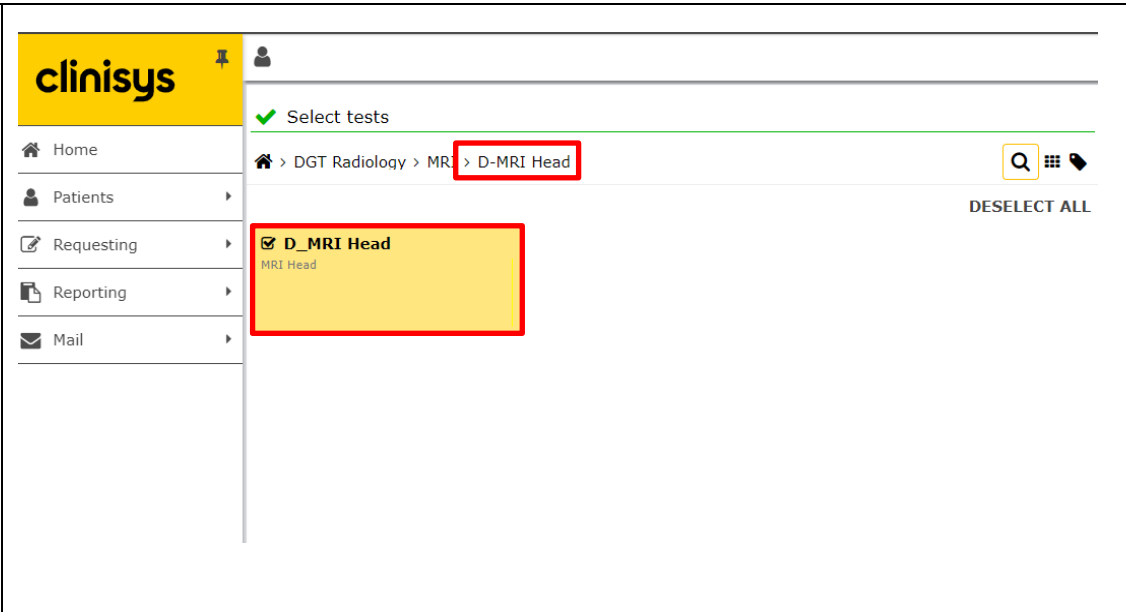


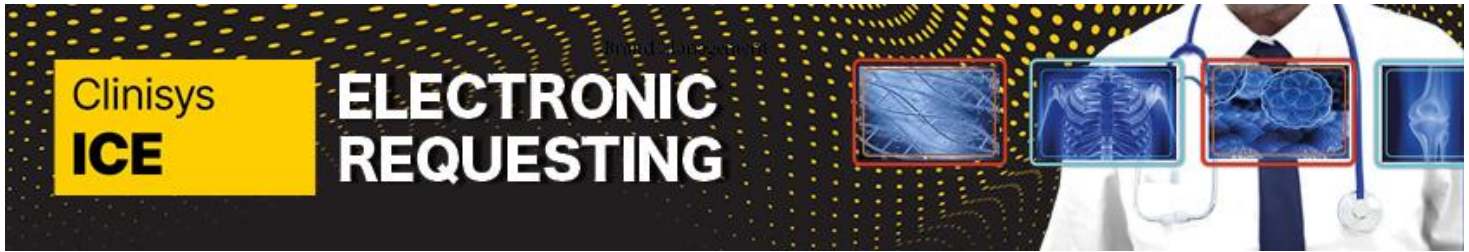
iRefer is a Clinical Decision Support (CDS) tool designed to assist healthcare providers when ordering radiology investigations within ICE. It is tailored to recommend the most appropriate examination based on the provided information and will activate when an investigation is chosen in ICE.

When choosing a test, the CDS tool "iRefer" will automatically launch, displaying a configured list relevant to the selected procedure. This acts as a hint list, presenting the top 10 most suitable reasons for the imaging request. If the desired reason is not shown in the list, there is a search field available to explore the entire library for alternative reasons.

