Color code: **Blue** from Michigan CT rules
Color code: **Red** from ACR Accreditation Standards
Color code: **Brown** from California Law SB 1237, HSC 115111, 115112, 1156113
Color code: **Green** from IAC Accreditation Standards
Color code: **Black** from CRCPD Suggested State Regulations, Part F11, 2009,
Color code: **Purple** from CRCPD Board of Directors' Position Paper 2009
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Chapter 246-226 WAC
Computed Tomography

WAC 246-226-001 Authority. Rules set forth herein are adopted pursuant to the provisions of chapter 70.98 RCW and 70.56 RCW.

WAC 246-226-005 Purpose and Scope.

(1) This chapter establishes requirements governing the use of gantry-style computed tomography (CT) scanners in the healing arts.

(2) This chapter applies to all registrants who use a CT scanner for the intentional exposure of humans for diagnostic imaging.

WAC 246-226-007 Relationship to other regulations.
In addition to the requirements established in this chapter, registrants shall also comply with:
- ***(a) Applicable requirements established in chapter 246-225 WAC, Radiation protection – X rays in the healing arts; and***
- ***(b) Applicable fees established in chapter 246-254 WAC, Radiation protection – Fees.***

WAC 246-226-010 Definitions, abbreviations, and acronyms. The definitions, abbreviations, and acronyms in this section and in WAC 246-220-010 apply throughout this chapter unless the context clearly indicates otherwise.
(1) "CBCT" means Cone Beam Computed Tomography,

(2) "Computed tomography dose index" (CTDI) means the integral of the dose profile along a line perpendicular to the tomographic plane divided by the product of the nominal tomographic section thickness and the number of tomograms produced in a single scan, that is:

$$\overline{\text{CTDI}} = \frac{1}{nT} \int_{-7T}^{+7T} D(z)dz$$

where:

z	=	Position along a line perpendicular to the tomographic plane;
D(z)	=	Dose at position z;
T	=	Nominal tomographic section thickness;
n	=	Number of tomograms produced in a single scan.

This definition assumes that the dose profile is centered around z=0 and that, for a multiple tomogram system, the scan increment between adjacent scans is nT.

(3) “CT” means Computed Tomography, a radiologic imaging procedure or system that uses computer processing to generate an image of tissues using thin slices sent through the patient's body to detectors on the other side.

(4) "CT conditions of operation" means all selectable parameters governing the operation of a CT x-ray system including nominal tomographic section thickness, filtration, and the technique factors as defined in this section.

(5) “$CTDI_{vol}$” means the Computed Tomography Dose Index, which is ***a weighted average measurement in a reference phantom, expressed in milliGray.***

(6) "CT dosimetry phantom" means an object used for determination of the dose delivered by a CT x-ray system.

(7) "CT Number" (CTN) means the number used to represent the x-ray attenuation associated with each elemental area of the CT image:

$$\frac{}{CTN} = \frac{k(\mu_x - \mu_w)}{\mu_w}$$

where:

k	=	A constant, a normal value of 1,000 when the Hounsfield scale of CTN is used;
μ_x	=	Linear attenuation coefficient of the material of interest;
μ_w	=	Linear attenuation coefficient of water.

(8) “CT Scanner” means a CT system or machine.

(9) “DLP” means Dose Length Product

(10) "Dose profile" means the dose as a function of position along a line.

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(11) “Filtration” means material placed in the beam to preferentially absorb low energy photons that contribute nothing to the image, and yet otherwise would increase patient exposure.

(12) “Kilowatts” means peak power, which is the highest rated kilovoltage of a CT system multiplied by the maximum rated amperage multiplied by the “power factor” or power conversion efficiency of a system as established by the manufacturer.

(13) "Multiple tomogram system" means a computed tomography x-ray system which obtains x-ray transmission data simultaneously during a single scan to produce more than one tomogram.

(14) "Noise" means the standard deviation of the fluctuations in CTN expressed as a percentage of the attenuation coefficient of water. Its estimate (S_n) is calculated using the following expression:

$$S_n = \frac{100 \cdot CS \cdot S}{\mu_w}$$

where:

$\overline{CS}$ = Linear attenuation coefficient of the material of interest.

μ_w = Linear attenuation coefficient of water.

S = Standard deviation of the CTN of picture elements in a specified area of the CT image.

