CAMRT ACTRM

MAGNETIC RESONANCE

CANADIAN ASSOCIATION OF MEDICAL RADIATION TECHNOLOGISTS

Companion Documents to the 2019 National Competency Profile for Entry-Level Medical Radiation Technologists in Canada

Contents

Purpose of the Companion Documents

The companion documents are a supplemental resource intended to provide additional detail to support the competencies outlined in the *2019 Entry-Level Competency Profile for Medical Radiation Technologists in Canada*, and to provide additional guidance for the curriculum of accredited medical radiation technology (MRT) programs. The companion documents also provide additional guidance to graduates of accredited programs and internationally educated MRTs preparing to write the national certification exam.

Each practice area (magnetic resonance, nuclear medicine, radiological technology and radiation therapy) has a companion document unique to their practice. The companion documents are intended to be responsive to current and evolving practice and may be updated independent of the competency profile.

The companion documents are not intended to be a comprehensive curriculum guide, but rather work to supplement the competency profile by providing additional details to help support curriculum and competency development.

MAGNETIC RESONANCE
– Companion Resource

1. Patient Interventions

This lists the patient interventions referred to in competency:

4.3.4. Provide patient interventions, as appropriate.

Interventions	
1.1	Assist with administration of oxygen.
1.2	Assist with suctioning.
1.3	Administer bedpans and urinals.
1.4	Monitor vital signs.
1.5	Perform CPR.
1.6	Prepare power injector.
1.7	Obtain IV access
1.8.	Insert IV line

2. Common Pathologies, Anomalies & Conditions

This lists the pathologies, anomalies and conditions referred to in competencies:

MR.5.2. Apply knowledge of pathophysiology as it relates to clinical procedures.

MR. 8.5. Recognize common pathologies, anomalies, and conditions.

2.1	General
2.1.1	Abscess
2.1.2	Aneurysm
2.1.3	Cysts
2.1.4	Dissection
2.1.5	Hemangioma
2.1.6	Hemorrhage
2.1.7	Lipoma
2.1.8	Metastases
2.1.9	Nephrogenic Systemic Fibrosis
2.1.10	Stenosis

2.2	Head & Neck
2.2.1	Acoustic neuroma
2.2.2	Agenesis of the corpus callosum
2.2.3	Aging changes / Dementia /Alzheimer's
2.2.4	Aqueduct Stenosis
2.2.5	Arterial dissection
2.2.6	Arteriovenous malformation (AVM)
2.2.7	Astrocytoma
2.2.8	Cavernous angioma
2.2.9	Chiari Malformation
2.2.10	Dandy-Walker malformation
2.2.11	Encephalitis
2.2.12	Ependymoma
2.2.13	Glioblastoma multiforme (GBM)
2.2.14	Glioma
2.2.15	Hydrocephalus
2.2.16	Ischemia
2.2.17	Medulloblastoma
2.2.18	Meningioma
2.2.19	Meningitis
2.2.20	Mesial temporal / sclerosis / epilepsy/seizures
2.2.21	Metastatic tumors
2.2.22	Multiple Sclerosis
2.2.23	Neuroblastoma
2.2.24	Optic neuritis
2.2.25	Parotid carcinoma
2.2.26	Pituitary macroadenoma
2.2.27	Pituitary microadenoma
2.2.28	Retinoblastoma
2.2.29	Schwannoma
2.2.30	Shear injury
2.2.31	Squamous cell carcinoma
2.2.32	Stroke / cerebrovascular accident (CVA)
2.2.33	Subarachnoid hemorrhage

2.2.34	Subdural hematoma
2.2.35	Thyroid carcinoma
2.2.36	Tongue carcinoma
2.2.37	Transient ischemic attack (TIA)
2.2.38	Trigeminal neuralgia
2.2.39	Venous sinus occlusion
2.2.40	Warthin cyst (salivary gland cyst)

2.3	**Spine**
2.3.1	Ankylosing spondylitis
2.3.2	Arthritis
2.3.3	Bone contusions
2.3.4	Cauda-equina syndrome
2.3.5	Degenerative disc disease
2.3.6	Diastematomyelia (split cord)
2.3.7	Discitis
2.3.8	Dislocation
2.3.9	Ependymoma
2.3.10	Free herniated disc fragment (sequestered)
2.3.11	Hematomas
2.3.12	Herniated disc
2.3.13	Meningioma
2.3.14	Multiple myeloma
2.3.15	Multiple Sclerosis
2.3.16	Neurofibromatosis
2.3.17	Osteomyelitis
2.3.18	Osteophytes
2.3.19	Pathological fractures
2.3.20	Scoliosis
2.3.21	Spina bifida
2.3.22	Spondylolisthesis
2.3.23	Hydrosyringomyelia
2.3.24	Tarlov cyst
2.3.25	Tethered cord

2.4	Chest & Mediastinum
2.4.1	Arterial septal defect (ASD)
2.4.2	Benign tumours
2.4.3	Cardiomegaly
2.4.4	Coarctation
2.4.5	Ductal cancer in situ (DCIS)
2.4.6	Implants – rupture / scar tissue
2.4.7	Inflammatory carcinoma
2.4.8	Invasive ductal carcinoma (IDC)
2.4.9	Ischemic heart disease
2.4.10	Myocardial infarction
2.4.11	Myxoma
2.4.12	Scarring and radiation changes
2.4.13	Situs inversus
2.4.14	Thrombosis
2.4.15	Valvular insufficiency/ regurgitation
2.4.16	Ventricular septal defect (VSD)

