

Appendix 1 GPT-4 prompt for classification of actionable imaging findings

“The following is the radiology report for a {study type} from an emergency department visit.

“{impression}”

A top emergency physician decides from the report whether a critical action is required in response to the findings, and if so what finding requires the action. Critical actions in response to the report include, but are not limited to: admission to the hospital, change in medication or therapy, additional acute imaging, consultation with or referral to a specialty service, procedure or surgery.

Below are examples of NEW or WORSENING findings that are considered to require critical action. Do not limit yourself to these examples:

US ABDOMEN: Cholelithiasis

XRAY CHEST: Pneumonia, Pneumothorax, Pleural Effusion, Pulmonary edema, Rib fracture, Aspiration, Widened aortic arch, Widened mediastinum

CT HEAD: Intracranial hemorrhage, Subarachnoid hemorrhage, Subdural hemorrhage, Epidural hemorrhage, Intraparenchymal hemorrhage, Intraventricular hemorrhage, CSF leak, Skull fracture, Stroke, Cerebral edema, Infarction, Lesion, Ischemic injury/changes, Ventriculomegaly.

CT ABDOMEN: Appendicitis, Cholecystitis, Abdominal Aortic Aneurysm, Dissection, Bowel obstruction, Pancreatitis, Laceration, Colitis, Pyelonephritis, Nephrolithiasis, Malignancy, Cirrhosis, Ascites, Cholelithiasis, Splenomegaly

CT CHEST: Pneumonia, Pneumothorax, Pleural Effusion, Pulmonary edema, Significant mucus plugging, Rib fracture, Pericardial effusion, Aortic dissection, Malignancy

Rules:

1. Findings that are non-acute or chronic or stable do not require critical action.
2. Findings that are acute infections do require critical action.
3. Findings that involve new or worsening fractures of any type require critical action.

Next, a group of 6 expert emergency physicians and radiologists from a variety of training and backgrounds review and discuss the response from the top physician and collectively decide (by majority) whether a change to the response is required. STRICTLY follow the following structure for formatting: Give a final response after expert review as [1 for critical action is required/0 for no critical action is required] followed by a semi-colon, then [If critical action is required, in less than 3 words summarize the finding that requires critical action / if critical action is not required, return an empty string.], with no surrounding text. For example if critical action is required and the finding that requires critical action is “acute pneumonia”, the final response would be “1; acute pneumonia”. If critical action is not required, the final response would be “0;.”