Title: Emergency Radiology Procedures	
Policy Owner: MOH committee on hospital clinical services and polices	**Policy Code**: A-ADM-004
Section location: Radiology, Emergency room, ICU, CCU, wards	**Effective Date**: 19-01-2020
Applies to: Radiology department in general and specialized healthcare facilities	**Revision Date:** 01-01-2022
Approvals	**Signature Date:** 16-01-2020
Approved by: MOH committee on hospital clinical services and polices	
Approved by: Director of technical affairs	
Approved by: Assistant undersecretary of technical affairs	
Notes	

1.0 Purpose

1.1 The aim of this policy is to ultimately provide the most efficient, expedited & optimal care for patients in need of emergency care, and improving collaboration & cooperation between all hospital services thus ensuring the best outcomes for patients by using the different radiological modalities in the most efficient, sensitive and expedited means to assist all health care providers in reaching the appropriate diagnoses and initiating the appropriate managements in an appropriate timely fashion that would best serve the patients without delays that can ensue in clinical repercussions.

2.0 Definition of the on-call qualified radiologist:

2.1 A qualified radiologist should be available to interpret imaging studies in accordance with criteria determined by collaboration between the radiology department, the emergency department and the medical staff of the hospital, depending on resources available.

2.2 The qualified radiologist may include a supervised radiology Registrar or above rank with demonstrated competence, consistent with department and institution policy.

2.3 The supervising second on-call radiologist maybe off-site and provide interpretation remotely, with an appropriate teleradiology link if activated in the respective MOH hospital.

3.0 Definitions and time frame of emergency and urgency.

3.1 Emergency: is when the pathology in question DOES pose an immediate threat to life if not diagnosed or managed accordingly in a timely manner. The radiological procedure should be done within one hour (based on the urgency judged by the referring physician, the triage of pending radiological procedures requested and the logistics, and capabilities of the respective department).

3.2 Urgency: is when the pathology in question does NOT pose an IMMEDIATE threat to life but will have a significant effect (or threat) on life in the near future and a definite effect

on the change of medical/surgical management. The exam should be completed as soon as possible after the referral is received (within 4-6 hours of same day based on the clinical team's judgement, and triage of the pending emergency cases and the logistics capabilities).

4.0 Radiological Investigations for Patients in the Intensive Care Settings (ICU/CCU)

4.1 All the emergently and urgently requested radiological exams should be done on the same day (earlier if deemed necessary by the diagnosis, ensuing plan and guidelines) in according with articles number 3.0, 6.0, and 9.6.

4.2 If the patient cannot be transferred to the radiology department, then the procedure should be done bedside <u>in the ICU/CCU</u>, otherwise can be done in the radiology department and the patient should be accompanied by the anesthetist.

4.3 Ultrasound guided interventional drainage procedures can be done in ICU/CCU if deemed fit and possible and after approval of the concerned interventional radiologist.

5.0 Radiological Investigations for Patients in the Wards and Emergency Room.

5.1 Choices of radiological investigations for the suspected pathology should be based on availability of the respective investigation, applicability of that modality to the pathology in question and expertise of the department; guided by the recent practice guidelines of the medical practice and radiological appropriateness criteria (e.g. ACR appropriateness criteria-link is available down in the references section).

5.2 Deviation from the guidelines regarding the modality of investigations and the indications may be subject to mutual discussion between the treating physician & responsible radiologist depending on the patients' physical & clinical conditions.

6.0 Modalities of Radiological Investigations and Indications for performing them <u>Emergently and urgently</u>.

6.1 Introduction

6.1.1 As the emergency services provided by the radiology department during on-calls varies depending on modality, pending investigations and is subject to occasional limitations in manpower and or utilities, it's is highly appreciated and advised that the treating physicians requesting radiological investigations for their patients , to triage and prioritize their requests accordingly using their clinical judgement and degree of urgency of the ensuing management plan as well as the practice guidelines as a guide, so as to enable the correct investigations be done for the correct suspected pathology in a timely fashion with undue delay to all patients.

6.1.2 The on-call radiologist will accordingly practice prioritization and triaging of the requested radiological investigations as emergency and urgent to ensure care and diagnosis is provided in a timely fashion.

6.1.3 It is also important to acknowledge that patients' condition is dynamic and subject to change while awaiting investigations and care. As such the clinical condition of a patient deemed in need of urgent radiological investigation may progress into an emergent need of the radiological investigations and it is for this reason that the treating most responsible physician (MRP) requesting the

investigation should be aware of the clinical status of the patient and communicate and document these changes and concerns to the on call radiologist to consider changing the triage of the case and expediting the investigation accordingly if deemed possible .

6.2 **Ultrasound** include the following (any other emergent/urgent condition should be accepted):

- 6.2.1 ICU patients.
- 6.2.2 In ER as FAST
- 6.2.3 To rule out ectopic pregnancy.
- 6.2.4 Acute cholecystitis (if diabetic, elderly, post procedure, lab changes, fever, persistent RUQ pain, multiple ER visits more than 1)
- 6.2.5 To rule out cholangitis in septic patients.
- 6.2.6 To rule out collections (superficial/deep tissue) and to guide procedures (e.g. ascitic/pleural drainage).
- 6.2.7 To rule out obstructive uropathy.
- 6.2.8 Febrile UTI (to rule out obstruction or pyelonephritis as a cause).
- 6.2.9 To rule out Abdominal aortic aneurysm.
- 6.2.10 To rule out appendicitis in:
  - 6.2.10.1 Thin young – nonobese – female to rule out appendicitis vs ovarian pathology.
  - 6.2.10.2 Pediatrics.
  - 6.2.10.3 Pregnancy.
  - 6.2.10.4 Thin adult male.