(15) "Nominal tomographic section thickness" means the full width at half-maximum of the sensitivity profile taken at the center of the cross-sectional volume over which x-ray transmission data are collected.

(16) “PET/CT” means Positron Emission Tomography used in conjunction with a CT system, generally referred to as a hybrid system

(17) "Picture element" means an elemental area of a tomogram.

(18) “Protocol” means the set of CT scanner parameters affecting CT dose and image quality

(19) "Reference plane" means a plane which is displaced from and parallel to the tomographic plane.

(20) "Scan" means the complete process of collecting x-ray transmission data for the production of a tomogram. Data can be collected simultaneously during a single scan for the production of one or more tomograms.

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(21) "Scan increment" means the amount of relative displacement of the patient with respect to the CT x-ray system between successive scans measured along the direction of such displacement.

(22) "Scan sequence" means a pre-selected set of two or more scans performed consecutively under pre- selected CT conditions of operation.

(23) "Sensitivity profile" means the relative response of the CT x-ray system as a function of position along a line perpendicular to the tomographic plane.

(24) "Single tomogram system" means a CT x-ray system which obtains x-ray transmission data during a scan to produce a single tomogram.

(25) “SPECT/CT” means Single Photon Emission Computed Tomography, used in conjunction with a CT system, generally referred to as a “hybrid” system

(26) “Technique factors” means peak tube potential in kV and

(a) Either tube current in mA and exposure time in seconds, or

(b) the product of tube current and exposure time, resulting in mAs

(27) "Tomographic plane" means that geometric plane which the manufacturer identified as corresponding to the output tomogram.

(28) "Tomographic section" means the volume of an object whose x-ray attenuation properties are imaged in a tomogram.

WAC 246-226-020 Requirements for Equipment.

(1) Termination of exposure.

(a) Means shall be provided to terminate the x-ray exposure automatically by either de-energizing the x-ray source or shuttering the x-ray beam in the event of equipment failure affecting data collection. Such termination shall occur within an interval that limits the total scan time to no more than 110 percent of its preset value through the use of either a backup timer or devices which monitor equipment function.

(b) A visible signal shall indicate when the x-ray exposure has been terminated through the means required by WAC 246-226-020(1)(a).

(c) The operator shall be able to terminate the x-ray exposure at any time during a scan, or series of scans under CT x-ray system control, of greater than one-half second duration.

(2) Tomographic plane indication and alignment

(a) For any single tomogram system, means shall be provided to permit visual determination of the tomographic plane or a reference plane offset from the tomographic plane.

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(b) For any multiple tomogram system, means shall be provided to permit visual determination of the location of a reference plane. This reference plane can be offset from the location of the tomographic planes.

(c) If a device using a light source is used to satisfy the requirements of WAC 246-226-020(2)(a) and (b), the light source shall provide illumination levels sufficient to permit visual determination of the location of the tomographic plane or reference plane under ambient light conditions of up to 500 lux.

(3) Beam-on and shutter status indicators and control switches.

(a) The CT x-ray control and gantry shall provide visual indication whenever x-rays are produced and, if applicable, whether the shutter is open or closed.

(b) Each emergency button or switch shall be clearly labeled as to its function.

(4) Indication of CT Conditions of Operation. The CT x-ray system shall be designed such that the CT conditions of operation to be used during a scan or a scan sequence shall be indicated prior to the initiation of a scan or a scan sequence. On equipment having all or some of these conditions of operation at fixed values, this requirement may be met by permanent markings. Indication of CT conditions of operation shall be visible from any position from which scan initiation is possible.

(5) Extraneous Radiation. When data are not being collected for image production, the radiation adjacent to the tube port shall not exceed that permitted by WAC 246-225-040(3) and (4).

(6) Maximum Surface CTDI Identification. The angular position where the maximum surface CTDI occurs shall be identified to allow for reproducible positioning of a CT dosimetry phantom.

(7) Additional requirements applicable to CT X-ray systems:

(a) The total error in the indicated location of the tomographic plane or reference plan shall not exceed 5 millimeters.

(b) If the x-ray production period is less than one-half second, the indication of x-ray production shall be actuated for at least one-half second. Indicators at or near the gantry shall be discernible from any point external to the patient opening where insertion of any part of the human body into the primary beam is possible.

