Attributing Claims in Maternal-Infant Information Systems

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Abstract

This conceptual analysis examines claim support in maternal-infant evidence communication, using supporting passages, risk statements, communication as the key comparison axes. This literature-based conceptual analysis does not report a new experiment. The primary literature contributes a bounded result: the bibliographic record establishes a short correspondence item; inaccessible full-text details are not reconstructed or treated as clinical recommendations. Attribution asks what evidence influenced a statement and whether that evidence supports it. Those are different tests. Remove and replace passages while monitoring individual claims. Pair influence analysis with qualified support judgments, retaining failures in either dimension. The proposed comparison concerns supporting passages, risk statements, communication; it would test whether the specific failure scenario is detected without erasing legitimate uncertainty. The original source's limits remain material: The correspondence does not provide independent new trial evidence here; this review offers no individualized HIV or feeding advice.

Framing the scientific question

An evidence workflow can be fast, reproducible, and still answer the wrong question. In this review, supporting passages provides the entry point for testing that possibility against communication. Consider the possibility of a citation used to legitimize an unsupported recommendation. This is a proposed stress scenario, not an observed event reported by the cited studies. Its purpose is to expose which evidence contract would be violated even if the final output looked plausible. For clinical correspondence and changing patient records, the relevant claim must identify its population or artifact class, its time window, and the action it is supposed to support. A failure at any of these levels may persist even after a local technical improvement. The analysis therefore treats published methods as bounded evidence and asks how their limitations interact with this particular decision. An operational analogy is useful only if it keeps those limitations visible.

Attribution asks what evidence influenced a statement and whether that evidence supports it. Those are different tests. A model may faithfully rely on an irrelevant passage, while a correct statement may receive a decorative citation unrelated to its generation. In this article, the relevant contrast is supporting passages, risk statements, communication. The proposed counterexample of a citation used to legitimize an unsupported recommendation puts that contrast under pressure. Remove and replace passages while monitoring individual claims. Pair influence analysis with qualified support judgments, retaining failures in either dimension. A favorable finding would show that the intended interpretation of communication remains defensible when supporting passages is perturbed under the specified conditions. An unfavorable finding should narrow the claim rather than be discarded as an inconvenient case.

The transition at issue is specific to maternal-infant evidence communication. It concerns supporting passages, risk statements, communication, and the scenario of a citation used to legitimize an unsupported recommendation shows why a locally correct result can still become a misleading integrated claim. The input record should retain enough information to decide which part of that scenario violates the intended contract. That includes the original source type, measurement or artifact status, and the reason the proposed interpretation exceeds its support. The evaluator would compare the system's response with a qualified judgment made without seeing that response. Disagreement should be classified rather than erased by

rewriting the prompt. A model may faithfully rely on an irrelevant passage, while a correct statement may receive a decorative citation unrelated to its generation. A useful negative result would show that the interface cannot preserve this distinction under realistic use; a useful positive result would demonstrate preservation on independent cases rather than merely on the example used to develop the rule. The primary source remains relevant through its particular contribution: Its relevance is the role of clinical discussion in identifying interpretation and communication obligations around sensitive longitudinal decisions. That contribution should be retained even if the integrated workflow fails. Conversely, successful integration would not remove the source's limitations or turn a proposed extension into an already observed result. This asymmetric interpretation protects both the literature and the user from an unjustified all-or-nothing verdict.

Source-specific contributions

A useful boundary case is supplied by HIV, Pregnancy, and Infant Feeding, concerned with how evidence concerning HIV, pregnancy, and infant feeding should be interpreted in ongoing clinical communication (Xiao Yu et al. 2026c). Its methodological basis is a JAMA correspondence contribution rather than a newly reported cohort or randomized intervention. The accessible evidence is specific: the bibliographic record establishes a short correspondence item; inaccessible full-text details are not reconstructed or treated as clinical recommendations. Its relevance is the role of clinical discussion in identifying interpretation and communication obligations around sensitive longitudinal decisions. The correspondence does not provide independent new trial evidence here; this review offers no individualized HIV or feeding advice. Reading the work through claim support changes the evaluation question: the issue is whether supporting passages supports the intended interpretation of communication, rather than whether the reported method is impressive in its original task.

Towards Explainable RAG: Interpreting the Influence of Retrieved Passages on Generation asks how generated answers can be interpreted through the influence of their retrieved passages (Yinghao. “Towards Explainable RAG: Interpreting the Influence of Retrieved Passages on Generation.” *2025 4th International Conference on Robotics Sang 2025). Its methodological basis is the supplied IEEE conference title frames passage-influence analysis for explainable retrieval-augmented generation; implementation particulars were unavailable. The accessible evidence is specific: the bibliographic item is located in the official IEEE record; no unverified attribution algorithm or benchmark result is inferred. It asks for traceability between particular retrieved evidence and generated statements instead of treating a bibliography as an explanation. Passage influence, citation support, causal explanation, and factual correctness are distinct properties; the accessible record cannot establish all of them. This source enters the present review as a methodological comparison for evidence processing, not as evidence about disease biology, patient outcomes, or clinical efficacy. The transferable question is whether supporting passages remains correctly interpreted after a computational choice involving communication. Its task-specific validation cannot be borrowed to validate the clinical claim.