In ICE, select appropriate test (see other QRGs for more guidance on this)

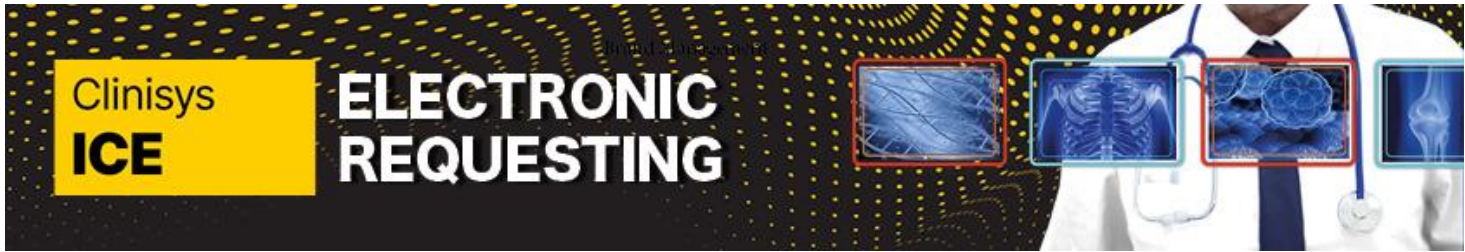


When you select a test, the CDS tool 'iRefer' will automatically launch in the patient context, presenting a list of symptoms that is relevant to your selection. This serves as a hint list, displaying some appropriate reasons for the imaging request. If the reason you need isn't on the list, a search field is available to browse the entire library for an alternative reason.



Click on the 'Primary Reason'

Dependant on the Primary Reason selected, you may need to answer additional questions before the system provides any recommendations

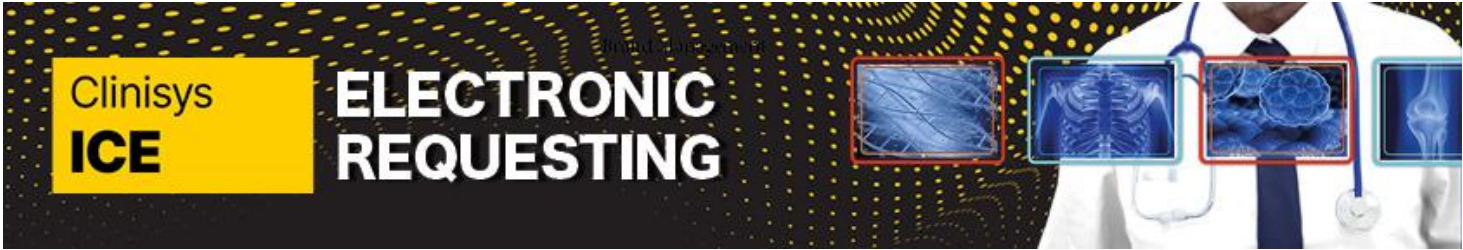


Once you have completed the relevant question(s), the system will provide its recommendations, with the most appropriate investigation highlighted in green. This recommendation is automatically selected, so you can simply click **'SUBMIT ORDER'** to proceed.

If the initial request is not the most suitable, it will still appear at the top of the list. It's marked in amber, indicating that it may be more suited as a specialist investigation.

### Appropriateness

Click the ? mark icon to open the legend, which provides additional information about the recommendations



The **Meaning of Scores** will display.