  **(In cases of positive unambiguously diagnostic US results of appendicitis, CT scan is not required)

- 6.2.11 US Doppler:
  - 6.2.11.1 To rule out ischemia of vascular flow to liver/kidney transplants.
  - 6.2.11.2 To rule out extremity, neck and splanchnic DVT.
    (the treating physician may be guided by Well's score -for extremities DVT- prior to initiating the request. Note that the CTA is the radiological choice in suspected mesenteric ischemia and neck veins/arteries thrombosis, but US is an alternative in case of CTA can't be done).
  - 6.2.11.3 In case of Acute scrotal/testicular pain.
  - 6.2.11.4 In case of Genital trauma.
  - 6.2.11.5 Ovarian torsion.

6.3 **CT- scans** include the following (any other emergent/urgent condition should be accepted):

- 6.3.1 **Whole body CT-scan** (with IV-contrast) or organ directed CT in trauma patients based on mechanism of trauma and guided by the recent guidelines & patient's clinical condition. (CTA may be required in case of clinically suspected vascular injury. (The treating team may be guided by the Western trauma association imaging algorithm, please find attached links for Western trauma association algorithm, ACR appropriateness criteria and RCR supporting references).
- 6.3.2 **Head & Neck**
  - 6.3.2.1 CT brain for stroke cases based on the unified stroke protocol.
  - 6.3.2.2 Follow up CT scans of the brain in traumatic brain injury, infarcts and intra-cerebral hemorrhage.

6.3.2.3 CT brain for altered level of consciousness.

6.3.2.4 CT brain for mild traumatic brain injury.
(According to Canadian CT-head rules/New Orleans Guidelines).
(And in pediatric trauma for highly suspicious mechanism according to PECARN).

6.3.2.5 CT brain with contrast in patient with seizures (if the fit for the first time and/or no previous MRI or CT brain with contrast), to rule out intra-cerebral pathology.

6.3.2.6 CTA of the carotids, vertebral arteries and the brain to rule out suspected blunt cerebrovascular injuries or dissection.

6.3.2.7 CTV to rule out suspected cerebral venous thrombosis.

6.3.2.8 CTA in blunt/penetrating neck or brain injuries with clinically suspected vascular injury.

6.3.2.9 CT with contrast of the neck: to rule out retrobulbar, subglottic or retro pharyngeal abscess and airway compromise.

6.3.3 **Chest**

6.3.3.1 CTA to rule out pulmonary embolism.

6.3.3.2 CTA for hemoptysis.

6.3.3.3 Chest trauma (blunt and penetrating).

6.3.4 **Abdomen & Pelvis**

6.3.4.1 To rule out closed loop small or large bowel obstruction.

6.3.4.2 Blunt/Penetrating abdominal trauma.

6.3.4.3 CTA bowel in shock or sepsis of unknown source with rising lactic acid levels (to rule out bowel ischemia or any other underlying etiology).

6.3.4.4 CTA abdomen to rule out

6.3.4.4.1 Bowel ischemia.

6.3.4.4.2 Abdominal Aortic Aneurysm leak.

6.3.4.4.3 Active GI bleed.

6.3.4.5 Urgent CT abdomen and pelvis with IV-contrast is indicated in cases of abdominal pain in the following:

6.3.4.5.1 The immunocompromised patients.

6.3.4.5.2 In acute severe pancreatitis with decreasing hemoglobin or blood drainage from intra-abdominal drains or UGI bleed (to rule out ruptured splenic pseudoaneurysm – 10 %)

6.3.4.5.3 To rule out postoperative leaks.

6.3.4.6 Urgent CT abdomen & pelvis with contrast is also indicated to rule out appendicitis in:

6.3.4.6.1 Obese patients,

6.3.4.6.2 Those with large abdominal girth

6.3.4.6.3 In case of equivocal US results for appendicitis in

6.3.4.6.3.1 Pediatrics

6.3.4.6.3.2 Female

6.3.4.6.3.3 Thin young male patients

6.3.4.7 Post bariatric surgery with clinically suspected complications as internal hernia, leaks & superior mesenteric artery/portal vein thrombosis.

6.3.4.8 Renal colic in case of suspected urinary tract obstruction with urine retention/anuria, impaired renal function, signs of urosepsis, single kidney, persistent pain and nausea/vomiting.

6.3.4.9 Any suspected genitourinary trauma with hematuria (Kidney/bladder)

6.3.5 **Others**

6.3.5.1 CTA limbs: for acute ischemia or in case of blunt/penetrating trauma with suspected vascular injury.

6.3.5.2 CT with IV-contrast to rule out necrotizing fasciitis.

6.3.5.3 CT of the pregnant with trauma or sepsis.

**(Based on ACOG & EAST guidelines)

7.0 MRI include the following:

7.1 Emergency MRI to be done in case of cord compression, cauda equina syndrome, spinal injury.

7.2 Pregnant patients with pathologies best diagnosed by MRI and/or upon the final consensus of the treating physician and respective radiologist.