(c) The deviation of indicated scan increment versus actual increment shall not exceed plus or minus 1 millimeter with any mass from 0 to 100 kilograms resting on the support device. The patient support device shall be incremented from a typical starting position to the maximum incremented distance or 30 centimeters whichever is less, and then returned to the starting position. Measurement of actual versus indicated scan increment may be taken anywhere along this travel.

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(d) Premature termination of the x-ray exposure by the operator shall necessitate resetting of the CT conditions of operation prior to the initiation of another scan.

WAC 246-226-030 Facility Design Requirements.

(1) Aural Communication. Provision shall be made for two-way aural communication between the patient and the operator at the control panel.

(2) Viewing systems.

(a) Windows, mirrors, closed-circuit television, or an equivalent shall be provided to permit continuous observation of the patient during irradiation and shall be so located that the operator can observe the patient from the control panel.

(b) When the primary viewing system is by electronic means, an alternate viewing system (which may be electronic) shall be available for use in the event of failure of the primary viewing system.

(3) A fixed CT scanner enclosure shall be a permanent part of the building or vehicle.

(4) The degree of protection required for a CT scanner operator's booth and surrounding occupied areas shall be determined by the workload, use, occupancy factors and the kilovoltage, milliamperage, mechanical movement, and distance factor, and is subject to design approval by the department according to recommendations of the National Council on Radiation Protection and Measurements (NCRP) Report # 147, 2004. ***See WAC 246-225-030, Plan Review.***

(5) Protective barriers shall be provided in the ceiling, floor, and walls of a fixed CT scanner enclosure to meet the requirements of WAC 246-221-010 and 060. As of July 1, 2014, all CT x-ray systems installed thenceforth and those systems not previously surveyed shall have a radiation survey made to identify radiation levels at the control panel and spaces adjoining the CT room. This shall be done by, or under the direction of, a qualified medical physicist. In addition, such surveys shall be done after any change in the facility or equipment which might cause a significant increase in radiation hazard. The registrant shall obtain written reports of these surveys from the qualified medical physicist, and copies of the reports shall be made available to the Department upon request.

(6) The control panel for a fixed CT scanner shall be shielded by a protective barrier which cannot be removed from a protective position between the operator and the radiation source during machine operation. Portable shields or movable barriers with electrical interlocks shall not be approved in lieu of compliance with this rule.

(7) Mobile or portable CT scanners used routinely in a single room shall be considered a fixed installation and shall comply with the requirements of subrules (1) to (6) of this rule. Mobile or portable CT scanners used in more than one room shall be equipped with a shield adequate to protect the operator and surrounding areas to the limits specified in (4) and (5) above.

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(8) CT scanners mounted in a vehicle or trailer must meet requirements of sub rules (1) through (6)

WAC 246-226-040 CT Facility Accreditation

DOH Staff developing options for advisory committee consideration.

WAC 246-226-050 Operating Procedures and Conditions of Operation

(1) Effective [DATE], a registrant shall provide means to record and retrieve estimated patient dose from every CT study performed. Requests for estimated patient dose shall be honored within two weeks of the request.

(2) The registrant conducting the study shall electronically send each CT study and protocol page that lists the technical factors and estimated dose to the Picture Archiving and Communications System (PACS).

(3) The displayed dose on the CT console shall be verified annually by a medical physicist to ensure the displayed doses are within 20 percent of the dose measured in accordance with WAC 246-226-090 (1) (c). If such error is greater than 20%, written documentation of the actual discrepancy and reason for it shall be made by the vendor or medical physicist and posted at the CT console.

(4) For the purposes of this section, dose of radiation shall be interpreted as the computed tomography index volume ($CTDI_{vol}$) and/or dose length product (DLP), as defined by the International Electrotechnical Commission (IEC) and recognized by the federal Food and Drug Administration (FDA).