### Meaning Of Scores

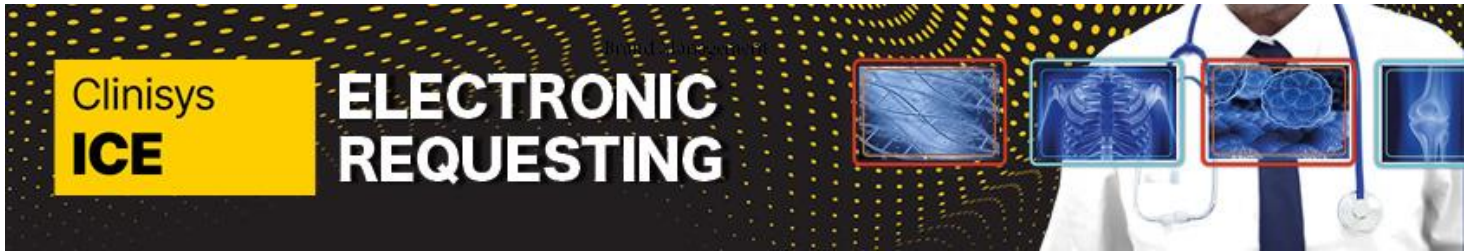
#### Meaning of Recommendations

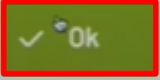
The following rating scale is from the Royal College of Radiologists (RCR) UK.

The recommendations are designated as follows:

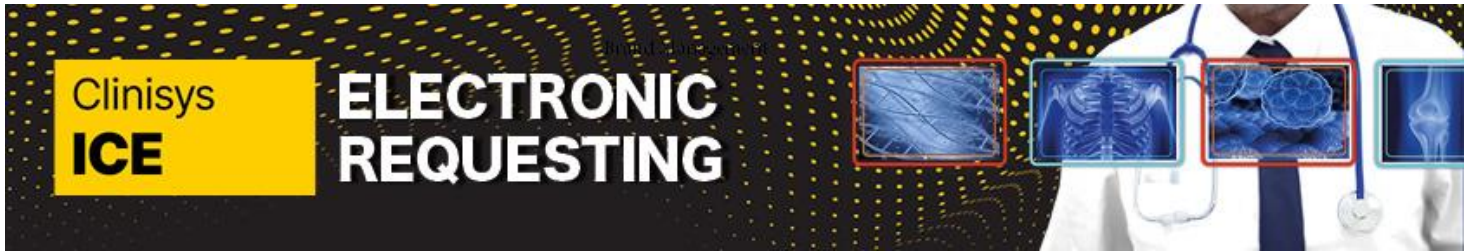
|                                                                                |                                                                                                                                                                                                                                                                                                               |
|--------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>APPROPRIATENESS</div> <div>Indicated</div>                                | Investigations most likely to contribute to clinical diagnosis and management.                                                                                                                                                                                                                                |
| <div>APPROPRIATENESS</div> <div>Specialised Investigation</div>                | Specialised investigations are frequently complex, time-consuming and/or resource-intensive. They usually only be undertaken after discussion with the radiologist or according to locally agreed protocols.                                                                                                  |
| <div>APPROPRIATENESS</div> <div>Indicated Only in Specific Circumstances</div> | Non-routine investigations, usually only undertaken if a clinician provides cogent reasons. A radiologist believes the examination represents an appropriate means of furthering the management of the patient. With certain clinical problems which may resolve with time or correct to defer investigation. |
| <div>APPROPRIATENESS</div> <div>Not Indicated</div>                            | Investigations for which the proposed rationale is no longer appropriate.                                                                                                                                                                                                                                     |
| <div>Unscored Procedure</div> <div>?</div>                                     | No score has been defined for this procedure for the patient's condition.                                                                                                                                                                                                                                     |

