1. PURPOSE

1.1 To improve communication systems and strategies to reduce adverse events that result from delays in communicating critical radiology test results.

1.2 To outline the process of communication of routine, urgent or unexpected radiological findings.

2. APPLICABILITY

This policy applies to all clinical staff (requesting physician, attending physician/main responsible physician, registered nurses and midwives) that is authorized to give and receive radiology critical test and critical result reporting.

3. RESPONSIBILITIES

3.1 The Radiologist's responsibility is to communicate efficiently for any critical, urgent or unexpected findings through the designed pathways.

3.2 It is the responsibility of the interpreting radiologist to notify the requesting physician and/or their appointee of any imaging finding that based on the radiologist's judgment and the clinical data provided. This notification applies to findings of a critical and time sensitive nature where immediate care or change in course of care may be required.

3.3 It is the responsibility of the ordering/referring physician to ensure that the requesting of imaging investigations is prioritized based on their clinical evaluation of the patient and to seek out the results based on clinical urgency.

4. POLICY

4.1 Radiological and medical imaging findings (CT Scan, Ultrasound, MRI, Nuclear Medicine, Fluoroscopy, Interventional Radiology) requiring direct notification of a member of the patient's care team, i.e., requesting physician, attending physician/main responsible physician and nurse. (see Appendix A for examples)

4.1.1 **Critical**

4.1.1.1 A new/unexpected radiological and medical imaging finding that could result in mortality or significant morbidity if appropriate diagnostic and/or therapeutic follow-up steps are not undertaken.

4.1.1.2 Conditions requiring clinical action within 2-4 hours (i.e. acute cerebral infarction, acute spinal cord compression, acute testicular torsion, acute mesenteric or peripheral arterial ischemia, VQ scan, etc.)

4.1.2 **Significant unexpected findings**

4.1.2.1 An interpretation that is significantly different from a preliminary interpretation, when the preliminary interpretation has been accessible to the patient care team and the difference in interpretations may alter the patient's diagnostic workup or management.

4.1.2.2 The reporting radiologist has concerns that the findings are serious for the patient and may be unexpected (i.e. incidental discovery of pulmonary embolism, deeply seated abscess, perforated viscus, etc)

4.2 Timeliness for notification:

4.2.1 Radiological and medical imaging findings reports should be read and signed in a timely manner and critical / significant unexpected findings should be communicated as soon as possible after they are discovered.

4.2.2 If the communication is made thru verbal or telephone, then the radiologist request a "read back" of the information that has been transmitted to ensure accuracy.

5. DEFINITION OF TERMS

5.1 A critical test is one which always requires rapid communication of results. Any diagnostic test, procedure and/or study may be considered a critical test based on the assessment of the physician of the patient's status.

5.2 **"CRITICAL RESULTS"** are variance from normal range that represents a pathophysiologic state that is high-risk or life-threatening, is considered **Urgent** or **Emergent** in nature, and in which immediate medical action is likely necessary to preserve life or prevent a catastrophic occurrence

5.2.1 **Urgent** signify that the patient's condition is potentially life threatening and requires timely assessment and possible intervention.

5.2.2 **Emergent** signify that the patient's condition is life threatening and requires immediate intervention.

5.3 **"SIGNIFICANT UNEXPECTED FINDINGS"** cases where the reporting radiologist has concerns that the findings are significant for the patient and maybe be unexpected by the referrer.

5.4 **Abnormal result,** result that is outside of the expected range for the test but not immediately life threatening.

5.2 **Read Back:** the individual accepting the critical test result must record and then read back the critical test result, in its entirety, to the reporter at the time the result is given and receive active confirmation.

6. PROCEDURES

6.1 Time frame of delivery of radiological and diagnostic imaging report as follows:

6.1.1	Outpatients	:	within 48 hours
6.1.2	Inpatients:	:	within 24 hours
6.1.3	Emergency Department	:	within 2 to 4 hours
6.1.4	Obstetrics and Gynaecology Department – Ultrasound(Viewpoint)	:	within 2 to 3 hours
6.1.5	Gastroenterology & Hepatology Department – Endoscopy Radiological Procedures	:	Immediate
6.1.6	Urology Department – Urology Radiological Procedures	:	Immediate

6.2 Communication of critical, urgent and unexpected significant findings:

6.2.1 The Radiologist will contact/bleep the referring physician.

6.2.2 Upon answering the bleep, the Radiologist should introduce self and follow the process of Patient Identification (please refer to **Policy on Patient Identification 1-1-8062-01-011**).

