

Communication Failures at Emergency Department Transitions: Implications for Diagnostic Safety and Continuity of Care — A Narrative Review

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Abstract

Emergency departments (EDs) depend on rapid information exchange between emergency medical services, physicians, nurses, consultants, diagnostic services, inpatient teams, primary-care services, and patients. Communication failures at these interfaces can disconnect responsibility for clinical information, pending tests, abnormal results, diagnostic uncertainty, and follow-up. This narrative review synthesizes contemporary evidence on communication failures across ED transitions and their implications for diagnostic safety and continuity of care. A targeted search of PubMed and reference lists was undertaken for English-language publications on ED handoff, interprofessional communication, diagnostic error, diagnostic delay, pending test results, and transition of care. The evidence identifies recurrent vulnerabilities: incomplete transfer of clinical context, ambiguity about responsibility, ineffective escalation, poor integration of imaging and laboratory information, and weak closed-loop follow-up after discharge. Structured handoff formats, receiver-driven communication, electronic templates, visual prompts, and explicit assignment of result ownership appear to improve communication processes; however, direct evidence linking these interventions to diagnostic-error reduction remains limited and heterogeneous. ED safety strategies should therefore treat communication as a diagnostic-safety function, rather than as an administrative task. Practical priorities include standardizing critical content, documenting pending tests and diagnostic uncertainty, using closed-loop confirmation for high-risk information, and ensuring that every transition has a named owner for follow-up.

Keywords: emergency department; patient handoff; interprofessional communication; diagnostic safety; diagnostic delay; test-result follow-up; continuity of care.

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1. Introduction

Emergency care is organized around transitions. Patients may move from emergency medical services to an ED, between clinicians at shift change, from an ED to an inpatient service, or home with investigations still pending. Each transition redistributes both information and responsibility.

When either is lost, the diagnostic process can be delayed, repeated, or prematurely closed. The National Academies defines diagnostic error broadly as failure to establish an accurate and timely explanation of a patient's health problem or to communicate that explanation to the patient. This definition makes communication central to diagnostic safety, not peripheral to it [1].

The ED is particularly exposed to communication risk because clinical teams work under time pressure, manage multiple competing tasks, and rely on distributed diagnostic services. Handoffs can omit uncertainty, a differential diagnosis, red flags, test status, or a clear plan for reviewing results. These failures may be magnified during crowding, frequent interruptions, high workload, and transitions across organizational boundaries [2,3].

The purpose of this review is to integrate evidence on communication failures at ED transitions, describe their effects on diagnostic safety and continuity, and identify practical approaches that can be adapted by emergency-care organizations. It is a narrative review, not a systematic review or meta-analysis; its objective is critical synthesis and practice-oriented interpretation of reliable published evidence.

2. Methods

A targeted narrative review was conducted using PubMed and backward citation searching. Search concepts included emergency department, emergency service, handoff, transition of care, interprofessional communication, diagnostic error, diagnostic delay, pending test results, discharge, consultation, and patient safety. Priority was given to systematic reviews, peer-reviewed original research, quality-improvement studies with clearly described interventions, and authoritative reports. Literature was selected for relevance to ED-linked transitions and diagnostic-process implications; no quantitative pooling was attempted because of substantial heterogeneity in settings, intervention components, and outcome definitions.

3. Communication as a diagnostic-safety function

Diagnostic work requires information to remain intelligible as it crosses professional and organizational boundaries. A receiving clinician needs more than a list of completed actions: the diagnostic question, level of uncertainty, pending investigations, time-critical risks, and next responsible person must be visible. In the absence of this information, the receiving team may reasonably assume that a result has been reviewed or that another professional owns follow-up. Such ambiguity is a predictable systems risk.

Evidence on diagnostic error in emergency care shows that missed or delayed diagnoses are not solely cognitive events. They frequently reflect failures in test performance or interpretation, tracking and follow-up, referral, and communication of evolving clinical information [1,4]. Imaging is a clear example: emergency imaging errors can arise from incomplete histories, time pressure, concurrent tasks, interpretation challenges, and inadequate communication between clinicians and diagnostic services [5].

