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Patient Safety Information Handoffs Across Healthcare Security, Healthcare Assistance, Medical Secretarial Services, Nursing, Dental Teams, and Clinical Laboratories A Scoping Review And Conceptual Risk Management Framework

نقاط التعثر في انتقال المعلومات المتعلقة بسلامة المرضى بين الأمن والمساعدة الصحية والسكرتارية الطبية والتمريض وفرق طب الأسنان والمختبرات: مراجعة نطاقية وإطار مفاهيمي لإدارة المخاطر

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Abstract

Information failures between clinical and support services can interrupt patient identification, diagnostic follow-up, escalation, and continuity of care. Handoff research concentrates on clinical teams, leaving the contribution of healthcare security, healthcare assistants, and medical secretarial personnel less clearly connected to nursing, dental, and laboratory responsibilities. This review examines those interfaces and develops a conceptual framework for governing safety information across the patient journey. A targeted scoping approach combined bibliographic verification, review of indexed abstracts and available full texts, and structured interpretation of twenty publications published between 2010 and 2025, within an eligibility window extending through November 2026. Publications were organized by information transfer, identification, diagnostic communication, dental safety, and violence prevention. Methodological guidance informed transparency, although the review did not undertake exhaustive database screening, independent duplicate assessment, or quantitative pooling. The synthesis identified recurring requirements for an identifiable recipient, sufficient contextual information, confirmation of receipt, explicit action ownership, and documented closure. Clinical handoff interventions offered the most developed evidence, whereas administrative and security interfaces required more cautious conceptual extension. Mixed findings, surrogate outcomes, overlapping reviews, and differences between settings limited causal interpretation. The resulting framework links recognition, verification, transfer, acknowledgement, action, escalation, and learning while preserving professional boundaries and proportionate access to sensitive information. No participants were recruited and no institutional outcomes were measured. The review concludes that interface accountability provides a useful basis for service redesign, but the proposed

framework requires prospective feasibility and effectiveness evaluation before claims of harm reduction can be justified across the participating professional groups.

Keywords: patient safety; information handoff; interprofessional collaboration; clinical laboratories; dental safety; healthcare security; medical secretarial services; risk management.

الملخص
يؤدي تعثر انتقال المعلومات بين الخدمات السريرية والمساندة إلى أخطاء في تحديد هوية المرضى وتأخر متابعة نتائج الفحوص وضعف تصعيد المخاطر واستمرارية الرعاية. وتركز غالبية أدبيات تسليم المسؤوليات على الفرق السريرية، بينما تظل صلات الأمن الصحي والمساعدة الصحية والسكرتارية الطبية بالتمريض وفرق الأسنان والمختبرات أقل وضوحا. يهدف هذا البحث إلى تحليل هذه الصلات وبناء إطار مفاهيمي لحوكمة معلومات السلامة عبر رحلة المريض. اعتمد البحث مراجعة نطاقية موجهة شملت التحقق الببليوغرافي وفحص الملخصات والنصوص الكاملة المتاحة والتحليل المنظم لعشرين منشورا صدرت بين عامي 2010 و2025، ضمن نطاق أهلية يمتد حتى نوفمبر 2026. وصنفت المنشورات بحسب نقل المعلومات والتحقق من الهوية والتواصل التشخيصي وسلامة الأسنان والوقاية من العنف. واستند العرض إلى إرشادات منهجية مع التصريح بعدم إجراء بحث شامل لجميع القواعد أو تقييم مستقل مزدوج أو تجميع إحصائي. أظهر التركيب التحليلي أهمية تحديد المستلم وتوفير السياق وتأكيد الاستلام وتعيين مسؤولية الإجراء وتوثيق إغلاقه. وكانت أدلة التسليم السريري أكثر تطورا، بينما احتاج تعميمها على الواجهات الإدارية والأمنية إلى تفسير حذر. وحدت النتائج المختلطة والمؤشرات البديلة وتداخل المراجعات واختلاف البيئات من الاستدلال السببي. ويربط الإطار المقترح بين اكتشاف الخطر والتحقق ونقل المعلومات والإقرار بالاستلام واتخاذ الإجراء والتصعيد والتعلم، مع حفظ حدود الممارسة المهنية وتناسب الوصول إلى المعلومات الحساسة. لم يجند البحث مشاركين ولم يقس نتائج مؤسسية، وتتمثل مخرجاته في تفسير الأدلة وتنظيم المسؤوليات. ويخلص إلى أن مساءلة الواجهات أساس مفيد لتطوير الخدمات، لكن إثبات فعالية الإطار وخفض الضرر يستلزم تقييما مستقبليا للجدوى والنتائج، مع مراعاة خصوصية المرضى وموارد المؤسسات وتنوع احتياجات العاملين وسياقات الرعاية المختلفة، وتحديد مؤشرات قابلة للقياس قبل البدء بالتطبيق العملي المقترح.
الكلمات المفتاحية: سلامة المرضى؛ تسليم المعلومات؛ التعاون بين المهن الصحية؛ المختبرات الطبية؛ سلامة طب الأسنان؛ الأمن الصحي؛ السكرتارية الطبية؛ إدارة المخاطر.

1. Introduction

Patient safety information must remain usable when responsibility moves between people who hold different knowledge and authority. A receptionist may establish the record used for a dental appointment, a healthcare assistant may notice a discrepancy in identity, a nurse may recognize deterioration, and a laboratory worker may release a time-critical result. Security personnel may encounter an immediate threat while these activities continue. A failure at one boundary can make another professional's technically correct work unsafe. The problem considered here is how to connect these responsibilities without treating professional roles as interchangeable.

Evidence from structured clinical handoffs provides an important starting point. In nine hospitals, implementation of the I-PASS programme was associated with fewer medical errors, alongside changes in written and verbal communication (Starmer et al., 2014). Subsequent implementation across 32 hospitals extended the programme to more varied environments, although its surveillance relied on resident-reported events (Starmer et al., 2023). These studies support examining the organization of information transfer. They do not establish the effectiveness of transferring an identical intervention to security officers, dental assistants, or secretarial personnel.

Patient and family communication also belongs within the safety pathway. A multicentre study of a coproduced family-centred communication programme found improvement in harmful errors despite no statistically significant change in overall medical errors (Khan et al., 2018). The distinction matters because successful communication cannot be inferred from one favourable endpoint alone. Patients can clarify identity, current concerns, and understanding of a plan, but an organization must retain responsibility for delivering and checking essential information. Participation should remain accessible to people with limited literacy, language differences, or difficulty speaking during distress.

