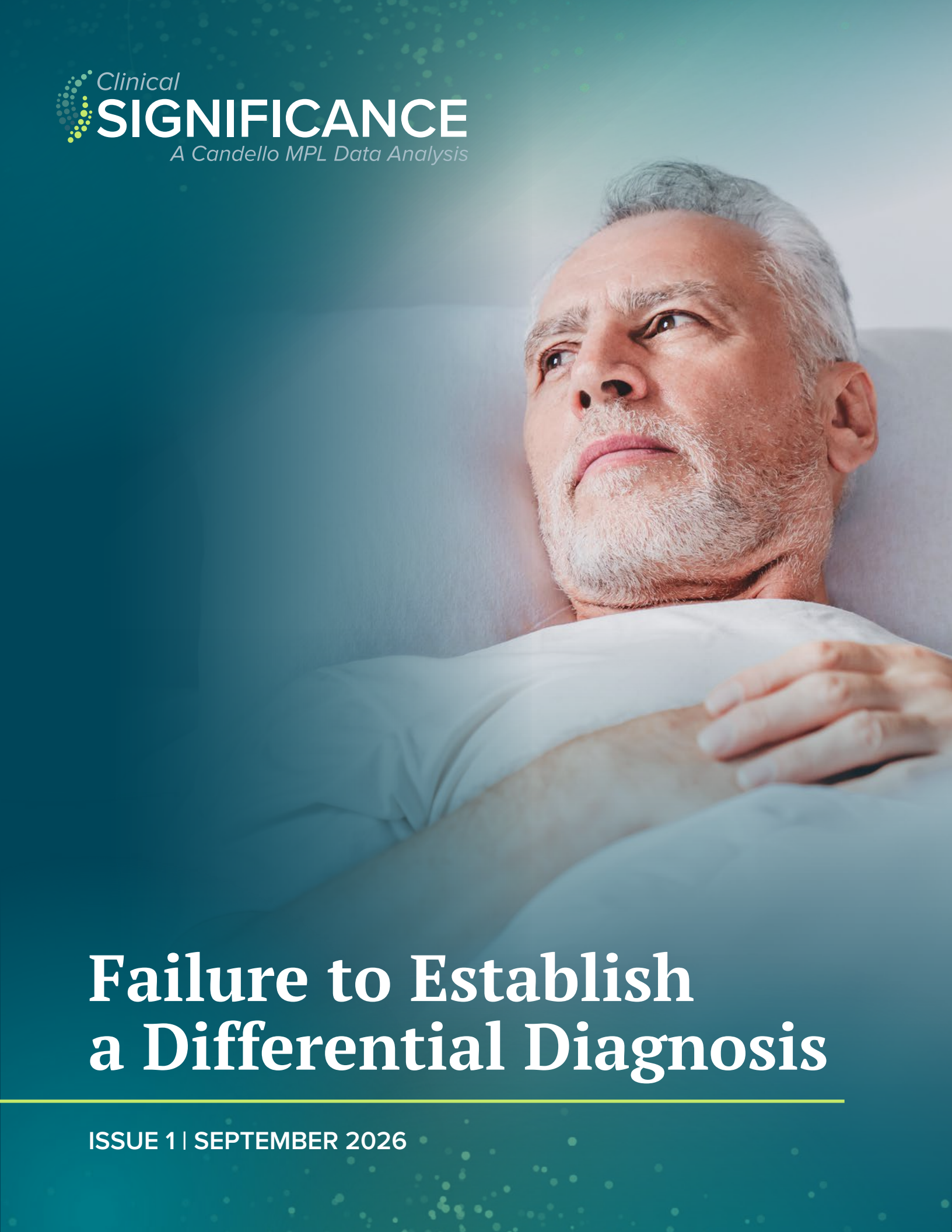




Failure to Establish a Differential Diagnosis

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Introduction

A 65-year-old man underwent cardiac catheterization and developed worsening right hand pain, numbness, and swelling with early signs of vascular compromise. Despite persistent symptoms, his condition was not adequately reassessed, and evolving complications were not incorporated into the differential diagnosis. Compartment syndrome was ultimately recognized only after significant progression, requiring emergent fasciotomy and additional procedures. The delayed diagnosis resulted in permanent functional impairment and a settled claim.

A 28-year-old woman presented to a small emergency department with severe headache, vomiting, facial droop, and slurred speech. Although initially documented as possible stroke symptoms, no formal stroke evaluation was completed, an inconclusive CT scan was not repeated, and she was diagnosed with Bell's palsy without adequately considering stroke in the differential diagnosis. She returned days later with worsening deficits and was diagnosed with a right middle cerebral artery stroke, outside the treatment window for thrombolysis, resulting in preventable neurological injury.