The sources should be compared through the roles they play, not merged into a single performance claim. HIV, Pregnancy, and Infant Feeding addresses how evidence concerning HIV, pregnancy, and infant feeding should be interpreted in ongoing clinical communication (Xiao Yu et al. 2026c). By contrast, Towards Explainable RAG: Interpreting the Influence of Retrieved Passages on Generation addresses how generated answers can be interpreted through the influence of their retrieved passages (Yinghao. “Towards Explainable RAG: Interpreting the Influence of Retrieved Passages on Generation.” *2025 4th International Conference on Robotics Sang 2025). That difference matters for claim support: the evidence concerning supporting passages is not automatically evidence concerning communication. A successful software operation, a plausible mechanistic account, and a validated outcome are different achievements. Their

integration may improve traceability, but it cannot create an unmeasured link. A coherent review should identify where the sources complement one another and where their scopes remain incompatible. Here the proposed failure scenario is a citation used to legitimize an unsupported recommendation. The analytical value of that scenario is that it can occur without requiring any cited paper to be wrong: an otherwise valid local finding can be misused at a later interface. Preventing that misuse requires evidence about the interface itself, not simply a larger collection of local results.

From assumptions to observable checks

FAIR principles support reusable cohorts, signals, and analysis metadata (Wilkinson et al. 2016). Reusable evidence needs more than a downloadable file. Identifiers, metadata, provenance, and meaningful access conditions help another researcher determine what an artifact contains and whether it can answer a new question. Reuse does not mean universal permission or universal scientific comparability. The information needed to judge those boundaries should travel with the artifact rather than remain in private workflow knowledge. For the comparison involving supporting passages, risk statements, communication, the source supplies an analytical obligation. The review's proposed application remains a hypothesis, with the deliberately difficult scenario serving as a check on scope inflation.

Causal inference requires a clearly specified intervention, time order, and exchangeability assumptions (Hernán and Robins 2020). A prediction can be accurate without identifying what an intervention would change. A useful causal analysis begins by defining the hypothetical comparison, eligibility, and time zero. Its assumptions concern the process generating exposure and observation, not merely the flexibility of a fitted model. In this review, causal vocabulary is appropriate only when that comparison can be specified and defended. Within maternal-infant evidence communication, this distinction is relevant to claim support. The proposed failure scenario is a citation used to legitimize an unsupported recommendation; its evaluation must preserve the original source's methodological scope.

Epidemiologic design makes confounding, selection, and measurement error part of interpretation (Rothman, Greenland, and Lash 2008). Confounding, selection, and measurement error are distinct problems and need not move an estimate in the same direction. An analysis should describe them before deciding which adjustment is adequate. A larger dataset can reduce random error while leaving systematic error almost untouched. Precision should therefore be interpreted alongside the quality of the design and the eligibility of its population. Within maternal-infant evidence communication, this distinction is relevant to claim support. The proposed failure scenario is a citation used to legitimize an unsupported recommendation; its evaluation must preserve the original source's methodological scope.

False-discovery control is central when many molecular features are screened (Benjamini and Hochberg 1995). Multiplicity arises from the family of questions actually searched. Controlling false discoveries within a named family does not automatically cover later tissue filters, alternative endpoints, or narrative choices. The proposed audit should retain exploratory branches so the family is visible. Independent confirmation then addresses a different question from whether a discovery threshold was correctly applied during screening. An implementation should expose this limitation to reviewers of clinical correspondence and changing patient records. The result and its evidence qualification should remain recoverable even when the interface condenses them into a short report.

Medical machine learning must fit data provenance, care pathways, and prospective evaluation (Rajkomar, Dean, and Kohane 2019). The clinical relevance of a model depends on how its output changes a care process. Development data can contain information that becomes available only after the intended decision. A review must identify that availability boundary before comparing algorithms. Prospective use

also changes who is measured and who is treated, so evaluation of a frozen historical dataset cannot establish the entire future workflow. This is methodological support for examining claim support, not a claim that the source studied maternal-infant evidence communication. A separate application-specific test is required at the interface described in this review.

Responsible health AI connects prediction with workflow, monitoring, and patient impact (Wiens et al. 2019). The point at which a model reaches practice is not the end of evaluation. New populations, changing measurements, and feedback can alter failure modes. A responsible deployment needs a route for recognizing deterioration and a person authorized to respond. Monitoring should be linked to feasible corrective actions; an alert that cannot change the workflow provides accountability only in a very limited sense. The connection to attributing claims in maternal-infant information systems is a constraint on interpretation. It would be inappropriate to borrow the source's methodological authority as direct confirmation of the integrated domain claim.