SBAR, which structures communication as situation, background, assessment, and recommendation, makes relevant context more predictable. Randmaa et al. (2014) examined its implementation in anaesthetic services and reported improvements in communication perceptions and safety climate. De Meester et al. (2013) connected a nurse-to-physician escalation intervention to changes in serious clinical outcomes in a before-and-after study. These contributions make escalation a central concern: a message must reach someone authorized to decide what happens next. However, training, staffing, supervision, and simultaneous changes in care can influence observed outcomes.

A systematic review of SBAR found heterogeneous studies and limited high-quality evidence (Müller et al., 2018). Keebler et al. (2016) similarly identified benefits of standardized handoffs while highlighting publication bias, variation between studies, and possible burdens. Together, these publications justify a cautious organizational question: what information is necessary at each interface, and what evidence shows that the

receiving service can act on it? A longer form is not automatically a safer handoff. The present review therefore examines content, acknowledgement, ownership, and closure as related but distinct requirements.

Nursing handover research clarifies the difference between better documentation and demonstrated prevention of harm. Bukoh and Siah (2020) found support for reducing problems in information transfer, while patient outcome findings were less conclusive. Hada and Coyer (2021) reported associations between handover interventions and improvements in falls, pressure injuries, and medication errors across an integrative review. Differences in intervention design and outcome measurement make a single pooled expectation inappropriate for the cross-professional framework developed here. Nursing contributes ongoing observation and escalation; its information needs cannot be reduced to a general administrative status update.

Laboratory communication demonstrates why safety extends beyond a departmental boundary. Plebani (2010) located important vulnerabilities before and after the analytical stage, including identification and communication of results. Callen et al. (2012) documented failure to follow up test results in ambulatory care, with variation between settings and limited evidence about electronic solutions. A result can be technically accurate yet fail to lead to a clinical decision. For the present analysis, successful transmission and clinical completion must therefore be treated as different events.

Medical secretarial personnel can influence appointment records, contact details, message routing, and the organization of follow-up. Litchfield et al. (2014) found uncertainty about responsibilities and missing safeguards in the communication of results in primary care. Their findings directly inform administrative coordination, although office staff in that setting should not be assumed equivalent to every medical secretary elsewhere. Clerical staff can route a result or arrange contact under an approved protocol; interpretation and clinical advice must remain with appropriately authorized professionals. The proposed framework preserves this boundary.

Identity errors offer another connection between services. Poon et al. (2010) evaluated barcode-supported medication administration and found fewer administration and transcription errors in an academic centre. The study supports verification within a defined workflow, rather than a general claim that digitization prevents all information failures. Adelman et al. (2013) demonstrated that identity re-verification interventions could reduce a marker of wrong-patient electronic ordering. In a later randomized trial, restricting the number of concurrently open electronic records did not significantly reduce that marker (Adelman et al., 2019). The contrasting findings caution against selecting controls merely because they appear intuitively protective.

The common issue is the fit between a safety control and the mechanism producing error. At registration, a duplicate record may require reconciliation; at specimen collection, it may require checking the person against the order; at result follow-up, it may require confirming the accountable clinician and patient contact route. Each task uses different information and permissions. Security staff should receive only operational information necessary for safe access or response, while clinical details remain available to those who need them for care. Integration requires coordinated boundaries, not unrestricted sharing.

Dental services contribute a distinctive sequence of scheduling, consent, clinical assessment, procedure identification, imaging or laboratory investigation, and follow-up. Kalenderian et al. (2013) investigated a dental trigger tool for identifying records that merited review for adverse events. Bailey et al. (2015) found a limited and uneven evidence base for dental patient safety interventions. These publications support explicit inclusion of dentists and dental assistants while discouraging assumptions that hospital handoff results apply unchanged to dental practice. Dental communication must retain the procedure, anatomical site where relevant, current concern, and responsible clinician.

Security and healthcare assistance become particularly relevant when a safety concern involves access, patient movement, distress, or violence. Arnetz et al. (2017) evaluated a randomized, unit-based violence prevention intervention informed by local event data. Gillespie et al. (2014) found mixed outcomes across emergency departments after a comprehensive intervention, with the overall hypothesis not supported. Their contrast shows why an incident flag or training programme should not be presented as a proven solution across every service. A risk response also needs a receiving team, appropriate resources, lawful conduct, and a route back to clinical care.

Recent synthesis strengthens the case for differentiating evidence by intervention. McCarthy et al. (2025) judged the certainty of evidence for I-PASS more favourably than for SBAR in within-unit handoffs. Their findings concern a specified clinical transition and cannot validate the broader model proposed in this manuscript. The twenty publications introduced across these three pages establish component evidence for the review, spanning clinical handoffs, identity verification, diagnostic communication, dental safety, and violence prevention. They are accompanied later by methodological and policy sources, rather than treated as twenty independent tests of one intervention.

The research problem is a possible mismatch between distributed responsibility and incomplete information continuity. A departmental procedure may specify who sends a message but omit who must acknowledge it or how failure to respond becomes visible. The primary review question asks how published evidence can inform

accountable safety information handoffs across healthcare security, healthcare assistance, medical secretarial services, nursing, dental teams, and clinical laboratories. The analysis also asks which mechanisms have direct empirical support, where evidence is indirect, and what future evaluation would be needed.

The review aims to map relevant evidence, explain plausible interface failures, and construct an explicitly unvalidated conceptual risk management framework. Its scope is theoretical throughout. It contains no staff survey, patient dataset, intervention, or local estimate of incident prevalence. The contribution is an organized account of responsibilities that can guide protocol discussion and future testing. It does not demonstrate that any named hospital has a coordination problem. The following literature review examines twenty publications individually before the methodology makes the retrieval, charting, interpretive boundaries, and ethical considerations transparent.

2 Literature review

Structured clinical handoff implementation

Starmer et al. (2014) conducted a prospective intervention study of a resident handoff programme in nine hospitals. The programme combined a common mnemonic, oral and written handoff requirements, training, faculty observation, and implementation support. Active surveillance assessed errors across 10,740 admissions, while separate observations assessed communication and workflow. The reported medical-error rate fell from 24.5 to 18.8 per 100 admissions after implementation. This finding concerns a bundled programme, so the contribution of the mnemonic cannot be isolated. The before-and-after design also leaves room for secular change and concurrent improvement activity. Its relevance here lies in connecting information structure with supervision and feedback. The receiving clinician needed an actionable account of the patient, rather than a copied list of facts. Transfer to dental or support services would require redesign around their responsibilities. The study therefore supports a mechanism for accountable handoff, but does not directly validate the proposed six-domain framework.