4. High-risk transition points

Transition	Communication vulnerability	Potential diagnostic consequence
EMS to ED	Critical prehospital observations may be abbreviated, interrupted, or not integrated into the record.	Loss of time course, treatment response, mechanism, or red flags that should alter diagnostic prioritization.
Within-ED shift handoff	Pending tests, uncertainty, reassessment triggers, and contingency plans may not be transferred.	Delayed review of results, duplicated testing, failure to recognize deterioration, or premature closure.
ED to inpatient service	Different mental models and fragmented documentation can obscure what has been ruled out, what remains uncertain, and who owns unresolved tasks.	Delayed diagnostic escalation or unaddressed abnormal results after admission.
ED discharge to primary care/patient	Discharge information may not communicate pending results, diagnostic uncertainty, return precautions, or follow-up ownership.	Missed action on actionable results, delayed diagnosis, and avoidable return visits.
ED to diagnostic	Requests may lack relevant clinical context; results may	Delayed or incorrect interpretation

services	not be routed, acknowledged, or escalated effectively.	and missed communication of critical findings.
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4.1 Prehospital-to-ED handoff

The transfer from emergency medical services to the ED is often brief and interruption-prone. Quantitative observation of EMS handoffs has shown that the information transferred varies substantially across cases, supporting the concern that clinically important details can be lost at the boundary between prehospital and hospital care [6]. Standardized verbal structures, a quiet handoff zone when feasible, and documentation that preserves the EMS narrative can reduce reliance on memory alone. The critical principle is that the ED team must receive not only the patient's current state but also the trajectory and response to prehospital treatment.

4.2 Intra-ED handoff

Shift handoff can introduce new risk when a patient's diagnostic process is incomplete. In a study of verbal physician communication, case complexity and uncertainty influenced the content transferred, indicating that the cases most in need of rich discussion may also be hardest to communicate succinctly [7]. Structured tools such as I-PASS are designed to prompt illness severity, patient summary, action list, situation awareness/contingency planning, and receiver synthesis. ED implementation studies have reported improved use of structured content and perceived handoff quality, but outcome measures are often process-based rather than diagnostic-error endpoints [8].

4.3 ED-to-inpatient handoff

Admission transfer is vulnerable to discontinuity because the ED and inpatient teams may have different time horizons and documentation practices. A systematic review of standardized ED-to-inpatient handoffs found improvements in safety perceptions and communication-related processes, while also highlighting limited consistency in clinical outcome measures [9]. A novel admission-handoff strategy similarly improved perceived verbal handoff quality and physician communication, showing that workflow design can alter information transfer [10]. The remaining challenge is to connect better handoff content to explicit ownership of outstanding diagnostic tasks.

4.4 ED discharge and primary-care transition

Discharge does not end the diagnostic process when cultures, final radiology reports, or other tests are pending. Tests pending at discharge can return potentially actionable results, and failures to follow them up can produce patient harm [11]. In an ED-to-

primary-care quality-improvement project for low-risk chest-pain patients, an electronic written plan improved follow-up after discharge, illustrating how a shared, durable communication record can support diagnostic continuity [12]. Contemporary work on ED pending results continues to identify practical barriers, including unsuccessful patient contact and uncertainty over who should communicate results [13].

5. Recurrent failure modes

5.1 Missing clinical context

Diagnostic services and receiving teams need the question behind the test or referral. When an imaging request lacks adequate history, interpretation can be less focused and urgent findings may be harder to contextualize. Emergency imaging literature emphasizes that incomplete histories, time pressure, and concurrent tasks create conditions in which interpretation errors become more likely [5]. Clinical context should therefore be considered a required diagnostic data element rather than optional narrative.

5.2 Ambiguous ownership

A pending result is unsafe when responsibility is assumed rather than assigned. Clear ownership means naming who will review the result, when it will be reviewed, how the patient will be contacted if action is needed, and what escalation route applies if the responsible clinician is unavailable. Systematic review evidence on follow-up interventions supports the use of structured processes, but no single technical solution substitutes for accountable ownership [11].