8.0 Urgent/emergent imaging in Pediatrics include the following:

8.1 For scrotal pain/Trauma/suspecting pathology: US Doppler of the scrotum/testes.

8.2 For abdominal pain:

8.2.1 To rule out intussusceptions: ultrasound.

8.2.2 Suspected complicated hernias (strangulated/obstructed) or to differentiate inguinal hernia from undescended testicular torsion: ultrasound

8.2.3 To rule out appendicitis: - ultrasound of the abdomen/pelvis is the first modality of choice. CT scan of the abdomen & pelvis:

8.2.3.1 If ultrasound is inconclusive/equivocal.

8.2.3.2 In the obese, the immunosuppressed patients, and patients with cerebral palsy

8.2.4 For blunt/penetrating trauma, the above-mentioned policies and guidelines (6.3.1 will apply to the pediatric population pending update and modification of the pediatric trauma policy/guideline in the ministry of health).

9.0 Radiology requests, reports and communication

9.1 All cases approved during the on call should be done during the on-call hours (consideration to changes in the expected turnaround time should be given to cases in need of medical preparations for contrast related allergies).

9.2 All emergency radiology requests have to be written with sufficient information pertaining to the patient's details, case, indication of the chosen radiological modality and the suspected/provisional clinical diagnosis.

9.3 The request should be relayed to and or discussed with the radiologist by phone (or in person keeping in mind undue delays in patient care) by the physician requesting the investigation.

9.4 The request should include all the followings:

9.4.1 Name(s) of the requesting doctor(s) and the sub-specialty if any (e.g. gynecologist, neurologist, etc.)

9.4.2 Contact number(s) of the requesting doctor(s) and the sub-specialty if any.

9.4.3 Department and unit.

9.5 Conflicts of opinion arising between the on call radiologist and most responsible treating/requesting physician -regarding the urgency and or modality of a radiological investigation - should be escalated to the senior registrars and above rank of both services and final decisions made should **not** be unilateral**.**

9.5.1 Changing the Modality: Rendering a request as inappropriate, should **not** be a unilateral decision and the changes in the request for radiological examination should be documented by the treating team and radiologist.

9.5.2 Deferring/Rejection: It is professionally mandatory that the responsible on-call radiologist who DOES take the decision that a request for a radiological investigation is non-urgent or not indicated without agreement of the treating team (after discussion), to document (in the radiological request and/or MR8 MOH form) the reason for such a decision providing his signature and stamp for official documentation.

The rejection (if any) should be done in consultation with second on call Radiologist of the rank of senior registrar or above rank.

9.6 **Definition of the preliminary report and validated report:**

9.6.1 **Definition of the preliminary report**: Interpretive reports that may be issued when creation of a final report would unnecessarily delay care of an emergency patient. It is issued by the radiology supervised 1st on-call registrar or above rank.

9.6.1.1 The preliminary report should include the answers pertaining to the question(s) (documented on the request) and any possible pathology related to the clinical scenario or documented suspected diagnosis.

9.6.1.2 The preliminary report may at times of emergency contain limited or incomplete information to other findings in the imaging modality which will be documented in the validated report.

9.6.1.3 Establishing a management plan based on the preliminary report or the awaited validated report is left to the discretion, clinical judgement and correlation of the most responsible physician (MRP) requesting the radiological exam.

9.6.1.4 Major discrepancy between preliminary and validated reports that alter treatment plans should be audited and reviewed regularly by the respective involved departments and forwarded to the MOH committee on policies.

9.6.2 **Definition of final/validated report:**

9.6.2.1 A report issued by the senior registrar and above rank.

9.6.2.2 It is the final interpretive report which may, at times, need more data (e.g. prior imaging, reports, patient's medical record etc. when possible) and thus more time than the preliminary report to be issued.

9.6.3 **Time to issue preliminary radiology reports.**

Preliminary Radiology reports will be issued after a defined range of time from the procedure depending on the urgency of the case as follows**:**

9.6.3.1 **Emergency cases**: should be issued **DURING** the on-call and in a timely fashion (within 1 hour of the procedure), verbally initially if necessary.

9.6.3.2 **Urgent cases:** should be issued **DURING** the on-call (within 2-4 hours of the procedure, earlier if indicated), verbally initially if necessary.

9.6.3.3 If for any reason an electronically issued report cannot be provided, a written brief report in the MR8 of the patients file would be sufficient.

9.6.4 **Time to issue validated radiology reports.**

Validated Radiology reports will be issued after a defined range of time from the procedure depending on the urgency of the case as follows:

9.6.4.1 **Emergency cases**: should be issued **DURING** the on-call and in a timely fashion (within 2 hours of the procedure).

9.6.4.2 **Urgent cases:** should be issued **DURING** the on-call (within 6 to 8 hours of the procedure, earlier if indicated.

9.6.4.3 If for any reason an electronically issued report cannot be provided, a written brief report in the MR8 of the patients file would suffice pending a validated report.

9.7 For emergency cases in general it is the responsibility of both, the radiologist and the referring treating physician to ensure the findings and report are provided and acquired respectively through a clear line of communication and follow up.

9.8 It is the professional responsibilities of the radiologist on-call to contact and inform the treating team in person (and document) if there are any significant changes made to the preliminary radiology report issued after validation immediately.

9.9 Auditing the reports and quality assurance will be a combined responsibility between the clinical departments and the radiology department to ensure more efficient service provision.

10.0 Intravenous Contrast imaging, Risks & Consents

10.1 All consents should follow Kuwait ministry of health rules and regulations on informed consent (consent attached).

10.2 Patients with impaired renal function in need of intravenous contrast imaging should be informed and consented for the risk of contrast induced nephropathy and dialysis by the treating physician. A high-risk consent form in such situation has to be signed by the treating physician and the patient.