Implementation across diverse hospitals

Starmer et al. (2023) evaluated I-PASS implementation across 32 academic and community hospitals using a prospective hybrid effectiveness and implementation design. External teams provided longitudinal coaching and monthly reviews of metrics. The study included multiple specialties and assessed observed handoff quality alongside resident-reported adverse events. Reported major and minor handoff-related events decreased after implementation, while the completeness of verbal and written handoffs improved. Broader participation increases the relevance of implementation processes beyond one specialist unit. Nevertheless, self-reported events remain sensitive to participation and recognition of errors. The design does not separate the effects of coaching, local leadership, and communication tools. For the present framework, the main implication is that adoption needs continuing organizational support. A form distributed without observation or feedback would represent a different intervention. The findings inform implementation planning while leaving effectiveness at administrative and security interfaces untested.

Comparative interpretation

These implementation studies connect information quality to training and local support. Their shared programme background also limits independence: broader implementation extends applicability, but should not be counted as a completely unrelated replication of every component. The cross-professional proposal retains observation and feedback as organizational requirements while leaving task content open to local adaptation.

Patient and family participation

Khan et al. (2018) studied a coproduced communication programme on paediatric inpatient units in seven hospitals. Families, nurses, and physicians developed structured rounds, written summaries, training, and support for implementation. Surveillance covered 3,106 admissions and included family contributions to safety reporting. Overall medical errors did not change significantly, although harmful errors decreased after the intervention. This distinction prevents the study being summarized as an unqualified reduction in every error category. The nonrandomized design and multiple intervention components also limit attribution. Its direct contribution is to demonstrate how patient-facing communication can be deliberately included in safety work. Patients may help clarify concerns and understanding when information crosses professional boundaries. Administrative communication should consequently preserve opportunities to ask questions without transferring clinical responsibility to patients. The study supports accessible participation, with cautious transfer from paediatric rounds to adult, dental, or outpatient workflows.

SBAR in anaesthetic services

Randmaa et al. (2014) evaluated SBAR implementation in anaesthetic services at two Swedish hospitals using an intervention group and a comparison group. Questionnaires examined communication, safety attitudes, and psychological empowerment before and after implementation. Incident reports were also examined for communication-related events. The intervention group showed improvements in perceived between-group communication accuracy and safety climate. The proportion of incident reports attributed to communication errors decreased. These measures describe perceptions and reported events, rather than a comprehensive count of all patient harm. Changes in reporting practices could affect the incident outcome independently of actual risk. The study is relevant because anaesthetic work connects professionals with different tasks under time pressure. Its implication for the framework is to provide predictable context and an explicit request when escalating a concern. The transfer of SBAR to secretarial or security work should retain only elements appropriate to those roles and should be evaluated locally.

Comparative interpretation

These studies address different audiences and time pressures. Family communication invites participation in a continuing plan, whereas perioperative transfer may require rapid operational clarity. A common framework should preserve that difference. Accessible language is necessary in both situations, but the minimum information and acceptable response interval must reflect the purpose of the exchange.

Escalation for deteriorating patients

De Meester et al. (2013) introduced SBAR training for nurses communicating with physicians about deteriorating patients in sixteen hospital wards. The before-and-after study examined serious adverse events, documentation, and perceptions of communication and collaboration. Following implementation, the authors reported more complete SBAR documentation, increased unplanned intensive care admissions, and fewer unexpected deaths. The direction of intensive care admissions illustrates why escalation outcomes require clinical interpretation. More transfers may indicate earlier recognition rather than deterioration in quality. Because the study was not randomized, other changes in care cannot be excluded as explanations. Its relevance is the link between structured communication and access to a decision maker. Healthcare assistants or dental staff may recognize a concern, but an escalation pathway must identify the clinician who can assess it. The present framework therefore specifies response ownership and an alternative contact when the first recipient is unavailable. The study supplies indirect support for that design, not a universal effect estimate.

Systematic evidence on SBAR

Müller et al. (2018) systematically reviewed the effect of SBAR on patient safety using searches across five databases. Eleven studies met their criteria, including before-and-after designs and controlled clinical trials. Interventions occurred in different settings and involved varied uses of SBAR, such as handoffs and nurse-to-physician telephone calls. The authors found moderate evidence in their interpretation, alongside substantial heterogeneity and limited high-quality research. Outcome definitions differed enough to constrain straightforward comparison. This review helps explain why a widely recognized communication tool should not be assumed equally effective everywhere. It also overlaps with primary studies considered separately in this manuscript. Its findings are therefore used to qualify interpretation rather than counted as additional independent intervention evidence. For the conceptual framework, SBAR can organize a message, but cannot independently establish recipient availability, authority, or completion of an action. Those organizational conditions require separate specification and later evaluation.

Comparative interpretation

The escalation study and systematic SBAR review together support a qualified account of structured messaging. A communication format can improve the organization of a request, while a response pathway determines whether anyone acts. The framework therefore separates the quality of the message from the availability and authority of the receiving professional.

Meta-analysis of standardized handoffs

Keebler et al. (2016) synthesized standardized handoff protocols across patient, provider, organizational, and information-transfer outcomes. Their meta-analyses included thirty-six articles and a large number of preintervention and postintervention observations. Pooled effects generally favoured handoff protocols, but the authors identified publication bias and considerable heterogeneity. Some outcomes also indicated possible increases in handover time or information omissions. These qualifications matter when recommending a common format across professions with different tasks. Adding every available item could increase burden without improving the usability of urgent information. The review therefore informs the distinction between

essential content and optional detail. Its underlying studies overlap with other handoff literature in the present corpus, preventing simple addition of sample sizes or effects. The proposed framework uses a concise shared information core with role-specific extensions. That design is a conceptual response to the evidence, rather than a protocol tested by this meta-analysis.

Structured nurse handover

Bukoh and Siah (2020) reviewed structured handover interventions between nurses with attention to patient safety outcomes. Searches across six databases yielded nine studies for synthesis. The review found reductions in problematic information transfer, including omissions, inaccurate information, and documentation errors. Reported reductions in complications, medication errors, and general adverse events were not statistically significant in the review's summary. This distinction provides an essential counterweight to treating communication quality as proof of clinical benefit. The evidence supports examining the process through which information is transferred, but does not justify promising a specific reduction in harm. Nursing handovers also differ from short administrative routing interactions in depth and clinical responsibility. For this manuscript, the review informs the selection of process indicators such as completeness and acknowledgement. Patient outcomes remain a separate evaluation requirement. Better handoff documentation should be interpreted as an intermediate finding whose clinical value requires additional evidence.