5.3 Failure to communicate uncertainty

A diagnosis at ED disposition may be provisional. Handoffs that report only the working label can conceal uncertainty and reduce vigilance for alternative explanations. Effective communication should preserve unresolved questions, pending differential diagnoses, and clinical triggers that require reassessment. This is particularly important when symptoms evolve after a change of team or setting.

5.4 Closed-loop failure

Communication is incomplete until the receiver acknowledges, interprets, and acts on the information. Closed-loop methods—read-back, receiver summary, electronic acknowledgment, and escalation of unacknowledged critical results—make this visible. Visual cues and standardized accept notes have been used to strengthen ED-to-inpatient handoffs, reporting improvements in communication process measures [14,15].

6. Evidence-informed interventions

Intervention	How it addresses	Implementation caution
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	risk	
Structured handoff format (e.g., I-PASS/SBAR)	Prompts key content, contingency plans, and receiver synthesis.	Avoid turning the handoff into a checklist recital; preserve diagnostic uncertainty and prioritization.
Receiver-driven handoff	Makes the receiving team actively obtain and confirm needed information.	Requires protected time and clear workflow ownership.
Electronic handoff/discharge template	Creates a durable record of pending tests, follow-up needs, and responsible clinician.	Templates must integrate into routine documentation; duplicate systems create new omissions.
Closed-loop communication	Confirms receipt and understanding of critical information.	Define which results and scenarios require escalation, not just acknowledgment.
Result-tracking process	Links pending results to review, patient contact, and documented action.	Assign a named owner and backup pathway for absences or failed contact.
Audit and feedback	Identifies missing content and	Measure clinically meaningful

	supports sustained uptake.	items, not mere template completion.
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Receiver-driven handoffs have shown improved communication quality in clinic-to-ED transfers, and structured ED tools have been associated with better completeness and handoff process performance [16,8]. Electronic tools can help when they make responsibility, test status, and follow-up actions visible to both sending and receiving teams. However, technology can also create false reassurance if a result is documented as available but no person is accountable for reviewing it.

7. Implications for practice

- Treat every handoff as a diagnostic transition, not merely a transfer of location or workload.
- Require a concise statement of the working diagnosis, key uncertainty, pending tests, and action triggers for patients whose workup is incomplete.
- Assign a named clinician or team to every pending result at discharge or admission, with a documented backup pathway.
- Use receiver synthesis or read-back for high-risk handoffs and critical diagnostic information.
- Build escalation rules for unacknowledged critical results and failed patient contact.
- Audit whether teams communicate and act on pending diagnostic information, rather than auditing template completion alone.

9. Discussion

The central finding of this review is that communication failures at ED transitions can interrupt the diagnostic process through predictable mechanisms: loss of clinical context, loss of uncertainty, loss of result ownership, and loss of confirmation that information has been received and acted upon. These mechanisms recur across prehospital, intra-ED, inpatient, and post-discharge transitions. The evidence supports structured communication and durable documentation as useful process interventions, but studies vary widely in design and typically measure communication quality, completeness, or satisfaction rather than diagnostic harm directly.

This evidence gap should not be interpreted as evidence that communication is unimportant to diagnosis. Rather, it signals the need for stronger studies that connect intervention use to diagnostic-process outcomes: time to review actionable results, missed follow-up, diagnostic delay, escalation of care, and patient harm. Future work should distinguish between simple information transfer and true shared understanding, and should evaluate

whether receiving teams can identify what remains unknown and who owns the next action.

For ED leaders, the most actionable approach is to design communication workflows around clinical responsibility. A reliable process needs an explicit sender, an engaged receiver, required diagnostic content, a recorded owner for pending tasks, and escalation when acknowledgment or action does not occur. This approach aligns with the broader diagnostic-safety framework that recognizes diagnosis as a team and system activity [1,4].

Communication across ED transitions is a core component of diagnostic safety. The most important failures are not limited to missing facts; they include unclear uncertainty, unassigned ownership, and absent confirmation that a result or plan has been acted upon. Standardized handoff content, receiver engagement, durable electronic communication, closed-loop confirmation, and explicit responsibility for pending results offer practical ways to reduce these vulnerabilities. Research should now test these strategies against diagnostic-process and patient-safety outcomes that matter most.