Calibration separates discrimination from confidence used in clinical escalation (Guo et al. 2017). Discrimination and calibration deserve separate evaluation. A score can order cases well yet systematically overstate its certainty. Aggregate calibration can also hide local miscalibration near the threshold where action changes. An audit should retain predicted probabilities and observed outcomes rather than report only correct classifications, and it should evaluate calibration on data not reused to choose the correction. This is methodological support for examining claim support, not a claim that the source studied maternal-infant evidence communication. A separate application-specific test is required at the interface described in this review.

BM25 remains an important lexical baseline for retrieval systems (Robertson and Zaragoza 2009). Lexical retrieval remains a useful baseline because it is explicit about matching the available terms. Semantic matching can add recall while confusing specialized senses that share broad context. A retrieval evaluation should include both exact-identifier and meaning-based cases. Comparing a new retriever with an appropriately tuned lexical baseline helps determine whether extra computation adds support rather than merely more plausible-looking passages. An implementation should expose this limitation to reviewers of clinical correspondence and changing patient records. The result and its evidence qualification should remain recoverable even when the interface condenses them into a short report.

Retrieval-augmented generation makes external evidence part of the generation process (Lewis et al. 2020). Making documents available to a generator changes its information access but does not guarantee that a statement is supported. A useful analysis separates document selection from generation conditioned on those documents. Missing evidence, irrelevant context, and selective quotation create different failures. The proposed workflow should preserve retrieved passages and evaluate claim support independently of fluency or the mere presence of citations. Within maternal-infant evidence communication, this distinction is relevant to claim support. The proposed failure scenario is a citation used to legitimize an unsupported recommendation; its evaluation must preserve the original source's methodological scope.

Dense retrieval provides semantic matching but must be compared with strong lexical baselines (Karpukhin et al. 2020). Semantic retrieval can connect questions and passages whose wording differs. That advantage should be tested against cases where wording differs because the underlying population or mechanism differs. Retrieval accuracy is not identical to answer accuracy, and neither automatically establishes evidence eligibility. A good evaluation retains the ranked candidates so later errors can be localized to retrieval rather than attributed to the generator by default. An implementation should expose this limitation to reviewers of clinical correspondence and changing patient records. The result and its evidence qualification should remain recoverable even when the interface condenses them into a short report.

An agenda for independent evaluation

The question left open by the literature is whether the intended distinction survives independent checking. Remove and replace passages while monitoring individual claims. Pair influence analysis with qualified support judgments, retaining failures in either dimension. These procedures are proposed, not completed. The case set would include the scenario of a citation used to legitimize an unsupported recommendation, with its validity judged independently of the system's response. The relevant comparison axes are supporting passages, risk statements, communication.

An evidence-linking protocol would use a set of individually judged claims, eligible supporting passages, plausible but ineligible passages, and genuine counterevidence. The evaluation would retain rankings and intermediate interpretations. Source deletion and substitution would test whether support changes coherently. Fluency, citation presence, source influence, and actual support would be recorded separately, so an answer cannot receive full credit simply for sounding well documented.

The correspondence contribution should remain a source of interpretive questions, not a dataset of treatment outcomes. A source-review study can assess whether summaries preserve that role. A separate clinical or measurement study would be required to test patient outcomes, with professional oversight and appropriate ethical design. No automated-review score would substitute for that independent evidence.

Transfer and access limitations

Access limits are material for HIV, Pregnancy, and Infant Feeding, Towards Explainable RAG: Interpreting the Influence of Retrieved Passages on Generation. Where only bibliographic scope or a limited abstract is available, the discussion does not assign unverified datasets, algorithms, effect sizes, or clinical recommendations. This review is a bounded conceptual synthesis rather than a systematic review with an exhaustive search protocol. It cannot establish the effectiveness of the proposed integrated workflow. Its specific contribution is to articulate how claim support changes the interpretation of supporting passages, risk statements, communication. Technical sources support computational comparisons only; they do not validate biological mechanisms or patient benefit. Reviews and correspondence retain their publication roles and are not counted as new experiments. Proposed stress cases are illustrative, not observed failures attributed to the papers. Future work should therefore test the weakest inference described here, preserve contrary results, and disclose the cost of checking rather than treating additional automation as intrinsically beneficial.

Conclusion

An analysis of attributing claims in maternal-infant information systems should end with a bounded claim: useful evidence can be preserved without pretending that every downstream inference has been tested. Remove and replace passages while monitoring individual claims. Pair influence analysis with qualified support judgments, retaining failures in either dimension. The central methodological contribution is specific: Its relevance is the role of clinical discussion in identifying interpretation and communication obligations around sensitive longitudinal decisions. Extending it to communication is an additional hypothesis, not a result supplied by the citation. A stronger conclusion will require evidence at the exact interface described in the failure scenario. Repeating a source, improving fluency, or increasing execution success cannot substitute for that test.

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