10.3 Patients with risk factors and/or history of contrast related allergies who are in need of imaging with intravenous contrast, but, due to clinical urgency, were not adequately medically prepared (*to reduce the risk of allergic reaction*) should be consented for high risk of contrast induced allergic reactions by the treating physician.

10.4 With patients who are intubated, have altered level of consciousness, or are mentally incompetent with impaired renal function (and/or history of allergy) and in need of intravenous contrast imaging, the following should be applied:

10.4.1 If a legal representative is present, it is the responsibility of the treating physician to obtain the consent from that legal representative (and cosigned as per MOH informed consent rules and regulations).

10.4.2 If a legal representative is **not** available/present or exist, the consent should be signed by two most senior responsible physicians (as per ministry decree) if deemed necessary by them to obtain the necessary radiological imaging or procedures.

10.5 If the patient or family refuse IV-contrast and CT is requested to assess intraperitoneal fluid or visceral leak, CT with oral contrast should be done instead (at the treating team's discretion). Alternative investigation if available and suitable should be done to reach almost same results).

10.6 If the patient or family refuse contrast (for any reason), the treating physician should discuss with the on-call radiologist about the yield, benefit and alternatives if any (e.g. VQ scan for PE if CTA chest can't be done) for the non-contrast study to achieve the necessary diagnosis and plan management (with the final decision left for the treating physician).

10.7 Interventional radiological procedures

10.7.1 To avoid the unnecessary wasting of resources, delay in management and possible medical complications en route, interventional radiological procedures will be aimed to be provided to the patients (stable & unstable) in their index hospitals by the interventional radiology team.

10.7.2 It is professionally mandatory that consents for interventional radiological procedures be taken and completed by the interventional radiologist performing the procedure (or a member of their team assisting in the procedure) denoting risks , benefits and possible complications in the specified ministry of health procedure consents forms (and explained to the patients or their legal representatives).

10.7.2.1 Its's the responsibility of the treating physician to ensure and document (in MR8 of the patients' file) informing the patient and or his legal guardian (if present or exist) about the intended interventional radiological procedure and possible complications and ensure/document approval of the patient for the procedure.

10.7.3 Emergency interventional radiological procedures

10.7.3.1.1 Stable patients

10.7.3.1.1.1 At times of logistic, personnel or departmental limitations that hinder provision of interventional radiological procedures to stable patients in their index hospitals, the interventional radiology team will request the transfer of the stable patient to their respective hospitals where the logistic, personnel or departmental set up and support are available for performance of the interventional radiological procedure.

****The above is expected to be an exception of the standard not the norm.**

10.7.3.1.1.2 If a stable patient is requested and planned for an interventional radiological procedure in another health care facility, it is the responsibility of the treating team to provide the following;

10.7.3.1.1.2.1 Ensure arrangements, the booking and timing of the procedure with the respective interventional radiologist.

10.7.3.1.1.2.2 Ensure to establish the transport and medical support en route (physician, nurse, ICU etc.)

** please see the inter hospital transfer policy.

10.7.3.1.1.2.3 Ensure and document (in MR8 of the patient's file) informing the patient and or his legal guardian (if present or exist) about the intended interventional radiological procedure and possible complications and ensure/document approval of the patient for the procedure.

10.7.3.1.1.3 The official consent should be signed and submitted by the respective interventional radiologist upon receipt of the patient as per rules and regulations.

10.7.3.2 Unstable patients:

10.7.3.2.1 When the patient cannot be transferred to the hospital where the interventional radiologist is available, the interventional radiologist on-call should perform the intended procedure in the index hospital. (if logistically and technically possible)

10.7.3.2.2 In the above clinical situation (10.7.3.2.1), it is the responsibility of the treating clinician to refer to the on-call schedule of the interventional radiologists and provide all the necessary arrangement needed for the performance of the procedure in the index hospital (e.g. Anesthesia, ICU/nursing staff, etc.) and to follow article number 10.7.3.1.1.2.3.

11.0 Fees collection for expatriates: Pending final review and amendments of the radiology services fee collection by the financial departments of the ministry of health and in accordance with the ministerial decree of 2018, emergency care and investigations should **NOT** be delayed or withheld from expatriate patients and fee collection should be acquired after the necessary management by the respective administrative and financial departments not the clinicians and or technical staff.

12.0 Violations of the above (with or without resulting medical complications arising from such breach of code of conduct) may be reviewed in investigative committees and are subject to disciplinary actions.

13.0 Monitoring procedure

13.1 The ministry of health will form a committee to monitor audit performance and review the above policy every 2 years.

13.2 Senior physicians of departments on which this policy applies may email incidents, complaints and suggestions to the above-mentioned committee. The email address will be: incident@moh.gov.kw

References:

- *Wait time benchmarks for radiology wait time alliance.ca*
- *Canadian Association of Radiologists report on national maximum wait time access targets for medical imaging 2013*
- *ACR PRACTICE PARAMETER FOR RADIOLOGIST COVERAGE OF IMAGING PERFORMED IN HOSPITAL EMERGENCY DEPARTMENTS, 2018*
- *NHS Diagnostic Imaging Dataset Annual Statistical Release 2016/17*
- *Stiell IG. JAMA. 2005 Sep 28;294(12):1511-8.*
- *Stiell IG et al. Lancet. 2001 May 5;357(9266):1391-6*
- *Wells PS et al. NEJM. 2003 Sep 25;349(13):1227-35*
- *Wells PS et al. JAMA. 2006 Jan 11;295(2):199-207*
- *Wells PS et al. Thromb Haemost. 2000 Mar;83(3):416-20*
- ACR appropriateness criteria (revised 2019) https://www.acr.org/Clinical-Resources/ACR-Appropriateness-Criteria
- RCR standards of practice and guidance for trauma radiology in severely injured patients, second edition, https://www.rcr.ac.uk/system/files/publication/field_publication_files/bfcr155_traumaradiol.pdf
- WTA Adult Blunt Injury Initial Imaging Algorithm https://westerntrauma.org/algorithms/Blunt%20Injury%20Initial%20Imaging/BluntInjuryInitialImaging.pdf