Diagnostic errors remain one of the leading drivers of patient harm and medical professional liability (MPL) claims. While these events encompass a range of breakdowns in the diagnostic process, one important contributing factor is the failure to establish an appropriate differential diagnosis. This issue of Clinical Significance examines closed MPL cases in which the failure to establish a differential diagnosis was identified as the **primary driver**, meaning it was determined to be the principal contributing factor that most directly led to the adverse event and resulting injury.

Primary Drivers are the key contributing factors identified by Candello clinical coders as the principal catalysts of the adverse event leading to patient injury or alleged negligence. Focusing on these factors helps pinpoint where system-level improvements may have the greatest impact.¹

Between 2021 and 2025, this contributing factor was present in approximately **6% of closed cases** in the Candello database, representing **1,466 claims** and more than **\$751 million** in total incurred losses. Although relatively uncommon, these cases frequently resulted in death or high-severity injury, demonstrating the substantial clinical and financial impact of diagnostic failures.

Diagnostic errors are often attributed to cognitive biases such as anchoring or relying too heavily on initial information or findings. However, growing evidence suggests these errors more commonly arise through an interaction between clinical reasoning and the healthcare systems in which clinicians practice. Communication breakdowns, fragmented care, time pressures, and delays in testing or consultation can all influence diagnostic decision-making and increase the likelihood that alternative diagnoses are not adequately considered or revisited.²

The findings from this analysis reinforce that the failure to establish a differential diagnosis rarely reflected a single missed clinical decision. Instead, these cases commonly involved failures to reconcile evolving signs, symptoms, or test results, delays in diagnostic testing or specialty consultation, and missed opportunities to reassess patients whose clinical course did not follow expectations. Together, these trends suggest that improving diagnostic safety requires not only sound clinical reasoning but also healthcare systems that support timely reassessment, communication, and diagnostic flexibility as new information becomes available.

1. Primary drivers were introduced to the Candello taxonomy starting in 2021.

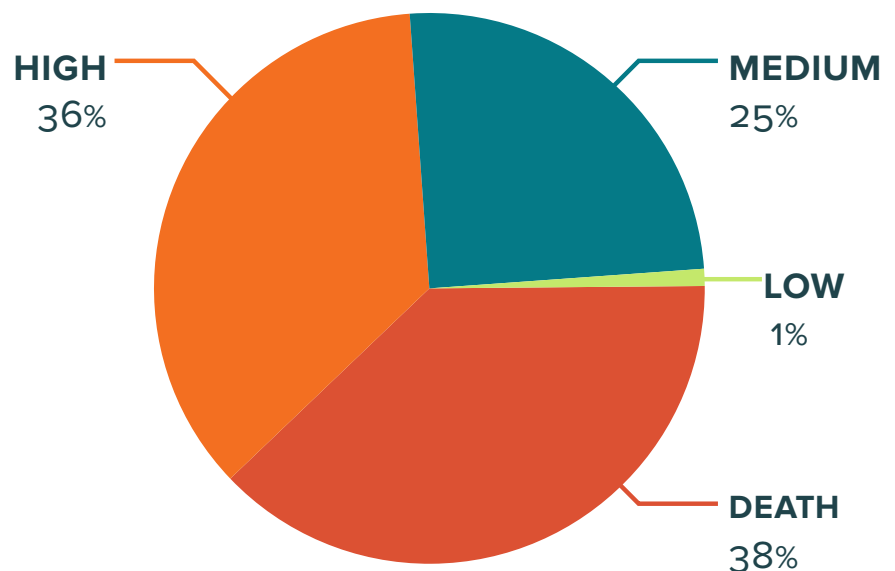
2. Gupta A, Harrod M, Quinn M, et al. Mind the overlap: how system problems contribute to cognitive failure and diagnostic errors. *Diagnosis (Berl)*. 2018;5(3):151-156. doi:10.1515/dx-2018-0014

What Our Data Shows

This analysis includes 1,466 closed cases (2021–2025) in which failure to establish a differential diagnosis was identified as the primary driver. An additional 543 cases included this contributing factor but not as the primary driver and were excluded from this analysis. These cases resulted in more than \$751 million in total incurred losses, including \$590 million in indemnity payments. Patient harm was frequently catastrophic, with **38%** of cases resulting in death and **36%** resulting in high-severity injury.

Clinical Severity

2015 -2025



*Patient harm was frequently catastrophic, with **38%** of cases resulting in death and **36%** resulting in high-severity injury.*

Similar to Candello cases overall, diagnosis-related issues accounted for the largest share of major allegations (79%), followed by improper management of a surgical patient (12%).