6.2.3 Outline briefly the results utilizing "read back" process, and refer the physician to the report which would be available in the system very shortly, and take the name of the contacted physician.

6.2.4 After communicating critical results, the approval of the report should be done ASAP with mentioning the name and bleep number of the contacted physician as well as the date and time of communicating the results.

6.2.5 Alternatively, the Radiologist may write on patient progress notes of urgent results (e.g. DVT) and signing his name, bleep number and mentioning the date and time of writing the radiological findings. This however will be an adjunct – and not substitute to the official report in Picture Archiving & Communication System (PACS).

6.3 In case of inability to contact the referring physician:

6.3.1 The report should be dictated and approved ASAP following the same process as above.

6.3.2 The Radiologist will call the ward (in case of inpatient or Emergency Department) and communicate to the responsible nurse that the patient has urgent findings and request for a "read back".

6.3.3 During working hours, the registered nurse, immediately contacts MRP/treating team.

6.3.4 During out of duty hours, the registered nurse, immediately contacts the 1st on-call of the clinical service.

6.3.5 If 1st on-call specialist did not respond within 15 minutes, Registered Nurse contact 2nd on-call specialist and if no response within 15 min contact 3rd on-call and if no response within 15 min contact Main Responsible Physician / Consultant. (Refer to Calling and Informing the Physician Policy 1-2-6010-01-004)

6.3.6 In case of no response the registered nurse must submit an incident report.

6.3.7 When (1st on-call / 2nd on-call / 3rd on-call or Clinical Department Director) response to call and receive the critical results, the registered nurse documents that in patients' medical record with the physician name, date and time.

6.3.8 The details of the communication must be clearly documented in the radiology and imaging report. Documentation must contain the following information:

6.3.8.1 Name of the person reporting

6.3.8.2 Date and time reported

6.3.8.3 Name of recipient of the notification

6.4 In cases referred from OPD clinics:

6.4.1 If findings are critical:

6.4.1.1 Follow item 6.2 and 6.3

6.4.1.2 The clerk under instruction and follow up of the radiologist will call directly the patient through the telephone present in the patient's file.

6.4.1.3 The clerk will instruct the patient to go directly to Emergency Department.

6.4.1.4 The Radiologist shall inform the ED physician that the patient will come due to the critical result findings from Radio-diagnostics & Medical Imaging Department.

6.4.1.5 The ED physician will find a finalized report in the system and will act accordingly.

6.5 If findings are important (abnormal results) but not critical (e.g. possibility of early cancer):

6.5.1 For Inpatients: The radiologist will report in PACS following the time frame of inpatients (24 hours).

6.5.2 For Outpatients:

7.5.2.1 The clerk, under instruction and follow up of the radiologist, will call directly the patient through the telephone present in the patient's file.

7.5.2.2 The clerk will instruct the patient to call his/her clinic to take an early appointment according to a call from Radio-diagnostics and Medical Imaging Department.

7.5.2.3 The treating physician will find a detailed report in the system and will act accordingly.

7. REFERENCES

7.1 Joint Commission International Accreditation Standards for Hospitals, International Patient Safety Goals (IPSG) 7th Edition, 1 January 2021.

7.2 Royal College of Radiologist Guidelines (RCR) – Standards for the Communication of Critical, Urgent and Unexpected Significant Radiological Findings – June 2008

7.3 American College of Radiology (ACR). Practice Guideline for Communication of Diagnostic Imaging Findings – Revised 2005.

7.4 Communication of Critical Test Results in Radiology, http://www.brighamandwomens.org/research/labs/cebi/cctr/Default.aspx (accessed 13 March 2014).

7.5 Communications of Critical Imaging Findings, http://www.radiology.ucsf.edu/patient-care/patient-safety/results/critical-findings (accessed 13 March 2014).