Comparative interpretation

The paired reviews make outcome selection central to interpretation. Improved information completeness may be meaningful even when clinical benefit remains uncertain, but it should be reported in its own terms. The framework consequently distinguishes transfer measures from harm measures and avoids using either publication counts or statistical significance alone as a measure of practical value.

Nursing handover and patient outcomes

Hada and Coyer (2021) conducted an integrative review of nursing shift handover interventions associated with inpatient falls, pressure injuries, and medication administration errors. Seven databases were searched and eight studies met the inclusion criteria. Included studies reported improvements following bedside handover or standardized communication interventions, with differing magnitudes across outcomes. The review used the Mixed Methods Appraisal Tool to assess study quality. Variation in interventions, settings, and study designs limits the transfer of any one numerical estimate. Bedside participation may also raise privacy and accessibility questions that require local solutions. The relevance here is to connect ongoing nursing assessment with a usable plan for the next responsible professional. A message about a laboratory result or a dental concern may need additional context about mobility, medication, or monitoring. The framework incorporates that need without assuming every profession should receive the complete clinical handover. Information content should follow care responsibility and legitimate need.

Recent certainty assessment of handoff tools

McCarthy et al. (2025) reviewed structured handoff protocols for within-hospital unit transitions as part of Making Healthcare Safer IV. Searches covered systematic reviews and original research, with duplicate eligibility assessment and checked extraction. The authors assessed certainty using an adapted GRADE approach. Their synthesis found stronger evidence for I-PASS than for SBAR, with moderate certainty for I-PASS and low certainty for SBAR in the specified context. Other tools had insufficient evidence for firm conclusions. The review provides a recent update while preserving the influence of foundational intervention studies. Its focus remains within-unit clinical handoffs, so it does not answer the full cross-professional question posed here. It also contains primary evidence represented elsewhere in the corpus. The present framework therefore draws on the mechanisms of structured transfer and receiver engagement while avoiding a claim that the entire framework inherits the review's certainty rating. Evidence certainty remains attached to the intervention and setting actually assessed.

Comparative interpretation

The newer review updates confidence in clinical handoff tools while nursing evidence broadens the outcomes of interest. Neither directly establishes security or secretarial effectiveness. The main gap is therefore the organization of boundaries between services, not a lack of all communication research. Framework development addresses that gap through explicit, testable propositions.

The total laboratory testing process

Plebani (2010) examined the detection and prevention of errors across the total laboratory testing process. This narrative synthesis emphasized that vulnerabilities occur before and after analysis, including patient

identification, test requests, specimen collection, and result communication. It proposed a patient-centred account of laboratory quality extending beyond analytical performance. The paper is a conceptual and interpretive contribution rather than a newly randomized intervention. Its older publication date also requires attention to subsequent changes in information systems and laboratory practice. Nevertheless, the responsibility interface remains directly relevant to the present question. A sample may move physically to the laboratory while contextual information remains with the clinical team. The framework consequently treats specimen identity and clinical context as linked information requirements. It also distinguishes laboratory verification from the clinician's obligation to interpret and act. The source supports examining the complete pathway, while local rejection rules, urgent thresholds, and escalation timings require current institutional specification.

Following up ambulatory test results

Callen et al. (2012) systematically reviewed failures to follow up test results in ambulatory settings. Nineteen studies met the inclusion criteria and showed wide variation in documented follow-up failures. The review identified unclear responsibilities and limited evidence concerning electronic test-management solutions. Reported consequences included missed diagnoses, making the communication pathway clinically important. Most included studies relied on record review, so documentation and actual follow-up could not always be separated. All underlying studies were from the United States, limiting direct international generalization. For the proposed framework, the central lesson is that delivery of a result is not the end of the diagnostic process. A responsible professional must assess the result and arrange action or follow-up. Administrative personnel may help locate patients or schedule appointments, but should not replace clinical interpretation. This source informs the distinction between technical transmission, acknowledgement, clinical action, and communication with the patient, each of which needs an explicit completion state.

Comparative interpretation

These sources locate diagnostic safety within a complete pathway that includes activity outside the laboratory. Their implications are complementary but remain interpretive: a total-process perspective explains where risk can arise, while follow-up evidence documents the consequences of unresolved responsibility. Neither provides local thresholds for urgent escalation or a validated cross-service workflow.

Administrative and clinical communication

Litchfield et al. (2014) used staff focus groups in four United Kingdom primary care practices to examine communication of laboratory results. Participants described variation in communication methods, uncertainty about responsibility, and the absence of reliable safeguards for missing results. Patient anxiety and health literacy also influenced how results were communicated. The qualitative design explains practical mechanisms but cannot estimate how frequently they occur across a wider health system. Its findings are particularly relevant to secretarial and reception functions, although the occupational titles are context dependent. The study suggests that administrative work can determine whether clinical information reaches a patient or clinician. The present framework assigns routing, contact verification, and appointment coordination to appropriately trained support personnel. Clinical interpretation remains with the authorized practitioner. A documented message should therefore specify both the administrative task and the clinical owner. The study supplies direct evidence about interface ambiguity, rather than evidence that secretarial staff should independently manage abnormal results.

Barcode verification within medication work

Poon et al. (2010) evaluated barcode-supported electronic medication administration in a before-and-after study at an academic medical centre. Observations covered 14,041 medication administrations and review of 3,082 order transcriptions. Non-timing administration errors decreased after implementation, while the system did not eliminate every error. Potential adverse drug events were assessed separately from actual harm. The bundled technology and single-centre design limit attribution and broad generalization. This study contributes to the framework through verification of the connection between a patient, an order, and an intended action. Its medication context is relevant to nursing but provides only indirect reasoning for specimens, dental procedures, or administrative records. Those workflows have different hazards and technical requirements. A shared identifier should therefore be checked at the point of action rather than assumed correct because an earlier screen displayed it. The framework treats technology as a support for accountable verification, with a defined response to mismatch or unavailable equipment.

Comparative interpretation

Administrative routing and technological verification protect different parts of the same pathway. Accurate contact details do not establish clinical completion, and a successful scan does not ensure a result will be

reviewed. The proposed framework connects these functions through a traceable episode without assigning clinical interpretation to support personnel.