MAJOR ALLEGATION	% OF CASES	% OF ALL CANDELLO
Diagnosis-Related	79%	74%
Improper Mgmt of Surgical Patient	12%	11%
Improper Mgmt of Medical Treatment	4%	4%
Improper Performance of Surgery	3%	3%
Improper Mgmt of Medical Procedural PT	2%	2%

The most common final diagnoses were procedure-related complications (33%), infection following a procedure (18%), cerebral infarction (17%), pulmonary embolism (17%), and sepsis (15%).

FINAL DIAGNOSIS	% OF CASES	% OF ALL CANDELLO
Complications, Procedures, Nec	33%	5%
Infection Following Procedure	18%	2%
Cerebral Infarction	17%	2%
Pulmonary Embolism	17%	2%
Sepsis Other/Unspecified	15%	2%

The primary responsible services most frequently involved were Emergency Medicine (37%), Internal Medicine (25%), and Family Medicine (15%).

PRIMARY RESPONSIBLE SERVICE	% OF CASES	% OF ALL CANDELLO
Emergency	37%	18%
Internal Medicine	25%	12%
Family Medicine	15%	7%
Orthopedic	14%	7%
Radiology	10%	5%

Why It Goes Wrong

The failure to establish a differential diagnosis rarely occurred as an isolated event. Instead, these cases commonly involved additional breakdowns that reinforced diagnostic narrowing and reduced opportunities to identify alternative explanations for a patient's condition. The most frequent co-occurring contributing factor was failure to appreciate and reconcile relevant signs, symptoms, or test results, which appeared in **56%** of cases.

Failure or delay in ordering diagnostic tests (**41%**) and failure or delay in obtaining specialty consultation or referral (**19%**) were also common. Together, these findings indicate that clinicians often had access to important clinical information but did not fully integrate evolving findings into ongoing diagnostic decision-making. As a result, opportunities to broaden or revise the working diagnosis were frequently missed.

TOP CO-OCCURRING CONTRIBUTING FACTORS

ADVANCED CONTRIBUTING FACTOR	% OF CASES
Failure to appreciate/reconcile relevant signs, symptoms, test results	56%
Failure or delay in ordering a diagnostic test	41%
Failure or delay in obtaining a consult or referral	19%
Misinterpretation of diagnostic studies (X-rays, slides, etc.)	14%
Incorrect selection or management of surgical or invasive procedures	14%
Incorrect selection or management of medical therapy	13%
Inadequate assessment of patient history & physical	13%
Premature patient discharge	10%
Inadequate response to patient's repeated concerns or symptoms	8%
Communication failures among providers regarding the patient's condition	7%

The analysis also highlights the relationship between cognitive vulnerabilities and healthcare system processes. Contributing factors such as inadequate history-taking or physical examination (**13%**), premature discharge (**10%**), and failure to respond appropriately to repeated patient concerns or symptoms (**8%**) reflect missed opportunities to recognize when a patient's clinical course was inconsistent with the initial diagnosis. At the same time, delays in testing, consultation, and follow-up suggest opportunities to strengthen organizational processes that support diagnostic reassessment rather than relying solely on individual clinical judgment.



Many patients in this cohort also presented with common chronic conditions, including obesity, hypertension, cardiovascular disease, diabetes, and smoking history. These comorbidities can complicate clinical presentations and increase diagnostic uncertainty.

Diagnostic Challenges Across the Surgical Continuum

Although diagnosis-related allegations dominated this cohort, improper management of a surgical patient was the second most common allegation, accounting for **12%** of cases. Procedure-related complications also represented the most common final diagnosis, occurring in one-third of cases. These numbers suggest that maintaining an appropriate differential diagnosis remains important throughout perioperative and postoperative care, and not just during the initial diagnostic evaluation.

Following surgery or an invasive procedure, symptoms such as pain, fever, neurologic changes, respiratory distress, or abnormal laboratory findings may be attributed to the expected postoperative course rather than prompting consideration of alternative diagnoses. When clinicians fail to reassess these assumptions as new information emerges, serious complications, such as infection, pulmonary embolism, stroke, sepsis, or other procedure-related adverse events, may not be recognized until significant harm has occurred.

This reinforces the importance of maintaining diagnostic flexibility across the continuum of surgical care. Structured postoperative reassessment, escalation pathways for concerning findings, multidisciplinary communication, and periodic diagnostic “time-outs” may help reduce anchoring bias and improve recognition of evolving complications.³

3. Yale S, Cohen S, Bordini BJ. Diagnostic Time-Outs to Improve Diagnosis. Crit Care Clin. 2022;38(2):185-194. doi:10.1016/j.ccc.2021.11.008

Financial Impact

The financial data demonstrate the substantial liability exposure associated with failures to establish a differential diagnosis. Diagnosis-related allegations generated indemnity payments in 60% of cases, with average payments approaching \$675,000. Cases involving improper management of a surgical patient resulted in indemnity payments in more than two-thirds of claims.