7.6 Guidelines for the Implementation of a National Quality Assurance Programme in Radiology - Version 2.0 http://www.radiology.ie/wp-content/uploads/2012/01/National-Radiology-QA-Guidelines-rev-2-0.pdf (accessed 06.01.15)

7.7 Radiology Requesting and Reporting Policy, Harrogate and District Hospital http://www.hdft.nhs.uk/about-us/freedomofinformation/publication-scheme/our-policies-and-procedures/?assetdet188298=4083&p=4 (accessed 06.01.15)

8. APPENDICES

8.1 Appendix 1 - Radiological and Medical Imaging Critical Test / Critical Results

9. ORIGINATING DEPARTMENT/S

Radiodiagnostic & Medical Imaging Department

Compiled by: • **Radiodiagnostics & Medical Imaging**	**Signature:**	**Date:** 4.1.2021
• **International Patient Safety Goal (IPSG) Team**	**Signature:**	**Date:** 7/1/2021
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• **Dr. Turki Al Mutairi** **Director of Nursing Department**	**Signature:**	**Date:** 17.1.2021
Reviewed by: **Dr. Samir Mohammed Bawazir** **Director, Continuous Quality Improvement & Patient Safety (CQI&PS)**	**Signature:**	**Date:** 20.1.2021
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Authorized by: **Dr. Amr Momtaz Jad** **Director of Medical Administration**	**Signature:**	**Date:** 26.1.2021
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& Approved by: **Maj. Gen. Dr. Saud Othman Al Shlash** **General Executive Director of Prince Sultan Military Medical City**	**Signature:**	**Date:** 31.1.2021
Date Reviewed 20 January 2021	**Date of Next Review** 30 January 2024	

Appendix A

Radiological and Medical Imaging Critical Test / Critical Results Requiring Urgent Reports

ANATOMICAL AREA	CONDITIONS REQUIRES URGENT REPORTS
Central Nervous System (CNS)	Cerebral hemorrhage / hematoma
	Herniation Syndrome
	Acute Stroke
	Intracranial Infection / empyema
	Complex skull fracture
	Unstable spine fracture
	Spinal cord compression
Neck	Airway compromise (e.g., epiglotitis)
	Carotid artery dissection
	Critical carotid stenosis
Breast	Breast abscess
	Biopsy recommendation on mammogram
Chest	Tension pneumothorax
	Aortic dissection
	Pulmonary embolism
	Ruptured aneurysm or impending rupture
	Mediastinal emphysema
Abdomen	Free air in abdomen (no recent surgery)
	Ischemic bowel (pneumotosis)
	Appendicitis
	Portal Venous Air
	Volvulus
	Traumatic visceral injury
	Retroperitoneal hemorrhage
Uro Genital	Bowel obstruction High Grade/Complete
	Ectopic Pregnancy
	Placental Abruption
	Placenta Previa (near term)
	Testicular or ovarian torsion
	Fetal Demise
Bone	New findings of new fracture
General	Significant Line / Tube misplacement
	New finding highly suggestive of malignancy

Appendix B

Diagnostic Procedure
Critical Test / Critical Results Requiring Urgent Reports

DIAGNOSTIC PROCEDURE	RED FLAG RESULTS
Electroencephalogram (EEG)	Electrographic seizure
	Significant unexplained asymmetry of the EEG potentials which could alert for underlying hematoma / bleeding / encephalopathy
Electromyography (EMG)	Absent F- wave in acute setting alert for GBS
	Reduce activation in spinal cord injury
Electrocardiograph (ECG)	Acute myocardial infarction • ST elevation in aVL and V2 • Upright T-waves in aVL d V2 • ST depression and inverted T-waves in inferior leads (III and aVF)
	Hyperkalemia • Tall "tented" T waves • Broad QRS complexes
	Atrial Fibrillation • Absence of P wave • Irregular rhythm
Obstetrics & Gynecology Ultrasound Sonography	Urgent Obstetric • Abnormal Uterine Artery Doppler • Placenta Previa after 26 weeks of gestation Urgent Gynecology • Ectopic Pregnancy • Ovarian Torsion • Haemopertonium • Bleeding with retained product of conception
Obstetrics & Gynecology CTG	• Bradycardia (less than 110 beats/min) not accompanied by absent baseline variability • Tachycardia (more than 160 beats/min) • Minimal baseline variability • Absent baseline variability with no recurrent deceleration • Marked baseline variability • Absence of induced acceleration after fetal stimulation periodic or episodic deceleration • Recurrent variable deceleration accompanied by minimal or moderate baseline variability • Prolonged deceleration more than 2 minutes but less than 10 minutes • Recurrent late deceleration with moderate baseline variability • Variable deceleration with other characteristics such as slow return to baseline, overshoots, or "shoulders" • Absent baseline variability • Recurrent late deceleration • Recurrent variable deceleration • Sinusoidal pattern