Identity re-verification in electronic ordering

Adelman et al. (2013) combined evaluation of a wrong-patient order detection measure with a randomized trial of identity re-verification interventions. The retract-and-reorder measure identified orders withdrawn and then placed for a different patient by the same provider. In the trial, both an identity alert and an identity re-entry requirement reduced the odds of this marker compared with control, with a larger reduction for re-entry. The measure had imperfect positive predictive value and does not represent every wrong-patient event. It also primarily captures recognized and corrected errors rather than all errors reaching patients. The study therefore demonstrates the importance of defining what a safety indicator actually measures. In the framework, identity controls must be linked to the task and evaluated against an appropriate endpoint. Clinical laboratory and dental workflows may need different detection methods. Registration corrections should also propagate to affected services, while preserving a traceable record of reconciliation.

Limits of restricting electronic records

Adelman et al. (2019) randomized clinicians to electronic record configurations permitting one or up to four concurrently open patient records. The study included 3,356 clinicians and more than four million order sessions across emergency, inpatient, and outpatient settings. Wrong-patient order sessions were measured through a retract-and-reorder query. The restricted configuration did not significantly reduce the outcome compared with the unrestricted configuration. Many unrestricted sessions nevertheless occurred with only one record open, limiting separation between actual exposures. The trial is valuable because it tests a plausible safety recommendation and reports a null finding. Its relevance is methodological as well as operational. A seemingly stricter rule should not be described as effective merely because it reduces flexibility. The framework therefore treats every proposed control as a hypothesis requiring evaluation. At administrative and clinical interfaces, organizations should test whether the selected verification method addresses the local failure mechanism without introducing delays or unnecessary workarounds.

Comparative interpretation

The identity trials demonstrate why mechanistic plausibility and empirical effectiveness must be considered separately. A verification step and a restriction on open records may appear to address similar risks, yet they produced different results under their study conditions. Cross-professional controls should therefore be selected and evaluated individually, with explicit attention to the error marker used.

Detecting adverse events in dental records

Kalenderian et al. (2013) developed a dental adverse-event trigger tool to identify records requiring closer review. Triggers included selected procedures and treatment patterns associated with possible harm. Applied to six months of electronic records, the tool identified 315 records, of which 158 were positive for at least one adverse event. A comparison sample of fifty randomly selected records had a lower yield of positive findings. These numbers describe detection among reviewed records, not the prevalence of harm among all dental patients. Triggers also require clinical review because a flagged record is not automatically an adverse event. The study informs organizational learning within the framework. Dental teams can contribute information about complications and follow-up, while patient safety personnel organize review of potentially related failures. Administrative contacts may help identify a return visit, but the clinical interpretation belongs to dental professionals. Detection can guide inquiry; it does not by itself demonstrate that the reporting process prevents future harm.

Patient safety interventions in dentistry

Bailey et al. (2015) systematically reviewed tools and interventions intended to improve patient safety in dental settings. Nine studies met their inclusion criteria, covering checklists, reporting systems, electronic notes, and trigger tools. Study quality varied, and independent verification of outcomes was limited. The review identified promising findings for surgical safety checklists but insufficient evidence to assume that every reporting or documentation intervention improves patient outcomes. Its age means it cannot describe the complete current dental evidence base. Here it is retained as a foundational synthesis alongside the more recent cross-cutting handoff update. The review helps define the evidence gap at the boundary between dental procedures and other services. A dental safety message should make the planned procedure and responsible clinician clear, while linked tests and follow-up retain their own owners. The proposed framework extends these responsibilities conceptually and requires dental-specific feasibility work before implementation or effectiveness claims can be made.

Comparative interpretation
Dental detection and prevention evidence answer different questions. Trigger tools help identify possible harm, while preventive tools require evaluation of subsequent events. The framework links both to incident learning without treating detection yield as proof of prevention. Collaboration with laboratory, nursing, and administrative services remains a proposed extension requiring direct examination.

Data-informed prevention of violence
Arnetz et al. (2017) evaluated a randomized intervention across forty-one units in seven hospitals. Intervention units received local violence data to support development of prevention action plans, while control units did not receive that presentation. The authors measured violent events and related injuries over time. Intervention units had lower event rates at six months and lower injury risk at twenty-four months relative to controls. The different outcomes and observation times should remain separate in interpretation. The study supports using local information to shape worksite action rather than relying only on generic advice. It does not establish that a particular information flag or security handoff caused the improvement. For this manuscript, it supplies indirect evidence for connecting incident learning with operational response. Security personnel and clinical teams need a safe way to share relevant observations and agree action ownership. Information sharing must remain proportionate and should avoid turning a temporary behavioural concern into an unsupported permanent label.

Mixed results from comprehensive prevention
Gillespie et al. (2014) compared three intervention emergency departments with three comparison departments during implementation of a comprehensive violence prevention programme. Monthly surveys over eighteen months assessed violent events experienced by staff. The overall hypothesis of a greater reduction in intervention departments was not supported, although two intervention sites improved. These mixed findings show that comprehensive programmes can operate differently across local environments. Survey reporting and the limited number of departments constrain interpretation. The study also differs from a direct evaluation of security-to-clinician communication. Its role in the present synthesis is to prevent overgeneralization from favourable prevention evidence. An operational response needs suitable staffing, clear escalation, and agreement about who leads the clinical and security components. The framework proposes those connections without claiming they were validated by this study. Future evaluation should examine implementation fidelity and unintended effects, including delayed care, unnecessary restrictions, and the experience of patients who need support.

Comparative interpretation
The violence studies provide contrasting results and different designs. Together they support context-sensitive inquiry rather than a uniform claim about programme success. Their contribution to this manuscript is indirect: relevant observations should reach a responsible team, actions should be documented, and outcomes should include safety and access to care. The cross-study gap concerns those connections.

