COLLEGE OF PHYSICIANS AND SURGEONS OF BRITISH COLUMBIA

Diagnostic Accreditation Program

ACCREDITATION STANDARDS

Fluoroscopy

Diagnostic Accreditation Program
College of Physicians and Surgeons of British Columbia
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Introduction

Fluoroscopy standards apply to all conventional fluoroscopy, C-arms, interventional IR, and fluoroscopic angiography, as applicable. In addition to the general standards, the discipline-specific standards for fluoroscopy provides additional mandatory requirements and best practices.

Imaging procedures

No.		Description	Risk	Reference	Change
					New
RF3.0		**FLUOROSCOPY STANDARD OPERATING PROCEDURES/PROTOCOLS** *Guidance: See also global modality GM3.0 for additional requirements.*			
RF3.1		**There is a comprehensive process in place for protocol adoption and development.** *Guidance: See also global modality GM3.1.*			New
RF3.1.1	**M**	Protocols and imaging technical factors are reviewed and as required every one to three years by qualified individual(s) with appropriate technical or medical expertise.	M		New
RF3.2		**Protocols contain all the information necessary to perform the examination.**			New
RF3.2.2	**M**	Protocol information includes a description of the equipment and supplies needed.	M		New
RF3.2.4	**M**	Protocol information includes a description of patient positioning or required views.	M		New
RF3.2.6	**M**	Protocol information includes when guidance or review by a radiologist is required prior to patient discharge (i.e. acute pathology identified or additional views required).	M		New
RF3.3		**Examinations are performed following established protocols.**			New
RF3.3.1	**M**	Protocols are readily available to staff performing the examination.	H		New
RF3.3.3	**M**	There are protocols for the pediatric population where techniques and loading factors are modified for size and age.	M	SC-35	New
RF3.3.4	**M**	Facilities define examinations which are undertaken by technologists only through close supervision or collaboration with a radiologist (i.e. modified barium swallow, stress views, urinary fluoroscopy studies).	M	SC-35	New
RF3.3.7	**M**	Procedures are available for the application of electronic markers when errors and omissions are identified after exposure.	M		New
RF3.3.8	**M**	Exposure techniques are reflective of the equipment and include parameters such as mA, time, kVp, SID, and focal spot size.	M		New

No.		Description	Risk	Reference	Change
RF3.4		**Images are reviewed for diagnostic quality before the patient is released.**			New
RF3.4.1	**M**	Image review ensures the appropriate positioning and technique factors.	H		New
RF3.4.2	**M**	Image review ensures the correct marker placement.	H		New
RF3.4.3	**M**	Image review ensures the presence of artifacts or motion does not impact the diagnostic image quality.	H		New
RF3.4.4	**M**	Image review ensures the evidence of exposure collimation.	H		New
RF3.4.5	**M**	The X-ray beam demonstrates collimation to restrict radiation exposure to the area of diagnostic interest only.	M		New

Medical records

No.		Description	Risk	Reference	Change
					New
RF7.0		**FLUOROSCOPY MEDICAL RECORD DOCUMENTATION** *Guidance: See also global modality GM7.0 for additional requirements.*			
RF7.2		**Comprehensive examination details are recorded in the medical record** *Guidance: See also global modality GM7.2.*			New
RF7.2.1	**M**	Examination details recorded in the medical record include an indicator of patient dose for fluoroscopic examinations. *Guidance: Cumulative reference point air kerma (Kar) and dose area product (DAP) values are preferable over recording fluoroscopy time in fluoroscopic procedures.*	M		New
RF7.2.3	**M**	There is capture and storage of at least one image per case when fluoroscopy is used for guidance or other non-diagnostic purposes.	H		New