Attachments

Organization Name: _____ Outpatient clinic: _____ Inpatient: Department: Unit Ward Room Bed Date of Admission. …….. Physician in Charge …….	File NO. CID NO. Name: _____ _____ SEX: M / F DOB: / /

All the items in this form should be completed by the physician / specialist; otherwise it will be illegal.

Patient Consent for use of Intravenous Contrast Media in Diagnostic / Therapeutic Imaging Procedures

The Ministry of Health, through this form, seeks to obtain a written consent that confirms that the treating physician/specialist has provided the patient with the knowledge about his/her medical and health condition. This will enable the patient to make the appropriate decision regarding your/the patient condition. **Please read the written information carefully before signing the form.**

To the patient: you have been given information about your/ your patient medical condition and the recommended diagnostic examination with the use of intravenous contrast media. The law obliges the treating physician/specialist to inform you about:

1- The nature of your medical condition.
2- The purpose and benefit of the diagnostic imaging procedure with intravenous contrast media.
3- The risks related to the use of intravenous contrast media.
4- Patient preparation and precautions used to avoid the risks of the usage of contrast media.
5- Imaging alternatives and any associated risks.
6- Risk of not using the intravenous contrast media in the diagnostic/ therapeutic procedure.

Medical Condition

The treating physician / specialist has explained to me the following medical condition(s) that exist in my/ my patient case:

.....
.....

I / legal representative of the patient …… **authorize** the treating medical team to use

Patient's name

intravenous contrast media in the diagnostic / therapeutic procedure:

……..

It was explained to me the purpose and benefit of the diagnostic imaging procedure with intravenous contrast media which is: ……

The probable risks of using intravenous contrast media

The treating physician / specialist explained to me that, the proposed diagnostic imaging procedure with IV contrast may involve risks and morbidity due to the use of contrast media which are as follow:

A- Possible side effects and reactions of iodinated contrast media (USED IN CT, ANGIOGRAPHY/ INTERVENTION, CEDM, IVU, etc.)

I. Acute: occurs within one hour and has three subtypes according to the severity:

1. Mild: **More common** & the signs and symptoms appear self-limited without evidence of progression, include: Nausea with or without vomiting, Sweating, Itching, Urticaria , Pallor, Flushing , Swelling of eyes and face , Chills, Shaking , Altered taste , Cough, Nasal stuffiness , Rash, Hives ,Headache, Dizziness , Warmth, Coldness and pain ,Anxiety, Paresthesia.

2. Moderate**: less common** and signs and symptoms are more pronounced and need medical intervention, include: Tachycardia/ Bradycardia, Mild Laryngeal edema, Bronchospasm, Wheezing, Mild hypotension, Hypertension, Dyspnea, Generalized or Diffuse erythema

3. Severe: **very rare** and the signs and symptoms are often life-threatening and need hospital admission, include: Laryngeal edema (severe or rapidly progressing), Unresponsiveness / Convulsions, Profound hypotension, Cardiopulmonary arrest / arrhythmias

II. Delayed: A late adverse reaction to intravascular iodine-based contrast medium is defined as a reaction that occurs 1 hour to 1 week after contrast medium injection, includes skin reactions similar in type to other drug-induced eruptions. Most skin reactions are mild to moderate and self-limiting.

III. Contrast media extravasation: which causes local pain and swelling and can be dealt with it when it happens.

B -Possible side effect and reactions of gadolinium-based contrast media (USED IN MRI):

I. Acute: occurs within one hour and usually mild and self-limited without evidence of progression, include: Nausea with or without Vomiting, Sweating, Itching, Urticaria, Pallor, Flushing, Swelling of eyes and face, Chills, Shaking, Altered taste, Cough, Nasal stuffiness, Rash, Hives, Headache, Dizziness, Warmth, Coldness and Pain, Anxiety, Paresthesia.

II. Nephrogenic systemic fibrosis: is a rare adverse reaction to MRI IV contrast medium in patient with impaired renal functions, it may occur few weeks to years after the use of IV MRI contrast media. Patient will have symptoms related to fibrosis in body organs more obvious in the skin.

III. Contrast media extravasation: which causes local pain and swelling and can be dealt with it when it happens.

I also understand that the complicated medical condition(s) (I am) / the patient is suffering from, might lead to additional risks. These risks include:

……
……

It was explained to me the preparations and precautions that will be used to decrease the risks of the usage of IV contrast media:

……

It was explained to me that the available alternatives to the proposed procedure and its probable associated risks are: ……

The risks of not performing the procedure:
……

Consent to use intravenous contrast media in diagnostic/ therapeutic procedure

- I have read this consent form in its entirety, I was given a chance to ask questions and all of the questions I have asked have been answered to my satisfaction.

- I understand how this procedure is performed and its possible risks and complications.

- I understand that if at any time prior to my/patient procedure I decided that I do not want to go forward with the procedure, I may withdraw my consent.