(5) **[Insert date** six months after the effective date of these rules], the CT registrant shall establish scanning protocols in consultation with a medical physicist. In addition,

(a) Each registrant shall review all of their CT exam scan parameters every twelve months to ensure they are correct for the intended dose and image quality. Comparison shall be made to the dose assessments that were made during the last annual review by the medical physicist. The scan parameter review shall be conducted by the medical physicist and at least one of the following facility staff: the lead CT interpreting/supervising physician, CT medical director, or lead CT technologist. The evaluation or review shall determine whether the scan parameters from each CT study is appropriate or whether there is an opportunity to reduce the technique and lower the *CTDIvol* without an unacceptable sacrifice in image quality. *Written and signed documentation of this 12-month review shall be made and kept available for inspection for each CT unit at the facility. Note that the annual protocol review and the medical physics review may be conducted simultaneously, but if so, other facility staff shall be involved, as noted above.*

(b) The approved CT scan parameters shall ensure that image quality remains at the desired noise level and results in acceptable dose levels according to standards

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found in WAC 246-226-060. Once approved, the parameters should be recorded and guidelines of variability established. The limits of the variability range shall be approved by the lead CT technologist or lead CT interpreting/supervising CT physician. Technologists are permitted to adjust technical parameters for any given patient study as long as they remain within the approved limits of variability. ***Any permanent changes in scan parameters shall be documented and approved by the lead interpreting/supervising CT physician with signature and date of approval.***

(c) Procedural, software or engineering measures such as password protection shall be in place that prohibit anyone from changing protocols without approval from the lead CT technologist or lead interpreting/supervising CT physician.

(d) If the CT system in use at a facility has the capability of automatic tube current modulation or other dose reduction features for CT examinations, it shall be a component of appropriate examination protocols as determined by the lead CT interpreting/supervising physician.

(e) Pediatric CT protocols shall be available on each CT scanner and used when children undergo CT examinations.

(f) Each CT registrant shall assure that CT manufacturer's technical and/or applications representatives are not permitted to make protocol changes or other software changes or upgrades that would impact radiation dose or image quality without the approval of the lead CT interpreting/supervising physician, the lead CT technologist or the medical physicist.

(6) The CT operator shall check the display panel before and after performing each scan to make sure the amount of radiation delivered is appropriate for the exam and individual patient. This may be accomplished by reviewing dose indicator devices if available or dose indices such as the technique factors. Dose indicators or indices outside of expected values shall be documented and reviewed by an interpreting physician or medical physicist.

(7) ***Each CT facility shall have a written policy approved by the medical director or lead CT interpreting/supervising physician that establishes internal rules for retaking CT exams, i.e., how many are authorized on a patient, who can authorize additional retakes, etc.***

(8) Staff personnel routinely working with or around radiation sources shall not be required by the registrant to restrain patients during CT examinations. If such procedure is permitted personnel exposure shall not exceed the limits in WAC 246-221-010 or the procedure is prohibited.

(9) When a patient must be held in position for CT, mechanical supporting or restraining devices shall be used unless contraindicated. If the patient must be held by an individual, this individual shall wear protective gloves and a protective apron of 0.5 millimeter minimum lead equivalence and be so positioned that no part of his or her body will be struck by the useful beam and that his or her body is as far as possible from the edge of the useful beam.

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(10) Only individuals whose presence is necessary are allowed in a fixed CT scanner room during exposure. Each individual, except the patient, shall be protected by at least 0.5 millimeter lead equivalent aprons or a whole body protective barrier.

(11) Personnel monitoring is required in controlled areas for each individual occupationally exposed to ionizing radiation from CT scanner equipment. Personnel monitoring devices shall be permanently assigned to each occupationally exposed individual. Monitoring shall be continuous during employment as a radiation worker.

(12) Personnel exposure records shall be kept on permanent available file at the facility where the exposure occurs.

(13) Monitoring devices used to estimate whole body exposure shall normally be worn on the chest or abdomen. Monitoring of any other body part shall comply with WAC 246-221-090.

(14) Monitoring devices worn to estimate personnel occupational exposure shall not be worn by the individual when he or she is exposed as a patient for any medical or dental reason.

(15) A CT scanner shall not be left unattended without locking the apparatus, room, or building in some manner which will prevent use of the apparatus by unauthorized persons.

WAC 246-226-060 Dose Limits

The $CTDI_{vol}$ for the following CT examinations on standard phantoms shall not exceed the dose limits shown below.