Acceptance testing

No.		Description	Risk	Reference	Change
					New
RF12.0		**ACCEPTANCE TESTING OF FLUOROSCOPIC SYSTEMS** *Guidance: See also equipment and supplies DES2.0 for additional requirements.*			
RF12.1		**Acceptance testing is performed after purchase and prior to clinical use of fluoroscopic systems (e.g. conventional fluoroscopy, C-arms, fluoroscopic angiography)**			New
RF12.1.1	**M**	Acceptance testing of fluoroscopic systems includes visual and functional testing of the mechanical properties, as well as any other mechanical checks as recommended by the manufacturer. *Guidance: Unit appears electro-mechanically sound and all moving parts move smoothly, without obstruction. All locks and détentes work properly, and all patient and operator contact surfaces are safe and free from hazards.*	H	SC-35	New
RF12.1.2	**M**	Acceptance testing of fluoroscopic systems includes visual and functional testing of the safety systems for cleanliness and equipment damage, and any equipment function checks as recommended by the manufacturer.	H	SC-35	New
RF12.1.3	**M**	Acceptance testing of fluoroscopic systems includes evaluation of \ kVp, current time product (mAs) and timer accuracy.	H	SC-35	New
RF12.1.4	**M**	Acceptance testing of fluoroscopic systems includes evaluation of radiation output reproducibility.	H	SC-35	New
RF12.1.5	**M**	Acceptance testing of fluoroscopic systems includes evaluation of radiation output linearity.	H	SC-35	New
RF12.1.6	**M**	Acceptance testing of fluoroscopic systems includes evaluation of (HVL) X-ray beam filtration.	H	SC-35	New
RF12.1.7	**M**	Acceptance testing of fluoroscopic systems includes evaluation of the X-ray field and light field alignment for congruency.	H	SC-35	New
RF12.1.8	**M**	Acceptance testing of fluoroscopic systems includes evaluation of X-ray beam collimation for each magnification.	H	SC-35	New
RF12.1.9	**M**	Acceptance testing of fluoroscopic systems includes evaluation of the accuracy of the dose area product value and reference air kerma (Kar).	H	SC-35	New

No.		Description	Risk	Reference	Change
RF12.1.10	**M**	Acceptance testing of fluoroscopic systems includes evaluation of the fluoroscopic timer and chronometer.	H	SC-35	New
RF12.1.11	**M**	Acceptance testing of fluoroscopic systems includes evaluation of grid performance through the uniformity and movement of the grid.	H	SC-35	New
RF12.1.12	**M**	Acceptance testing of fluoroscopic systems includes evaluation of noise, uniformity, and image artifacts.	H	SC-35	New
RF12.1.13	**M**	Acceptance testing of fluoroscopic systems includes evaluation of high contrast resolution (spatial resolution).	H	SC-35	New
RF12.1.14	**M**	Acceptance testing of fluoroscopic systems includes evaluation of low contrast detectability.	H	SC-35	New
RF12.1.15	**M**	Acceptance testing of fluoroscopic systems includes evaluation of maximum air kerma rate.	H	SC-35	New
RF12.1.16	**M**	Acceptance testing of fluoroscopic systems includes evaluation of typical image receptor air kerma rate.	H	SC-35	New
RF12.1.17	**M**	Acceptance testing of fluoroscopic systems includes evaluation of automatic intensity control.	H	SC-35	New
RF12.1.18	**M**	Acceptance testing of fluoroscopic systems includes evaluation of phantom entrance dose rate.	H	SC-35	New
RF12.1.19	**B**	Acceptance testing of fluoroscopic systems includes evaluation of automatic brightness control.		SC-35	New

Quality assurance

No.		Description	Risk	Reference	Change
					New
RF13.0		**QUALITY CONTROL TESTING OF FLUOROSCOPIC SYSTEMS** *Guidance: See also equipment and supplies DES3.0 for additional requirements.*			
RF13.1		**Daily quality control procedures are established and used to monitor performance of fluoroscopic systems.**			New
RF13.1.1	**M**	The frequency and method of fluoroscopic equipment start-up is conducted according to manufacturer's recommendations.	M		New
RF13.1.2	**B**	Daily quality control testing of fluoroscopic systems includes evaluation of all meters and visual/audible indicators.			New
RF13.1.3	**B**	Daily quality control testing of fluoroscopic systems includes evaluation of X-ray equipment conditions to inspect for loose or broken components and cleanliness.			New
RF13.1.4	**B**	Daily quality control testing of fluoroscopic systems includes evaluation of all moving parts to ensure smooth operation without obstruction. All position locks and détentes work properly, and all patient and operator contact surfaces are safe and free from hazards.			New
RF13.1.5	**M**	Daily quality control testing of fluoroscopic systems includes evaluation of fluoroscopic performance to verify the unit is operating as expected prior to first clinical use.	M		New
RF13.1.6	**M**	Daily quality control testing of fluoroscopic systems includes evaluation of the compression device to verify it moves easily in and out of the X-ray beam and functions correctly.	M		New
RF13.2		**Weekly quality control procedures are established and used to monitor performance of fluoroscopic systems.**			New
RF13.2.1	**M**	Weekly quality control testing of fluoroscopic systems includes evaluation of system cleanliness to remove contrast media, dust and other debris from the image intensifier or digital detector housing which may produce artifacts.	M		New
RF13.2.2	**B**	Weekly quality control testing of fluoroscopic systems includes evaluation of image quality of the digital subtraction angiography using a phantom.			New