Having read this form and talked with the treating physician / specialist, my signature below acknowledges that: I give my authorization and consent to the performance of the procedure described above by the treating medical team.

…….. ……. / ……. / ……. ……. : …….

Patient /legal representative name & signature Date Time

If the consent is signed by somebody other than the patient, please state the reasons and relationship
……..…

The procedure has been interpreted to the patient in a language comprehensible to him/her by

…….. ……. / ……. / ……. ……. : …….

Name & signature Date Time

Physician / Specialist statement:

I have explained to the patient/ legal representative the nature of the diagnostic procedure with the risks, benefits, and alternatives. I have answered all of the patient's/ legal representative questions to the best of my knowledge which I believe led him to be adequately informed. I checked the patient risk factors as in the table below and take the necessary preparations and precautions.

RISK FACTORS CHECK LIST	YES	NO
1-History of allergy (to iodinated/ Gadolinium based contrast media/food /drugs /asthma etc.) 2- Diabetes mellitus on metformin (Glucophage) 3- Renal disease or renal dysfunction		

The most recent measurement of serum creatinine (µmol/l), eGFR (ml/min): …… ……..

Date of result: …. /…./…..

(Results should be within 1 week of the radiological study for patients with known renal disease, those with the risk of renal disease (e.g. Patients on nephrotoxic drugs & Diabetes)

…….. ……. / ……. / ……. ……. : …….

Physician/specialist name & signature Date Time

The patient/patient legal representative approves the previously given consent to perform diagnostic imaging with IV contrast media that is completed by the referring clinician.

The patient/patient legal representative revoked the previously given consent to perform the diagnostic imaging procedure with intravenous contrast media.

…….. ……../……../…….
Referring physician / specialist name and signature Date

Please fill in the "Consent to refuse medical diagnostic/therapeutic procedure" form

All the items in this form should be completed by the physician / specialist; otherwise it will be illegal.

Consent to refuse to use intravenous contrast media in diagnostic / therapeutic imaging procedure

The Ministry of Health, through this form, seeks to obtain a written consent that confirms that the treating physician/specialist has provided the patient with the knowledge about his/her medical and health condition. This will enable the patient to make the appropriate decision regarding the need to do a diagnostic examination with the use of intravenous contrast media.
Please read the written information carefully before signing the form.
In case of refusal the consent to diagnostic examination with the use of intravenous contrast media please sign below. The patient will continue to receive the appropriate care related to his medical condition despite of this refusal.
I / legal representative of the patient …….. consent that the treating medical team
Patient's name
has explained to me all the risks and complications as consequences of refusal the consent to the diagnostic imaging procedure. I fully understand that the refusal of medical diagnostic/therapeutic procedure may lead to deterioration of my / patient health condition and my /patient life but this is my wish.
The diagnostic imaging procedure refused is :
……
Risks of refusal the consent to diagnostic imaging procedure include:
……..
……..
Benefits of the proposed procedure are :
……..
Reasons for refusal are : ……..
I hereby take the responsibility for all consequences happen as a result of refusing the procedure specified for me/the patient.

…….. ……. / ……. / ……. ……. : …….
Patient /legal representative name & signature Date Time

If consent is signed by somebody other than the patient, please state the reasons and relationship
……

The procedure has been interpreted to the patient in a language comprehensible to him/her by

…….. ……. / ……. / ……. ……. : …….
Name & signature Date Time

…….. ……. / ……. / ……. ……. : …….
Physician/specialist name & signature Date Time

…….. ……. / ……. / ……. ……. : …….
Witness name & signature Date Time

The consent form for the use of intravenous contrast media was revised by the radiologist or radiographer in charge before performing the procedure.

…… Date: ……../……../…… Time ……..: ……..
Radiology specialist or Radiographer name & signature

Organization Name: _____ Outpatient clinic: _____ Inpatient: Department Unit Ward Room Bed Date of Admission: ..... Physician in Charge:	File NO. CID NO. Name: _____ _____ SEX: M / F DOB: / /

يجب استكمال جميع بنود النموذج بصورة كاملة من قبل الطبيب / المتخصص وإلا سيعتبر الإقرار غير قانوني

إقرار المريض بالموافقة على استخدام الصبغة الوريدية لفحص أشعة تشخيصي/ علاجي

تسعى وزارة الصحة من خلال هذا النموذج للحصول على إقرار خطي منك يؤكد علمك الكامل بحالتك / حالة المريض الطبية والصحية مما يمكنك من اتخاذ القرار المناسب لحالتك، **لذلك فالمرجو منك الاطلاع على المعلومات المسجلة بالإقرار بدقة قبل التوقيع عليه.**

معلومات للمريض:
لقد تم إعطاؤك معلومات تخص حالتك (حالة المريض) وحاجتك (حاجة المريض) للخضوع لفحص أشعة باستخدام الصبغة الوريدية والقوانين تحتم علينا إخبارك عن:

1- طبيعة حالتك الصحية.

2- الهدف والمنفعة من عمل فحص الأشعة بالصبغة الوريدية.

3- المخاطر المحيطة باستخدام الصبغة الوريدية.

4- التحضيرات والاحتياطات التي يتم عملها لمواجهة أي مخاطر لاستخدام الصبغة الوريدية.

5- البدائل للفحص التشخيصي والمخاطر المتعلقة بهذه البدائل.

6- مخاطر عدم عمل الفحص بالصبغة الوريدية.