Examination	Dose Limit	Reference Levels
	$CTDI_{vol}$ (mGy)	$CTDI_{vol}$ (mGy)
Adult Head	80	75
Adult Abdomen	30	25
Pediatric Abdomen (5 year old, 40 lbs)	20	15
Pediatric Head	40	35

WAC 246-226-070 Required Notification of Deterministic Injurious Health Effect

WAC 246-226-080 CT Personnel Qualifications

(1) Radiological Technologists. [Insert date twelve months after the effective date of these rules, all CT examinations shall be performed by:

(a) a physician licensed under RCW 18.71.021 or RCW 18.57.031, or

(b) a radiologic technologist who:

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(i) is currently certified as a radiologic technologist under chapter 18.84 RCW, and

(ii) has the advanced certification in Computed Tomography, known as "post-primary pathway" certification, through the American Registry of Radiologic Technologists (ARRT).

(2) Medical Physicist. Each registrant with 1 or more CT scanners shall employ or contract with a medical physicist to review the quality and safety of the operation of the CT scanner. The medical physicist shall meet all of the following:

(a) Initial qualifications. Before beginning to independently provide consultation to a CT facility, a medical physicist shall meet one of the following:

(i) Be certified in diagnostic radiological physics or radiological physics by the American Board of Radiology (ABR), or in diagnostic imaging physics by the American Board of Medical Physics (ABMP), or in diagnostic radiology physics by the Canadian College of Physicists in Medicine (CCPM).

(ii) Have a graduate degree in medical physics, radiological physics, physics, or other relevant physical science or engineering discipline from an accredited institution and have formal coursework in the biological sciences with at least 1 course in biology or radiation biology and 1 course in anatomy, physiology, or similar topics related to the practice of medical physics, and have 3 years of documented experience in a clinical CT environment.

(b) Continuing experience. After the second anniversary of the date when the requirements of subdivision (a) of this rule were completed, the medical physicist shall have evaluated at least 5 CT scanners in the prior 24-month period.

(c) Continuing education. After the third anniversary of the date when the requirements of subdivision (a) of this rule were completed, the medical physicist shall have earned at least 15 continuing medical education units, at least half shall be category 1, in the prior 36-month period. The continuing education shall include credits pertinent to CT.

(d) Re-establishing qualifications. A medical physicist who fails to maintain the required continuing experience or continuing education requirements shall reestablish his or her qualifications before resuming the independent evaluation of CT scanners and facilities, as follows:

(i) A medical physicist who fails to meet the continuing experience requirements of subdivision (b) of this rule shall evaluate a sufficient number of CT scanners, under the supervision of a medical physicist, to meet the requirements of subdivision (b) of this rule.

(ii) A medical physicist who fails to meet the continuing education requirements of subdivision (c) of this rule shall obtain a sufficient number of additional continuing education credits to meet the requirements of subdivision (c) of this rule.

(3) Physicians.

(a) <u>All physicians who supervise or interpret CT examinations shall be licensed under 18.71 RCW or 18.57 RCW.</u>

(b) In addition to being in compliance with the interpreting physician qualifications stated above, the supervising physician also has the following responsibilities:

(i) Develop, implement and enforce policies and procedures related to radiation protection, the hazards of radiation exposure to both patients and radiological personnel, and appropriate monitoring requirements.

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(ii) Develop, implement and enforce policies and procedures to address safety issues, including contrast use and sedation, and reduce exposure as much as reasonably possible for pediatric patients.

(iii) Ensure that a physician is present and immediately available when contrast is administered to patients.

(iv) Develop, implement and enforce policies and procedures to identify pregnant or potentially pregnant patients.

(v) Develop, implement and enforce policies and procedures consistent with the requirements of the CT accrediting body..

(vi) Be responsible for assuring compliance with the recommendations of the medical physicist.

(vii) Be responsible for the oversight and submission of all materials, including clinical and phantom images, as appropriate, quality control data and such other information as required by the CT accrediting body.

(viii) Be responsible for notifying the CT accrediting body within 15 days of any changes in imaging equipment (units) or changes in the use of equipment that could affect clinical or phantom images (i.e., in CT an adults-only approved scanner being used to scan pediatric patients).

(ix) Ensure that all accreditation criteria are met and that the same standard of performance is maintained during the 3-year accreditation period.

(x) Provide immediate written notice to the CT accrediting body (if so accredited), upon the termination of any accredited services or a change in ownership of the operating location.

(xi) Ensure that all physicians providing services at this facility are actively participating in a formal peer review program that meets the stated accreditation requirements.

WAC 246-226-090 Periodic CT Performance Evaluations and Quality Control.