3 Methodology
The manuscript uses a targeted scoping review with conceptual synthesis. The population comprises healthcare workers and patients involved in service transitions; the concept is the transfer of information relevant to patient safety; and the context includes hospital, ambulatory, and dental care. The analytical unit is the responsibility interface, defined as a transfer in which another person must receive information or undertake an action. SEIPS 3.0 informs attention to the patient journey across interacting work systems (Carayon et al., 2020). Scoping methodology and transparent reporting are informed by Peters et al. (2020) and Tricco et al. (2018).
Targeted public searches and Europe PMC retrieval were completed on 16 November 2026. Searches combined handoff or handover with patient safety, SBAR, I-PASS, nursing, identity verification, laboratory result communication, dental safety, and violence prevention. Known relevant records were then retrieved by exact title or PubMed identifier to verify authors, dates, journal details, DOI, and abstract. For example, TITLE:"Use of structured handoff protocols for within-hospital unit transitions" retrieved the recent clinical synthesis, while TITLE:"Test result communication in primary care: clinical and office staff perspectives" retrieved the administrative interface study. These are record-verification queries, not a reproducible comprehensive search strategy.
Twenty publications were purposefully retained to cover the five evidence domains in Table 1. The fixed corpus supports breadth and individual discussion, not an estimate of all eligible literature. Selection was not independently duplicated, a protocol was not registered, and no exhaustive CINAHL, Scopus, or Web of Science screening was performed. Consequently, this manuscript does not claim full JBI or PRISMA-ScR compliance, and it reports no invented screening flow or exclusion totals. Its findings should be understood as an exploratory evidence map and framework proposal.

The eligibility window was 1 January 2010 to 16 November 2026. Selected core publications span 2010–2025; no 2026 study was necessary to fill a citation quota. Older foundational work within the window was retained where it directly informed an interface mechanism. Policy and methodological publications supplement the twenty core sources and are not counted as additional reviewed intervention studies.

Table 1 Eligibility and interpretive boundaries

Dimension	Operational inclusion	Interpretive boundary
Period	2010 to 16 November 2026	Core corpus actually spans 2010–2025
Concept	Safety information, identity, escalation, follow-up	General teamwork without an interface mechanism not prioritized
Context	Hospital, ambulatory, dental, diagnostic, support services	Settings are not assumed equivalent
Design	Primary studies and evidence reviews	Review overlap is retained explicitly
Verification	Indexed record, DOI, readable abstract	Full text used only when accessible
Exclusions	Unverified sources or unsupported outcome claims	No local prevalence, pooled effect, or validated framework claim

Records were linked by DOI or PubMed identifier to avoid treating different web descriptions as separate publications. All twenty core abstracts were examined. Seven accessible full texts supplied additional detail about methods, results, or limitations; the other thirteen sources were interpreted at abstract level. Table 2 makes that access distinction visible. Claims requiring unavailable detail were omitted. Full-text availability is a limitation of interpretation, not a quality score for the underlying publication.

The extraction record included publication identity, design, setting, transfer mechanism, reported endpoint, direction of findings, limitations, and relevance to the six professional domains. Each publication received one primary evidence-domain label for the descriptive chart, even when its implications crossed domains. Primary studies were separated from evidence reviews; the narrative laboratory synthesis was classified as a review. These categories describe this selected corpus only. Review and primary-study findings were not combined as independent patient observations.

Charting was performed as a single analytical synthesis with a consistency check against retrieved records. No second independent reviewer, inter-rater agreement statistic, formal risk-of-bias score, or new GRADE assessment is claimed. Published assessments, such as McCarthy et al.'s (2025) certainty judgements, remain attributed to their original scope. The categorical map is descriptive and has no inferential statistical purpose.

Table 2 Verified core corpus and evidence access

Publication	Design family	Primary evidence domain	Access
Starmer 2014	Primary	Clinical handoff	Abstract
Starmer 2023	Primary	Clinical handoff	Abstract
Khan 2018	Primary	Clinical handoff	Full text
Randmaa 2014	Primary	Clinical handoff	Full text
De Meester 2013	Primary	Clinical handoff	Abstract
Müller 2018	Review	Clinical handoff	Full text
Keebler 2016	Review	Clinical handoff	Abstract
Bukoh and Siah 2020	Review	Clinical handoff	Abstract
Hada and Coyer 2021	Review	Clinical handoff	Abstract
McCarthy 2025	Review	Clinical handoff	Full text
Plebani 2010	Review	Diagnostic pathway	Abstract
Callen 2012	Review	Diagnostic pathway	Full text
Litchfield 2014	Primary	Diagnostic pathway	Full text
Poon 2010	Primary	Identity and action	Abstract
Adelman 2013	Primary	Identity and action	Abstract

Publication	Design family	Primary evidence domain	Access
Adelman 2019	Primary	Identity and action	Abstract
Kalenderian 2013	Primary	Dental safety	Abstract
Bailey 2015	Review	Dental safety	Full text
Arnetz 2017	Primary	Violence prevention	Abstract
Gillespie 2014	Primary	Violence prevention	Abstract

Synthesis used an explicit distinction between published observations and new proposals. Direct findings were first summarized within each source's setting and design. A deductive reading then considered identity, context, recipient, ownership, acknowledgement, action, and closure. These fields functioned as analytical prompts rather than a validated coding instrument. The resulting framework is a reasoned integration of mechanisms, not a finding that every source measured all seven elements. Contradictory and null findings were retained when considering plausible controls.

Table 3 defines the proposed information schema derived from that interpretation. It is an output of framework development and a template for future testing. The figures illustrate corpus composition and proposed responsibilities; they contain no invented institutional rates, participant observations, or predicted treatment effects. No meta-analysis, significance test, or numerical ranking of professions was undertaken. A cross-study effectiveness estimate would be inappropriate given design differences, overlapping reviews, dissimilar endpoints, and indirect transfer to support roles.

Ethical considerations concern faithful representation of published evidence, privacy, equitable access, and professional scope. This review recruited no participants and accessed no patient records; it therefore reports no ethics committee approval, consent waiver, or institutional authorization. A future empirical implementation must obtain the ethics and governance determination required by the relevant institution and jurisdiction. The supplied contributor roster was used only to define professional scope and proposed names, not as research data. Contact details were not analysed or reproduced as evidence. Authorship and institutional affiliations require contributor verification.

The framework limits disclosure to information needed for a legitimate task. Security observations should describe current behaviour and response needs without unsupported diagnostic labels. Administrative staff should route information without independently interpreting clinical findings. Patient participation must accommodate language, disability, and literacy needs. Proposed evaluations should examine delayed care, unnecessary restriction, confidentiality incidents, and workload alongside safety outcomes. The WHO action plan provides a policy rationale for coordinated, patient-centred safety work, but does not validate this framework (World Health Organization, 2021).