الحالة الصحية

لقد قام الطبيب المعالج / المتخصص بشرح الحالة (الحالات) المرضية الخاصة بي / بالمريض والمتمثلة ب:

.....

.....

أنا / ولي أمر المريض ..... أفوض الفريق الطبي المعالج باستخدام الصبغة

اسم المريض

الوريدية لإجراء فحص الأشعة التالي:

.....

.....

وقد شرح لي أن الغرض والفائدة من هذا الإجراء هو:

.....

المخاطر المحتملة لاستخدام الصبغة الوريدية

شرح لي الطبيب المعالج / المتخصص أن الفحص التشخيصي باستخدام الصبغة الوريدية قد يؤدي لحدوث مخاطر ومضاعفات متعلقة باستخدام الصبغة وهي :

الأعراض الناتجة والردود المحتملة من استخدام الصبغة الوريدية المحتوية على مادة اليود (المستخدمة في معظم فحوصات الأشعة مثل الأشعة المقطعية وأشعة الكلى الملونة وفحص الأشعة التداخلية وغيرها):

أولاً : أعراض تحدث مبكراً خلال ساعة من إعطاء الصبغة و تنقسم إلى ثلاث أنواع حسب حدة الأعراض:

1 .أعراض بسيطة: هي **أعراض شائعة** لا تحتاج إلى تدخل طبي في أغلب الأوقات:

غثيان مع أو بدون تقيؤ، تعرق ، حكة، شحوب أو تورد ، تورم العين و الوجه ، قشعريرة و ارتعاش ، تغير بالطعم ، احتقان الأنف وكحة، طفح جلدي ، صداع ، دوخة، حرارة، برودة أو ألم، قلق.

2 .أعراض متوسطة الحدة: هي **أعراض قليلة الحدوث** و تتطلب تدخل طبي و وضع المريض تحت الملاحظة:

عدم انتظام دقات القلب البسيط ، احتقان خفيف في مجرى التنفس وتشنج القصبة الهوائية ، تنفس بصفير، ارتفاع أو انخفاض خفيف في ضغط الدم ، طفح جلدي .

3 .أعراض شديدة الحدة: هي **أعراض نادرة الحدوث** و تحتاج إلى تدخل طبي فوري:

احتقان حاد في القصبة الهوائية ، تشنجات وفقد للوعي ، انخفاض شديد في ضغط الدم ، عدم انتظام دقات القلب ، سكتة قلبية.

ثانياً : أعراض متأخرة الحدوث و هي تحدث بعد ساعة إلى أسبوع بعد تلقي حقنة الصبغة و تشمل الأعراض الجلدية مثل الطفح الجلدي بأنواعه و هي عادة خفيفة تنتهي بمرور الوقت.

ثالثاً : تسرب الصبغة خارج الوريد مما يسبب ألم وانتفاخ في موضع الإبرة و يتم التعامل معه في الحال دون أن يترك أي أثر .

الأعراض الناتجة والردود المحتملة من استخدام الصبغة الوريدية المحتوية على مادة الجادولينيوم (صبغة فحص الرنين المغناطيسي):

أولاً: أعراض تحدث مبكراً خلال ساعة من إعطاء الصبغة وهي **أعراض بسيطة** ولا تحتاج إلى تدخل طبي في أغلب الأوقات مثل :

غثيان مع أو بدون تقيؤ ، تعرق ، حكة ، شحوب أو تورد ، تورم العين و الوجه ، قشعريرة و ارتعاش ، تغير بالطعم ، احتقان الأنف وكحة ، طفح جلدي ، صداع ، دوخة, حرارة ، برودة أو ألم ، قلق.

ثانياً : التليف العام الناتج من خلل في الكلى وهذا يحدث بنسبة قليلة لمرضى الكلى بعد استخدام الصبغة المحتوية على مادة الجادولينيوم وتظهرخلال بضع أسابيع إلى سنوات من استخدام الصبغة . الأعراض الناتجة من التليف قد تؤثر على جميع أعضاء الجسم وتكون أكثر وضوحاً في الجلد.

ثالثاً: تسرب الصبغة خارج الوريد مما يسبب ألم وانتفاخ في موضع الإبرة و يتم التعامل معه في الحال دون أن يترك أي أثر.

وأنا أدرك أن المرض (الأمراض) الأخرى التي أعاني / يعاني منها المريض قد تؤدي لحدوث مخاطر إضافية، و أن هذه المخاطر تشمل:

.....

.....

لقد تم شرح التحضيرات والاحتياطات التي سيتم عملها للتقليل من مخاطر استخدام الصبغة الوريدية وهي:

.....

.....

كما تم شرح البدائل المتوفرة للإجراء المقترح بمخاطرها المحتملة وهي:

.....

خطورة عدم إجراء الفحص التشخيصي/ العلاجي باستخدام الصبغة الوريدية هي:

.....

الموافقة على استخدام الصبغة الوريدية لفحص أشعة تشخيصي / علاجي

لقد قرأت نموذج الموافقة بكامله، وأعطيت لي الفرصة لطرح الأسئلة كما تمت الإجابة على جميع أسئلتي المطروحة بما يرضي قناعتي.

- أنا أدرك مخاطر استخدام الصبغة الوريدية والمضاعفات المحتملة.
- أنا أدرك أنه إذا ما قررت في أي وقت قبل عمل فحص الأشعة التشخيصي باستخدام الصبغة الوريدية عدم المضي بالإجراء فمن حقي التراجع عن موافقتي.