#### Levels of Classification of Evidence



|                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Scroll down the screen to find levels of evidence information</p>    | <p>the supporting evidence base rather than the importance of these recommendations to the clinical problem address</p> <p><b>[A]</b><br/>Any of the following:</p> <ul style="list-style-type: none"> <li>• High-quality diagnostic studies in which a new test is independently and blindly compared with a reference standard in an appropriate spectrum of patients</li> <li>• Systematic review and meta-analyses of such high-quality studies</li> </ul> <p><b>[B]</b><br/>Any of the following:</p> <ul style="list-style-type: none"> <li>• Studies with a blind and independent comparison of the new test with the reference standard in a set of non-confined to a narrow spectrum of patients</li> <li>• Studies in which the reference standard was not applied to all patients</li> <li>• Systematic reviews of such studies</li> </ul> <p><b>[C]</b><br/>Any of the following:</p> <ul style="list-style-type: none"> <li>• Studies in which the reference standard was not objective</li> <li>• Studies in which the comparison of the new test with the reference standard was not blind or independent</li> <li>• Studies in which positive and negative test results were verified using different reference standards</li> <li>• Expert opinion</li> </ul> <p>In some clinical situations there are conflicting data within a large body of excellent scientific reports. Thus, no firm recommendations are given and the evidence is graded C. It should be noted that there are very few randomised, controlled trials that evaluate radiological procedures – they are difficult to perform and ethical approval may be denied. Assignment of evidence levels of recommendations differs somewhat from those proposed by the Grading of Recommendations Assessment, Development and Evaluation GRADE Working Group as supporting evidence is generally not from therapeutic studies but from diagnostic studies which a Thornbury hierarchy may be more relevant.</p> <p>✓ Ok</p> |
| <p>Click the <b>X</b> or <b>Ok</b> to return to the previous screen</p> | <p> </p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

Levels of Radiation



Click the ? icon for information on radiation levels and IRMER guidance

### Meaning Of Radiations

#### What are the Radiation Levels?

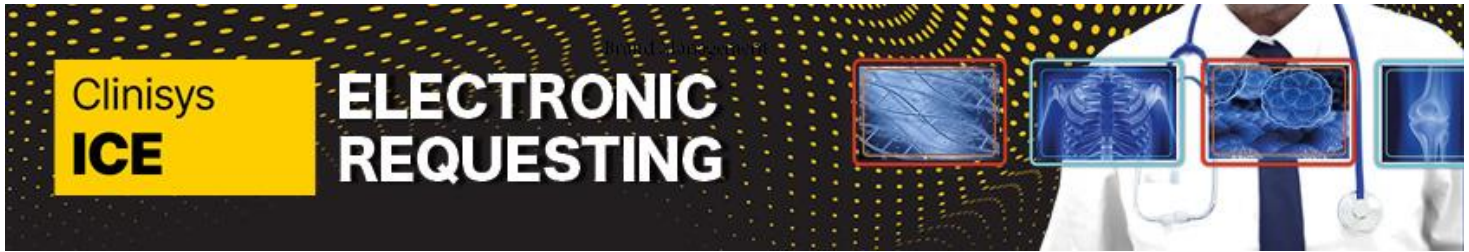
The use of radiological investigations is an accepted part of medical practice justified in terms of clear clinical benefits to the patient, which should far outweigh the small radiation risks. However, even small radiation doses are not entirely without risk. A small fraction of the genetic mutations and malignant diseases that occur in the population can be attributed to background radiation. Diagnostic medical exposures – the major source of man-made radiation – account for one-sixth of the total population dose.

The Ionising Radiation (Medical Exposure) Regulations 2000 and 2006 (IR(ME)R) impose a responsibility on imaging departments to ensure that all exposures to ionising radiation are justified, and that doses are optimised. Organisations and individuals using ionising radiation must comply with these regulations. One important means of reducing the radiation dose is to avoid undertaking procedures unnecessarily (especially repeat examinations). IR(ME)R also introduces the concept of diagnostic reference levels (DRLs). These levels are based on dose data for a range of commonly requested procedures collected from a large number of UK departments, and are regularly updated. IR(ME)R requires all departments to set local DRLs for a range of standard examinations, and monitoring of performance against these levels is an important component of dose optimisation. Guidance on the establishment and use of DRLs has been drawn up by a multi-professional group, including the RCR.

The effective dose for a radiological investigation is the weighted sum of the doses to a number of body tissues, where the weighting factor for each tissue depends on its relative sensitivity to radiation-induced cancer or severe hereditary effects. It thus provides a single dose estimate related to the total radiation risk, based on the dose distribution within the body.