Table 3 Proposed schema for a safety information handoff

Field	Meaning in the proposed schema	Completion evidence to be tested
Identity	Correct person, order, specimen, or episode	Mismatch reconciled before action
Context	Concern, source, relevant facts, urgency	Receiving professional can explain the concern
Recipient	Named person or accountable service	Receipt reaches an available authorized recipient
Ownership	Who decides and who performs the task	Clinical and operational responsibilities explicit
Acknowledgement	Confirmation and clarification of meaning	Receipt recorded; ambiguity addressed
Action and escalation	Task, locally approved deadline, fallback	Action or justified escalation traceable
Closure and learning	Outcome, remaining work, feedback	Sender informed where required; learning reviewed

4 Results

The selected corpus contains twenty verified publications: twelve primary empirical studies and eight reviews, including the narrative laboratory synthesis. Ten publications were assigned to clinical communication and

handoff, three to diagnostic pathways, three to identity and verification, two to dental safety, and two to violence prevention. Figure 1 displays these mutually exclusive primary-domain labels. The distribution reflects purposeful selection for this manuscript, not the volume of worldwide research or the relative burden of harm. Seven full texts and thirteen abstracts informed the interpretation, as documented in Table 2.

The clearest directly studied mechanisms concerned structured clinical transfer, recipient understanding, verification at the point of action, and organization of follow-up. Evidence was less direct for the complete combination of support and clinical services. None of the selected publications evaluated the exact framework proposed here. The corpus therefore supports an explanation of possible connections, with stronger empirical foundations for some components than others. It does not establish a universally effective cross-professional intervention.

Three distinctions emerged from comparing the source findings. Communication completeness differed from clinical benefit, as illustrated by uncertainty in nursing outcome evidence. Identification controls differed in effectiveness, as shown by the contrasting electronic ordering trials. Event detection differed from prevention, as illustrated by the dental trigger study and review. These distinctions guided the framework's separate states for transmission, acknowledgement, action, and closure. They also explain why the chart contains publication counts rather than pooled effect sizes.

The primary analytical finding is that accountability can become unclear at the boundary between a completed departmental task and the next required action. The diagnostic literature supplies direct examples of uncertainty over follow-up, while handoff studies demonstrate more structured clinical exchanges. Extending those insights to access, movement, appointment coordination, and dental follow-up is a conceptual contribution of this review. It remains a proposition requiring examination in actual services.

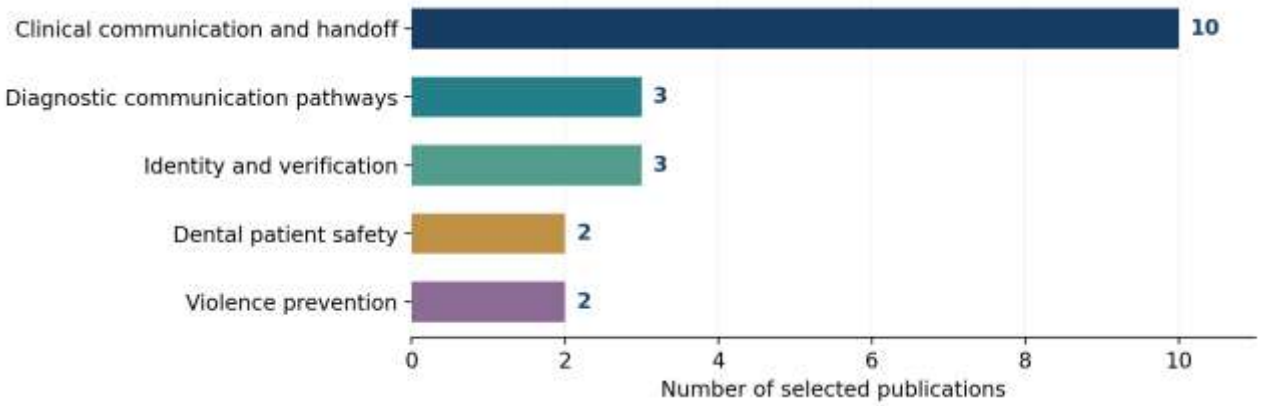


Figure 1 Primary domains of the selected twenty-publication corpus. Counts are descriptive categories assigned for this review; they are not incident rates, quality ratings, or independent effect estimates.

The synthesis produced the conceptual risk management framework shown in Figure 2. Recognition begins when any participating worker notices a safety-relevant concern. Verification connects the concern to the correct patient or episode. Transfer then communicates sufficient context to an identifiable recipient, who acknowledges receipt and clarifies the request. The action stage separates decision authority from task performance. An unresolved or unanswered concern returns through escalation; closure records the outcome and identifies any remaining responsibility. Organizational learning examines recurrent interface failures across episodes.

A shared minimum message is proposed to contain the correct identity, the concern and its source, urgency under a locally approved protocol, the requested task, and the responsible recipient. Role-specific additions should be limited to information necessary for the next action. A laboratory professional may communicate a verified result and relevant specimen concern; a nurse may add current observations; a dental professional may specify procedural implications. A medical secretary may arrange contact or an appointment under instructions. Healthcare assistants may recognize and relay concerns within their training. Security personnel may communicate operational risks and immediate response needs. These examples are proposed allocations, not findings of newly observed practice.

Acknowledgement has an operational function: it makes receipt visible and allows correction of misunderstanding. It does not establish that clinical assessment has occurred. A clinician who receives a result may require additional information before deciding, while an administrative recipient may need to forward it rather than act clinically. The framework therefore requires a transition from receipt to the appropriate owner, and from ownership to documented completion or justified escalation. An automatically generated delivery indicator alone would satisfy neither requirement.

No universal escalation interval is prescribed because the selected evidence does not establish one across these settings. Immediate threats require the existing emergency response pathway, and routine tasks require agreed service standards. The conceptual proposition is that every relevant interval should have an accountable fallback.

Evaluation would need to establish whether these requirements are usable, whether recipients are available, and whether the resulting documentation reflects real action rather than additional form completion.