AVERAGE TOTAL PAID* BY CLOSE YEAR



*Total paid amount includes indemnity and defense expenses.

Although Family Medicine, Internal Medicine, and Emergency Medicine were the primary responsible services most frequently associated with these cases, surgical allegations had the highest likelihood to pay. This distinction likely reflects differences in where diagnostic failures occur within the patient's care journey.



Physicians in emergency and primary care settings are often responsible for the initial diagnostic evaluation and, therefore, are more frequently identified as the primary responsible service. In contrast, surgical teams are less commonly the primary responsible service in this cohort, but when failures to establish or revisit a differential diagnosis occur during perioperative or postoperative care, they may delay recognition of serious complications such as infection, hemorrhage, vascular compromise, or pulmonary embolism. Diagnostic failures occurring in surgical patients may tend to be more expensive because they often involve complications that progress to severe injury before they are recognized.

MAJOR ALLEGATION	% INDEMNITY PAID	AVG. INDEMNITY	AVG. EXPENSES
improper Management of a Surgical Patient	68%	\$487,176	\$121,823
Diagnosis-Related (Failure, Delay, Wrong)	60%	\$674,978	\$115,622

PRIMARY RESPONSIBLE SERVICE	% INDEMNITY PAID	AVG. INDEMNITY	AVG. EXPENSES
Family Medicine	78%	\$564,073	\$88,135
Internal Medicine	65%	\$617,416	\$115,046
Emergency	45%	\$716,524	\$108,178

FINAL DIAGNOSIS	% INDEMNITY PAID	AVG. INDEMNITY	AVG. EXPENSES
Various procedure complications	77%	\$755,171	\$107,752
Malignant neoplasm in breast	75%	\$1,168,000	\$81,378
Cerebral Infarction	63%	\$1,323,523	\$173,769

Discussion

This analysis demonstrates that failure to establish a differential diagnosis is best understood as an early breakdown in the diagnostic process rather than an isolated clinical error. Because this analysis focuses on cases in which failure to establish a differential diagnosis was identified as the primary driver, the findings represent situations in which diagnostic reasoning was determined to be the principal contributing factor to the adverse event, rather than simply one of several contributing circumstances.

Once diagnostic reasoning narrows prematurely, subsequent decisions, including diagnostic testing, specialty consultation, interpretation of new clinical information, and patient follow-up, may reinforce the initial impression instead of challenging it. The frequent co-occurrence of other contributing factors indicates that diagnostic error often reflects broader vulnerabilities in healthcare systems rather than individual clinician performance alone.



For healthcare organizations, these findings highlight opportunities to strengthen systems that support diagnostic flexibility throughout the patient's care journey. More than half of cases involved failures to reconcile evolving signs, symptoms, or test results, while delays in testing and consultation were also common. These patterns suggest opportunities to improve processes that ensure abnormal findings are reviewed and acted upon, facilitate timely access to specialty expertise, and create reliable mechanisms for reassessing unresolved clinical concerns.

The clinical severity and financial consequences observed in this cohort further demonstrate that diagnostic safety is both a patient safety priority and a risk management imperative. Investments in systems that support reassessment, communication, follow-up, and multidisciplinary collaboration may help reduce diagnostic error while improving patient outcomes and limiting exposure to high-severity malpractice claims.



Key Interventions

Reducing failures to establish a differential diagnosis requires healthcare systems that actively support reassessment throughout the diagnostic process rather than relying solely on individual clinical vigilance. Collectively, these interventions emphasize creating reliable systems that support clinicians in recognizing, communicating, and acting on new information throughout the diagnostic process. Strengthening this diagnostic safety infrastructure may improve patient outcomes while reducing exposure to high-severity medical malpractice claims.

STRENGTHEN CLOSED-LOOP MANAGEMENT OF DIAGNOSTIC TEST RESULTS

Ensure abnormal laboratory, imaging, and pathology findings are communicated, acknowledged, tracked, and reconciled across the care team.

DEVELOP AMBULATORY DIAGNOSTIC SAFETY NETS

Structured follow-up systems can identify unresolved abnormal findings, incomplete diagnostic evaluations, and missed referrals before patient harm occurs.

BUILD DIAGNOSTIC REASSESSMENT INTO CLINICAL WORKFLOWS

Diagnostic time-outs, differential diagnosis checklists, and structured reassessment tools can help clinicians revisit initial assumptions when patients fail to improve as expected.

IMPROVE CONSULTATION AND REFERRAL PROCESSES

Standardized tracking, clear accountability, and escalation pathways can reduce delays in specialty evaluation and completion of diagnostic workups.

LEVERAGE CLINICAL DECISION SUPPORT TECHNOLOGIES

Evidence-based decision support, EHR alerts, and diagnostic prompts can help clinicians recognize evolving clinical findings and reduce the risk of premature diagnostic closure.



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