بعد قراءة النموذج والتحدث مع الطبيب المعالج / المتخصص، فإن توقيعي أدناه فيه إقرار مني على أني أخول وأوافق على عمل الفحص أعلاه باستخدام الصبغة الوريدية من قبل الفريق الطبي المعالج.

.... / ..... / .... : .....
اسم وتوقيع المريض / من يحل محله قانونياً التاريخ الوقت

إذا تم توقيع الإقرار من قبل شخص آخر غير المريض الرجاء تحديد الأسباب وصلته أو علاقته بالمريض

.....

لقد تم شرح الإجراء المقترح أعلاه بلغة يفهمها المريض من قبل

.... / ..... / .... : .....
الاسم والتوقيع التاريخ الوقت

إقرار الطبيب / المتخصص

لقد شرحت للمريض/ من يحل محله قانونياً طبيعة فحص الأشعة التشخيصي بالصبغة الوريدية والمخاطر، والفوائد، والبدائل (متضمنة عواقب عدم متابعة أو مواصلة العلاج). لقد قمت بالرد على جميع أسئلة المريض / من يحل محله قانونياً بأفضل ما أوتيت به من معرفة، اعتقد بها أنه قد حصل على قدر كاف من الدراية والاستبصار ولقد قمت بالتحقق من وجود أو عدم وجود المخاطر المدرجة في الجدول أدناه وقمت بأخذ الاحتياطات والتحضيرات اللازمة للمريض.

قائمة تدقيق لعوامل الخطر (المخاطر)	نعم	لا
1- يعاني من الحساسية (من الصبغة الوريدية باليود أو مادة الجادولينيوم / الطعام / عقاقير وأدوية / أو يعاني من مرض الربو).		
2- يعاني من مرض السكري ويستخدم عقار متفورمن أو جلوكوفاج.		
3- يعاني من مرض بالكلى أو قصور في وظائف الكلى.		

فحص حديث لوظائف الكلى (eGFR mL/min) (serum creatinine µmol /L) .....
(المرضى الذين لديهم قصور في وظائف الكلى و الذين لديهم عوامل خطر للإصابة بمرض في الكلى يجب أن يكون فحص وظائف الكلى قد تم عمله خلال أسبوع من تاريخ الفحص)

.... / ..... / .... : .....
اسم و توقيع الطبيب / المتخصص التاريخ الوقت

.... / ..... / .... : .....
اسم وتوقيع الشاهد التاريخ الوقت

قام المريض / من يحل محله قانونياً بإلغاء الموافقة المعطاة مسبقاً من قبله لإجراء التدخل التشخيصي /العلاجي _____

اسم و توقيع الطبيب / المتخصص

الرجاء استكمال نموذج إقرار رفض استخدام الصبغة الوريدية

يجب استكمال جميع بنود النموذج بصورة كاملة من قبل الطبيب / المتخصص وإلا سيعتبر الإقرار غير قانوني.

إقرار رفض استخدام الصبغة الوريدية لفحص تشخيصي أو علاجي

تسعى وزارة الصحة من خلال هذا النموذج للحصول على إقرار خطي منك يؤكد علمك الكامل بحالتك / حالة المريض الطبية والصحية مما يمكنك من اتخاذ القرار المناسب لحالتك، **لذلك فالمرجو منك الاطلاع على المعلومات المسجلة بالإقرار بدقة قبل التوقيع عليه.**

في حال عدم الموافقة على إجراء فحص الأشعة التشخيصي بالصبغة الوريدية يرجى التوقيع أدناه.

المريض سيظل يتلقى العناية المناسبة لحالته الصحية بالرغم من هذا الرفض.

أقر أنا / ولي أمر المريض ..... بأن الفريق الطبي المعالج قد قام بشرح كافة العواقب متمثلة
اسم المريض
بالمخاطر، والمضاعفات المترتبة على رفضي للقيام بفحص الأشعة التشخيصي بالصبغة الوريدية و أنا أدرك تماماً أن رفض الإجراء الطبي التشخيصي قد يؤدي لتدهور حالتي / حالة المريض الصحية وحياتي/ حياة المريض ولكن هذه رغبتي.

لقد رفضت عمل فحص أشعة تشخيصية بالصبغة الوريدية وهو:

.....

مخاطر رفض عمل الفحص بالصبغة الوريدية تتضمن:

.....

.....

فوائد عمل الفحص بالصبغة الوريدية هي:

.....

أسباب رفض الفحص بالصبغة الوريدية هي:

.....

وبالتالي أنا أتحمل كافة النتائج المترتبة على رفضي للإجراء المحدد لي / للمريض.

..... **..... / ..... / .....** **..... : .....**

اسم وتوقيع المريض / من يحل محله قانونياً التاريخ الوقت

إذا تم التوقيع من قبل شخص آخر غير المريض، الرجاء تحديد الأسباب وصلته أو علاقته بالمريض

.....

لقد تم شرح الإجراء المقترح أعلاه بلغة يفهمها المريض من قبل

..... **..... / ..... / .....** **..... : .....**

الاسم والتوقيع التاريخ الوقت

.... / ..... / .... : .....

اسم وتوقيع الطبيب / المتخصص التاريخ الوقت

..... **...../...../....** **..... : .....**

اسم وتوقيع الشاهد التاريخ الوقت

تم مراجعة استكمال الإقرار من قبل طبيب أو فني الأشعة المختص قبل القيام بفحص الأشعة بالصبغة الوريدية

..... **..... / .... / .....** **..... : .....**

اسم وتوقيع الطبيب أو الفني المختص التاريخ الوقت