2.5	Abdomen
2.5.1	Adenoma
2.5.2	Angiomyolipoma
2.5.3	Biliary tree obstruction
2.5.4	Carcinoma
2.5.5	Cholecystitis
2.5.6	Cholelithiasis
2.5.7	Cirrhosis
2.5.8	Cushing syndrome
2.5.9	Dissection
2.5.10	Fatty Liver
2.5.11	Fistula
2.5.12	Focal nodular hyperplasia (FNH)
2.5.13	Hepatic abscess
2.5.14	Hepatic cell carcinoma (HCC)
2.5.15	Horseshoe kidney

2.5.16	Inflammatory bowel disorders
2.5.17	Iron deposition (hemochromatosis)
2.5.18	Kidney carcinoma
2.5.19	Liver metastases
2.5.20	Pancreatitis
2.5.21	Polycystic kidney disease
2.5.22	Renal transplant
2.5.23	Wilm's tumor

2.6	**Pelvis**
2.6.1	Benign prostatic hyperplasia (BPH)
2.6.2	Bicornuate uterus
2.6.3	Bladder Carcinoma
2.6.4	Fistula
2.6.5	Leiomyoma (fibroids)
2.6.6	Malignant ovarian neoplasms
2.6.7	Polycystic ovarian disease
2.6.8	Prostate carcinoma
2.6.9	Rectal cancer
2.6.10	Septate uterus
2.6.11	Testicular cancer

2.7	**Musculoskeletal System**
2.7.1	Avascular necrosis (AVN)
2.7.2	Avulsion fractures
2.7.3	Baker's cyst
2.7.4	Bone contusions
2.7.5	Cartilage defects
2.7.6	Dislocation
2.7.7	Edema
2.7.8	Hip dysplasia
2.7.9	Labral defects
2.7.10	Ligament tears
2.7.11	Meniscal defects

2.7.12	Metastatic bone lesions
2.7.13	Morton's neuroma
2.7.14	Osteoarthritis
2.7.15	Osteomyelitis
2.7.16	Pathological fractures
2.7.17	Peripheral vascular disease
2.7.18	Sarcoma
2.7.19	Stress fractures
2.7.20	Subluxation
2.7.21	Tendon tears
2.7.22	Tendonitis

3. Clinical Procedures

This lists the clinical procedures referred to in competencies:

MR.6. Perform diagnostic procedures

MR.5.2. Apply knowledge of pathophysiology as it relates to clinical procedures.

	Imaging Procedure		Structure
3.1	**Head and Neck**	3.1.1	Brain
		3.1.2	Cranial nerves (C2, C5, C7 and C8)
		3.1.3	Orbits
		3.1.4	Temporal lobes
		3.1.5	Pituitary gland
		3.1.6	Posterior fossa
		3.1.7	Soft tissues neck
		3.1.8	Pharynx (naso, oro and laryngo)
3.2	**Spine**	3.2.1	Cervical
		3.2.2	Thoracic
		3.2.3	Lumbar
		3.2.4	Complete spine
		3.2.5	Brachial plexus
		3.2.6	Sacrum (SI joints)
3.3	**Chest & Mediastinum**	3.3.1	Breast
		3.3.2	Cardiac

3.4	**Abdomen**	3.4.1	Adrenal glands
		3.4.2	Biliary imaging
		3.4.3	Gastrointestinal tract (enterography)
		3.4.4	Kidneys
		3.4.5	Liver
		3.4.6	Pancreas
3.5	**Pelvis (male/female)**	3.5.1	Prostate
		3.5.2	Uterus, Ovaries, Cervix
		3.5.3	Rectum
3.6	**Musculoskeletal**	3.6.1	Temporal mandibular joints
		3.6.2	Shoulder
		3.6.3	Upper arm
		3.6.4	Elbow
		3.6.5	Forearm
		3.6.6	Wrist
		3.6.7	Hand
		3.6.8	Pelvis (Bony)
		3.6.9	Sacro-iliac joint
		3.6.10	Hip
		3.6.11	Thigh
		3.6.12	Knee
		3.6.13	Calf
		3.6.14	Ankle
		3.6.15	Foot
		3.6.16	Arthrogram
3.7	**General**	3.7.1	MR angiography - CE(contrast enhanced),TOF (time of flight)
		3.7.2	MR venography

4. Pharmaceuticals

This lists the classification of pharmaceuticals referred to in competency:

MR.7.3. Apply knowledge of the effects of pharmaceutical agents.

Pharmaceutical Category	
4.1	Anesthetic
4.2	Antianxiety
4.3	Antihistamine
4.4	Antiperistaltic
4.5	Bronchodilator (Inhalers)
4.6	Contrast agent
4.7	Organic nitrates (Nitroglycerin)
4.8	Sedative
4.9	Vasodilator

5. Quality Control Procedures

This lists the quality control procedures referred to in competency:

MR.4.3. Perform quality control procedures

Quality Control procedures	
5.1	RF Coils
5.2	Cryogen Levels
5.3	Cryogen chiller system
5.4	Magnet
5.5	Ancillary Equipment

National Certification Exam Blueprint

Coming soon.