(1) A medical physicist shall complete an initial performance evaluation of the CT scanner before use on human patients, annually thereafter, and after any change or replacement of components which, in the opinion of the qualified medical physicist, could cause a change in the radiation output or image quality.

(a) The performance evaluation shall include the following, as a minimum:

(i) Alignment light accuracy.

(ii) Alignment of table to gantry.

(iii) Table and gantry tilt.

(iv) Slice localization from scanned projection radiograph.

(v) Table increment/travel accuracy.

(vi) Slice thickness accuracy (Radiation Beam Width).

(vii) Image quality, including the following:

(A) High-contrast resolution.

(B) Low-contrast resolution.

(C) Image uniformity.

(D) Noise.
(E) Artifact evaluation.
(F) Spatial Resolution.
(viii) Gray Level Performance of CT Acquisition Display Monitors
(ix) CT number uniformity, accuracy and linearity.
(x) Dosimetry, including the following:
(Ai) Dose indicator such as computed tomography dose index ($CTDI_{vol}$).
(B) Patient radiation dose for representative examinations.
(xi) Safety evaluation, including the following:
(A) Visual inspection.
(B) Audible and visual signals.
(C) Posting requirements.
(D) Scattered radiation measurements.
(xii) Review of the ongoing quality control program, including test results and corrective action.
(xiii) Review of Clinical Protocols

(b) A calibrated dosimetry system shall be used to measure the radiation output of a CT scanner. Calibration of the dosimetry system shall be within the preceding 24 months and shall be traceable to a national standard as specified in WAC 246-220-010(19).

(c) CT dosimetry phantom(s) shall be used in determining the radiation output of a CT x-ray system. Such phantom(s) shall meet the following specifications and conditions of use:

(i) CT dosimetry phantom(s) shall be right circular cylinders of polymethyl methacrylate of density 1.19 plus or minus 0.01 grams per cubic centimeter. The phantom(s) shall be at least 14 centimeters in length and shall have diameters of 32.0 centimeters for testing CT x-ray systems designed to image any section of the body and 16.0 centimeters for systems designed to image the head or for whole body scanners operated in the head scanning mode;

(ii) CT dosimetry phantom(s) shall provide means for the placement of a dosimeter(s) along the axis of rotation and along a line parallel to the axis of rotation 1.0 centimeter from the outer surface and within the phantom. Means for the placement of dosimeters or alignment devices at other locations may be provided.

(iii) Any effects on the doses measured due to the removal of phantom material to accommodate dosimeters shall be accounted for through appropriate corrections to the reported data or included in the statement of maximum deviation for the values obtained using the phantom;

(iv) All dose measurements shall be performed with the CT dosimetry phantom placed on the patient couch or support device without additional attenuation materials present.

(v) The dose profile along the center axis of the CT dosimetry phantom for the minimum, maximum, and midrange values of the nominal tomographic section thickness used by the registrant shall be measurable. Where less than 3 nominal tomographic thicknesses can be selected,

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the dose profile determination shall be performed for each available nominal tomographic section thickness;

(vi) The CTDI along the two axes specified in WAC 246-226-090 (4)(b) shall be measured. The CT dosimetry phantom shall be oriented so that the measurement point 1.0 centimeter from the outer surface and within the phantom is in the same angular position within the gantry as the point of maximum surface CTDI identified. The CT conditions of operation shall correspond to typical values used by the registrant. For the purpose of determining the CTDI, the manufacturer's statement as to the nominal tomographic section thickness for that particular system may be utilized

(2) A CT facility shall establish and implement a quality control program under the supervision of the medical physicist.

(a) The documented program shall include, but not be limited to, all of the following:

(i) Water CT Number and Standard Deviation – Daily
(ii) Artifact Evaluation – Daily
(iii) Wet Laser Printer Quality Control – Weekly
(iv) Visual Checklist – Monthly
(v) Dry Laser Printer Quality Control – Monthly
(vi) Display Monitors Quality Control – Monthly

(b) Evaluations and tests shall be performed following written procedures and methods found in the 2012 ACR CT Quality Control Manual. Corrective action shall be taken and documented according to instructions provided by the medical physicist if the results of an evaluation or test fall outside the control limits.

(c) The medical physicist shall determine the frequency of each test and who may perform the test. An on-site CT radiologic technologist shall be identified to be responsible for the ongoing quality control testing. The tests shall be performed by this technologist or by other personnel qualified by training and experience following written procedures and methods established by the ACR CT manual and/or the medical physicist.

