference:

Belanger AY. Evidence – based guide to Therapeutic Physical Agents. Lippincott, Williams, Wilkins, 2002. ISBN 0-7817-2108-3

Electrotherapy on the Web: www.elctrotherapy.org

Health Canada: <http://www.hc-sc.gc.ca>