In these RCR UK referral guidelines, the doses have been grouped into broad bands to help the referrer understand the order of magnitude of radiation dose of the various investigations.

| BAND CLASSIFICATION OF TYPICAL DOSES OF IONISING RADIATION FROM COMMON IMAGING PROCEDURES               |                               |            |                                                     |
|---------------------------------------------------------------------------------------------------------|-------------------------------|------------|-----------------------------------------------------|
| Symbol                                                                                                  | Typical Effective Dose (mSv)* | Examples   | Lifetime Additional Risk of Cancer Induction / Exam |
| <div><div>Radiation Level</div><div><div></div><div></div><div></div><div></div><div></div></div></div> | 0                             | US;<br>MRI | 0                                                   |



Scroll down the screen to view examples of the radiation levels

| Symbol | Typical Effective Dose (mSv)* | Examples                                                | Lifetime Additional Risk of Cancer Induction / Exam |
|--------|-------------------------------|---------------------------------------------------------|-----------------------------------------------------|
|        | 0                             | US; MRI                                                 | 0                                                   |
|        | <1                            | CXR; XR limb, pelvis, lumbar spine; mammography         | <1:20,000                                           |
|        | 1-5                           | IVU; NM (eg, bone); CT head and neck                    | 1: 20,000-1:4,000                                   |
|        | 5.1-10                        | CT chest or abdomen; NM (eg, cardiac)                   | 1: 4,000-1: 2,000                                   |
|        | >10                           | Extensive CT studies, some NM studies (eg, some PET-CT) | >1: 2,000                                           |

\*The average annual background dose in most parts of Europe falls within the 1-5 mSv range. Cancer risks from radiation vary considerably with age and sex, with higher risks in infants and females. Cancer risk indicated in this table is averaged for adults. As risks for children are higher, the examinations indicated may need to be moved to higher risk band; ie, CT head and neck for a child may move to the Band categorised within the 5.1-10 mSv range. This should be taken in the context of the considerably higher 1 in 2 average lifetime risk for cancer induction and must be balanced against the benefit of the investigation.

✓ Ok

### Advice

The advice text provides information on why an investigation may or may not be appropriate. Click 'read more' to view the full text.

**CT Head**

APPROPRIATENESS  
Specialised Investigation

Radiation Level

Recommendation Grade [B]. CT is useful for the acute assessment of seizure disorder when the clinical presentation is of an acute neurological illness, and also when immediate MRI is not feasible; eg, when general anaesthesia is required. CT may complement MRI in the characterisation of lesions - eg, calcification. < READ LESS

**RECOMMENDATIONS**

**MR Head**

APPROPRIATENESS  
Indicated

Radiation Level

Recommendation Grade [B]. MRI is the best investigation, but is of little value in idiopathic generalised epilepsy. All adult patients with first seizure/fit... > READ MORE

**NM SPECT Head**

APPROPRIATENESS  
Specialised Investigation

Radiation Level

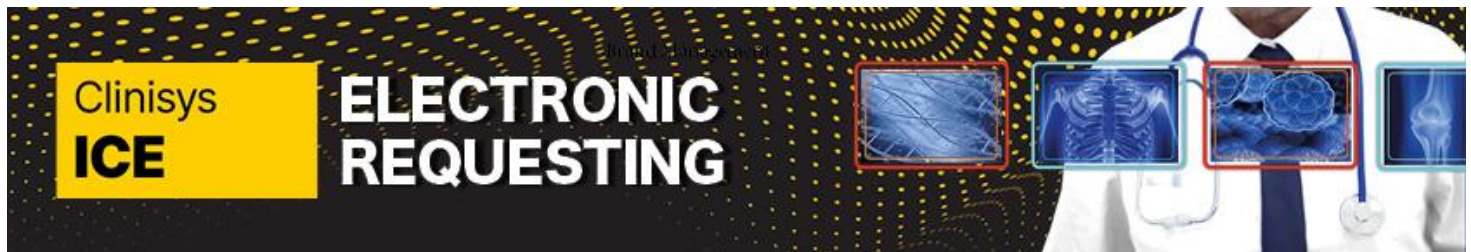
Recommendation Grade [B]. Ictal regional cerebral blood flow SPECT or inter-ictal FDG-PET is useful in the planning of epilepsy surgery when MRI is negative or... > READ MORE