(3) The medical physicist shall prepare a report that includes all of the following:

(a) A summary of the performance evaluation required under subrule (1) of this section.
(b) Recommendations for necessary improvements, if any.
(c) Type of radiation detection instrument or system used, including the date of the last calibration.

(4) The report required under (1) of this section shall be provided to the CT facility and the department within 30 days after completion of the evaluation.

WAC 246-226-100 Required Records and Reports.

(1) Information shall be available at the control panel regarding the operation and calibration of the system. Such information shall include the following:

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(a) Dates of the latest calibration and spot checks and the location within the facility where the results of those tests may be obtained;

(b) Instructions on the use of the CT dosimetry phantom(s) including a schedule of spot checks appropriate for the system, allowable variations for the indicated parameters, and the results of at least the most recent spot checks conducted on the system;

(c) The distance in millimeters between the tomographic plane and the reference plane if a reference plane is utilized; and

(d) A current technique chart available at the control panel which specifies for each routine examination the CT conditions of operation and the number of scans per examination.

(2) If a performance test or spot check of the CT x-ray system identifies that a system operating parameter has exceeded a tolerance established by the qualified medical physicist, use of the CT x-ray system on patients shall be limited to those uses permitted by established written instructions of the qualified medical physicist.

(3) A CT facility shall maintain these additional records and reports and shall make them available for review by the department as follows:

(a) Records documenting the qualifications of all personnel who worked at the facility as an operator or medical physicist. Records of personnel no longer employed by the CT facility shall be kept on file until the next inspection following the employee's termination has been completed and the department has determined that the facility is in compliance with the CT personnel requirements.

(b) A report of a CT adverse health event required under WAC 246-226-070 shall be maintained on file for at least 7 years.

(c) Initial and annual medical physicist performance evaluation reports required under WAC 246-226-090 shall be maintained on file for at least 5 years.

(d) Records of the results from the ongoing quality control evaluation required under WAC 246-226-110 shall be maintained on file for at least 2 years.

WAC 246-226-110 Requirements for Low Power (5 kW or less) CT Scanners and Conebeam Scanners.

Registrants using low power CT scanners and conebeam scanners exclusively are exempt from the requirements of this chapter, except as follows:

(1) Radiation safety, equipment design and shielding standards established in chapter 246-225 WAC shall apply, and

(2) Manufacturer's records of preventive maintenance and repair shall be retained for 2 years.

WAC 246-226-120 Requirements for positron emission tomography (PET/CT) or single photon emission computed tomography (SPECT/CT)systems.

Registrants using PET/CT or SPECT/CT systems exclusively are exempt from the requirements of this chapter, except as follows:

(1) Radiation safety, equipment design and shielding standards established in chapter 246-225 WAC shall apply, and

(2) Registrants shall have a medical physicist perform an annual performance and quality control evaluation of the CT component and provide a copy of such evaluation ~~to the department~~ along with any recommendations to the facility. The physicist shall provide this report in writing within 30 days of the evaluation and the registrant shall retain it for inspection by the Department for 3 years.

WAC 246-226-130 Requirements for CT simulators used exclusively for treatment planning purposes in conjunction with a megavoltage radiation therapy unit.

Registrants using CT simulators exclusively for treatment planning purposes in conjunction with a megavoltage radiation therapy unit are exempt from the requirements of this chapter, except as follows:

(1) Radiation safety, equipment design and shielding standards established in chapter 246-225 WAC shall apply, and

(2) Registrants shall have a medical physicist perform an annual performance and quality control evaluation of the CT system and provide a copy of such evaluation ~~to the department~~ along with any recommendations to the facility. The physicist shall provide this report in writing within 30 days of the evaluation and the registrant shall retain it for inspection by the Department for 3 years.

WAC 246-226-140 Requirements for mobile CT scanners used only for head and neck imaging.

(1) Radiation safety, equipment design and shielding standards established in chapter 246-225 WAC shall apply, and

2) Registrants shall have a medical physicist perform an annual performance and quality control evaluation of the CT system and provide a copy of such evaluation ~~to the department~~ along with any recommendations to the facility. The physicist shall provide this report in writing within 30 days of the evaluation and the registrant shall retain it for inspection by the Department for 3 years.

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