The broader handover literature reinforces the ED-specific findings. Reviews of clinical handover identify information omissions, diagnostic errors, treatment delays, and disposition errors as recurring hazards, while concluding that no single handover tool is universally superior [21]. SBAR and ISBAR can provide useful common language, but their impact depends on training, local workflow, receiver participation, and whether the tool includes the information required for a specific transition [22,23]. Electronic handover platforms may improve completeness, yet evidence that they independently improve patient outcomes remains limited [24].

Pending diagnostic results merit particular attention. In a cluster-randomized trial, automated notification shortened time to documented action on actionable results pending at discharge, but a large proportion still lacked documented follow-up [25]. Documentation-focused electronic discharge tools can substantially improve recording of pending and actionable results, demonstrating the value of designing systems that make unfinished diagnostic work visible [26]. ED-focused quality-assurance reviews further emphasize dedicated follow-up time, electronic-record integration, interprofessional collaboration, and patient engagement [27].

High-risk transition	Non-negotiable diagnostic handoff content	Named owner and closed-loop action	Evidence supporting the bundle
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Within-ED shift handoff	Acuity, working diagnosis, unresolved differential, pending tests, action list, and escalation triggers.	Receiving clinician summarizes plan; sender confirms discrepancies before sign-out ends.	ED I-PASS implementation reached sustained use and reduced crucial-information omissions by 53% without increasing handoff duration [45].
ED discharge with pending tests	Test name, expected completion time, action threshold, patient contact method, and follow-up clinician.	A designated clinician/team reviews the final result; action and patient notification are documented.	ED systematic review identified dedicated staff, protected follow-up time, EHR integration, collaboration, and patient engagement as core quality-assurance features [27].
ED to inpatient admission	Diagnostic uncertainty, completed and pending investigations, consultant recommendations	Admitting team acknowledges receipt and accepts ownership of	Standardized ED-to-inpatient handoffs improve communication and

	ions, and next diagnostic decision.	unresolved diagnostic tasks.	perceived safety, but outcome evidence remains limited [9,21].
Critical or actionable result after transition	Result, clinical meaning, urgency, required action, and deadline.	Receiver acknowledges, acts, or escalates; unacknowledged results trigger backup notification.	Automated notification shortened median time to documented action from 14 to 9 days; about 40% still lacked documented follow-up, showing why escalation is required [25].

Future studies should adopt common outcome definitions and report the proportion of handoffs that include diagnostic uncertainty, pending-test ownership, contingency plans, and receiver confirmation. They should also measure clinically meaningful endpoints: time to result acknowledgment, time to action, missed or delayed follow-up, return visits attributable to diagnostic failure, and patient harm. Such reporting would allow ED teams to distinguish between a handoff that is merely complete on paper and one that reliably protects the diagnostic process.

Conclusion

Communication failures at emergency department transitions are an important and modifiable threat to diagnostic safety and continuity of care. Information can be lost when responsibility moves between ED clinicians, from the ED to inpatient teams, or from the ED to the patient and outpatient services. High-risk gaps commonly involve the working diagnosis and diagnostic uncertainty, pending or abnormal test results, changes in clinical condition, treatment

provided, follow-up requirements, and the person responsible for completing the next action.

The evidence reviewed indicates that improvement is most likely when communication is structured, receiver-focused, and supported by clear accountability rather than relying only on written discharge instructions or informal verbal handover. Standardized handoff tools, explicit documentation of pending results, closed-loop acknowledgment, and named ownership of follow-up can reduce omissions and strengthen continuity across care settings. Electronic systems can support these processes, but they do not replace clinical judgment, direct communication, or organizational responsibility. Emergency departments should therefore implement locally appropriate transition-of-care bundles that identify high-risk patients and specify the minimum information to be transferred, the accountable clinician or team, the expected follow-up action, and a mechanism to confirm completion. Future studies should assess patient-centered and safety outcomes, including delayed diagnosis, time to follow-up of pending results, unplanned return visits, and preventable harm.

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