No.		Description	Risk	Reference	Change
RF13.3		**Quarterly quality control procedures are established and used to monitor performance of fluoroscopic systems.**			New
RF13.3.2	**M**	Quarterly quality control testing of fluoroscopic systems includes evaluation of interlocks if present. *Guidance: If there are interlocks on the door, they are tested to ensure that they prevent the X-ray equipment from producing radiation when the door is open.*	L		New
RF13.3.5	**B**	Quarterly quality control testing of fluoroscopic systems includes evaluation of the chronometer operation and accuracy. *Guidance: The chronometer accuracy is verified with a stopwatch.*			New
RF13.3.6	**B**	Quarterly quality control testing of fluoroscopic systems includes evaluation of the park position interrupt. *Guidance: Confirm that when the image receptor is in the parked position it is not possible to energize the X-ray tube.*			New
RF13.3.7	**M**	Quarterly quality control testing of fluoroscopic systems includes evaluation of the protective curtain or drape affixed to the image receptor or the patient table, for creases and cracks to protect the operator from scatter radiation.	M		New
RF13.4		**Annual quality control procedures are established and used to monitor performance of radioscopic systems.**			New
RF13.4.1	**M**	Annual quality control testing of fluoroscopic systems includes evaluation of kVp, current time product (mAs) and timer accuracy.	M	SC-35	New
RF13.4.2	**M**	Annual quality control testing of fluoroscopic systems includes evaluation of radiation output reproducibility.	M	SC-35	New
RF13.4.3	**M**	Annual quality control testing of fluoroscopic systems includes evaluation of radiation output linearity with mAs.	M	SC-35	New
RF13.4.4	**M**	Annual quality control testing of fluoroscopic systems includes evaluation of (HVL) X-ray beam filtration.	M	SC-35	New
RF13.4.5	**M**	Annual quality control testing of fluoroscopic systems includes evaluation of the X-ray field and light field alignment for congruency.	M	SC-35	New
RF13.4.6	**M**	Annual quality control testing of fluoroscopic systems includes evaluation of X-ray beam collimation for each magnification.	M	SC-35	New

No.		Description	Risk	Reference	Change
RF13.4.7	**M**	Annual quality control testing of fluoroscopic systems includes evaluation of dose area product accuracy and reference point air kerma measurements. All available measures of dose are assessed and calibrated.	M	SC-35	New
RF13.4.8	**M**	Annual quality control testing of fluoroscopic systems includes evaluation of grid performance through the uniformity and movement of the grid.	M	SC-35	New
RF13.4.9	**M**	Annual quality control testing of fluoroscopic systems includes evaluation of noise, uniformity and image artifacts.	M	SC-35	New
RF13.4.10	**M**	Annual quality control testing of fluoroscopic systems includes evaluation of spatial resolution.	M	SC-35	New
RF13.4.11	**B**	Annual quality control testing of fluoroscopic systems includes evaluation of low contrast detectability.	M	SC-35	New
RF13.4.12	**M**	Annual quality control testing of fluoroscopic systems includes evaluation of maximum air kerma rate, which cannot exceed the rate defined in the radiation emitting devices regulations. *Guidance: See schedule II, section 3 subsection 28(1) https://laws-lois.justice.gc.ca/eng/regulations/C.R.C.,_c._1370/FullText.html.*	M	SC-35	New
RF13.4.13	**B**	Annual quality control testing of fluoroscopic systems includes evaluation of typical image receptor air kerma rate. *Guidance: Using a uniform phantom placed on the patient support, measurements are made of typical entrance air kerma at the detector, without the grid (if possible).*		SC-35	New
RF13.4.14	**M**	Annual quality control testing of fluoroscopic systems includes evaluation of automatic intensity control over a range of phantom thicknesses.	M	SC-35	New
RF13.4.15	**M**	Annual quality control testing of fluoroscopic systems includes evaluation of phantom dose measurements for the most frequent procedures.	M	SC-35	New

References

Abbreviation	Reference
SC-35	Health Canada. Safety Code 35. Radiation protection in radiology—large facilities [internet]. Ontario: Health Canada; 2024. Available from: https://www.canada.ca/content/dam/hc-sc/documents/services/environmental-workplace-health/reports-publications/radiation/safety-code-35-safety-procedures-installation-use-control-equipment-large-medical-radiological-facilities-safety-code/safety-code-35-safety-procedures-installation-use-control-equipment-large-medical-radiological-facilities-safety-code.pdf