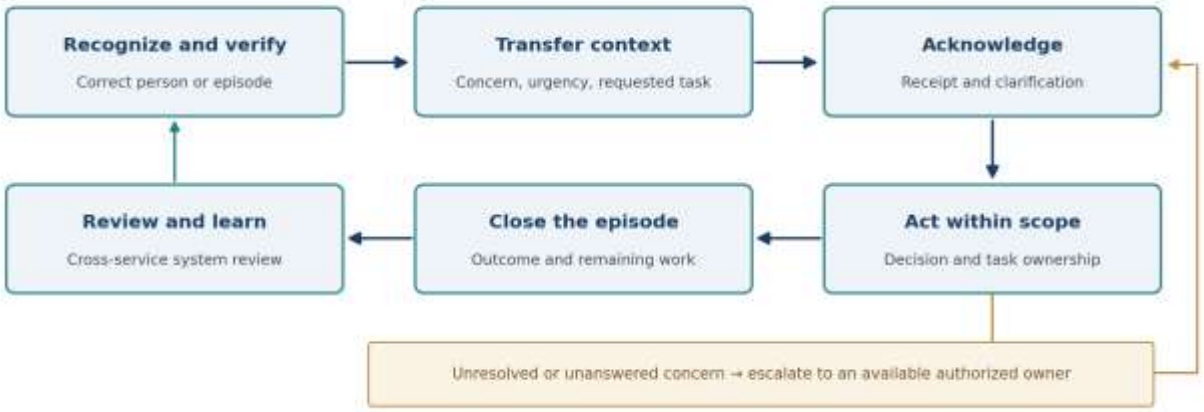


Figure 2 Proposed information and responsibility framework. The stages and feedback connections are conceptual outputs of this synthesis and have not been prospectively validated.

Figure 3 translates the framework into a proposed responsibility map. It assigns lead, contributing, and governance roles to six professional domains for illustrative tasks. These assignments express a design proposal, not measured competence, staffing, or legal authority. Clinical interpretation remains with the relevant authorized professional, including physicians or other specialists beyond the six domains when necessary. The map is intentionally incomplete as a clinical staffing model and must be adapted to local scopes of practice.

The map makes two contributions visible. Support personnel participate in safe routing and recognition, while clinical personnel remain accountable for assessment and treatment decisions. Patient safety and risk management coordinate cross-service learning and system review rather than taking over every clinical task. Dental teams retain ownership of dental assessment, laboratory services retain verification responsibilities, and nursing maintains its role in monitoring and escalation. A concern involving several domains can require more than one accountable task owner; one owner for an episode should not erase distinct professional obligations.

The synthesis has important limits. Purposeful selection and partial reliance on abstracts can omit relevant evidence and limit critical appraisal. English-language indexing may underrepresent local literature. The reviewed populations and organizations do not represent Saudi Arabia or any other national system, and older sources may not reflect present technology. Review overlap prevents interpreting twenty publications as twenty independent intervention tests. No comparative data establish that the proposed responsibilities are feasible, acceptable, or effective across all six domains.

Future assessment could compare the proportion of priority concerns reaching an appropriate recipient, time to acknowledgement, documented clinical review of abnormal results, unresolved tasks after a locally defined deadline, and patient-reported understanding. These are proposed indicators, with denominators and thresholds to be specified before implementation. Clinical harm, confidentiality incidents, staff burden, and delayed access should be evaluated separately. No numerical targets or reductions are derived from this review. The result is a traceable framework and evaluation agenda, whose usefulness can be tested without assuming its effectiveness in advance.

	Healthcare security	Healthcare assistance	Medical secretarial	Nursing	Dental teams	Clinical laboratory
Register and route a concern	C	C	L	C	C	C
Recognize bedside deterioration	C	C	C	L	C	C
Verify specimen and release result		C	C	C	C	L
Assess a dental concern		C	C	C	L	C
Coordinate an immediate security response	L	C	C	C	C	
Review recurring interface failures	C	C	C	C	C	C

Patient safety and risk management: G across all tasks for system oversight and learning

Figure 3 Illustrative proposed responsibility map. L = lead within authorized scope; C = contribute or route; G = system governance; blank = no routine assignment. Categories are proposals, not numerical scores or observed practice.

5 Conclusion and recommendations

5.1 Conclusion

Patient safety information crosses boundaries that are wider than clinician handovers. The reviewed literature connects structured communication, identity verification, diagnostic follow-up, dental safety, and violence prevention with different parts of that pathway. This targeted synthesis brings those contributions together around the responsibility interface, where a completed task in one service creates a requirement for action in another. Its conclusion is that information continuity needs an identifiable recipient and an accountable next step, supported by acknowledgement, escalation, and closure.

The evidence does not support treating every professional group or intervention as equivalent. Clinical handoff programmes provide the most developed component evidence in this corpus, while secretarial and security interfaces depend more heavily on contextual interpretation. Mixed intervention findings, surrogate error markers, and differences between detection and prevention require careful qualification. The framework consequently distinguishes transmitted information from understood information, and documented receipt from completed clinical action.

The manuscript contributes a conceptual model and an allocation of responsibilities across healthcare security, healthcare assistance, medical secretarial services, nursing, dental teams, and laboratories. Patient safety governance connects those services without replacing professional judgement or expanding unauthorized practice. The model has not been tested, and no institutional improvement or reduction in harm is claimed.

The next step is prospective assessment of feasibility, acceptability, and consequences in defined pathways. Such work should include patients and support personnel, specify outcome denominators, and examine privacy, workload, and access alongside clinical safety. Until then, the framework is an evidence-informed basis for discussion and evaluation rather than an established intervention.

5.2 Recommendations

Organizations considering this framework should begin with a bounded pathway, such as the communication of abnormal laboratory results to a dental or nursing service. They should map responsibilities with frontline staff and patients, identify where ownership becomes unclear, and agree the minimum information required for each transfer. The resulting protocol should name the receiving service, define acknowledgement, and establish an appropriate route when the first recipient cannot respond.

Professional boundaries should remain explicit. Medical secretarial personnel can verify contact routes and coordinate appointments under approved instructions. Healthcare assistants can recognize and report concerns within their competence. Security personnel should receive the operational information needed for safe response. Authorized clinical professionals must retain responsibility for assessment, interpretation, and treatment, with specialist input whenever necessary.

Education should use interface scenarios and examine whether staff can identify the correct recipient and explain the next action. Technology should support task visibility and identity checks while avoiding unnecessary disclosure, duplicate documentation, or automatic assumptions that a delivered message has been acted upon. Patients should receive explanations and accessible contact options without becoming the final safeguard against organizational failure.

Research should evaluate implementation fidelity before attributing changes in harm to the framework. Prespecified measures should distinguish completeness, acknowledgement, response time, clinical action, and patient outcomes. Evaluations should also monitor confidentiality incidents, delayed care, workload, and unintended restrictions. Multisite comparative studies may follow feasibility work, with ethics and governance review appropriate to the design. Effectiveness claims should remain conditional until such studies demonstrate benefit in relevant settings.

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