SUBMIT ORDER >

iRefer logo

Quick Reference Guide\_7\_ V1\_ iRefer CDS for Training, for use by Kent and Medway Pathology and Radiology Networks  
 Prepared by: Donna Payne IT & Applications Trainer Kent Community Health NHS Foundation Trust  
 Date of Preparation: May 2025  
 Date of Review: May 2026

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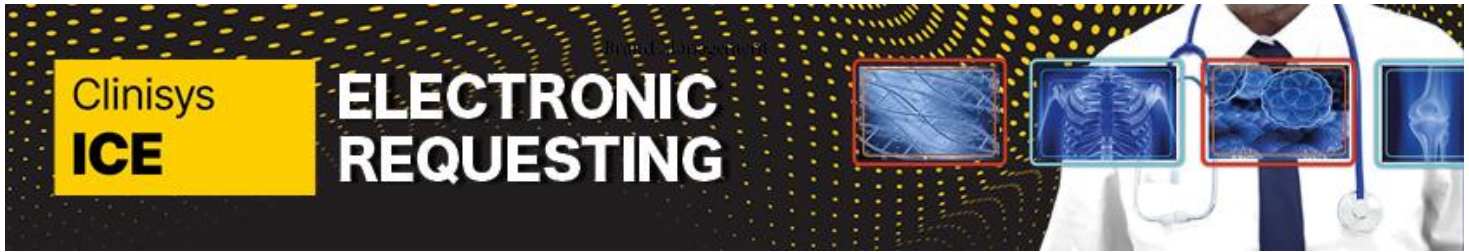


Clicking on the **iRefer** logo will provide you with source guidelines for that symptom in PDF format, which you can save to your device if needed.

### Confirm, change or cancel based on guidance

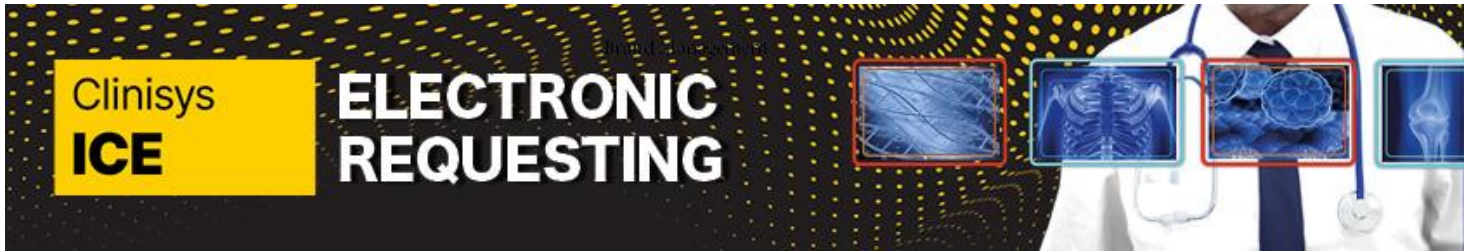
Note: The system will not prevent you from proceeding with your original request.

To choose the recommended investigation, click **'SUBMIT ORDER'**.



By placing a tick in the original request box, you can continue with the original request. Once selected click '**SUBMIT ORDER**'.

Where the Appropriateness score is red 'Not indicated' you are able to **Cancel Request** using the red button. Despite the recommendations shown as: **Appropriateness - Not Indicated** – Red, the system will not prevent you from proceeding with your original request by selecting the request and clicking '**SUBMIT ORDER**'



|                                                                                                                                                                                                                                                                                                                                                                |  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
|                                                                                                                                                                                                                                                                                                                                                                |  |
| <p>For training purposes, you can also modify the symptomatology by cancelling the selection (press 'x' on the top right, as in the screenshot) and choose new symptoms.</p>                                                                                                                                                                                   |  |
| <p>After submitting your order, you will be redirected to ICE, where the requested investigation will be updated to "recommended investigation requested." ONLY proceed to complete the order as usual within the ICE system if you wish to request the test from Radiology. If a request is placed in error, please see the QRG for cancelling a request.</p> |  |