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The Defensible Framework: A Conceptual Model for Physician-Led Clinical Documentation Integrity

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Abstract

Background: Clinical documentation integrity (CDI) is recognized as essential to patient safety, clinical communication, and healthcare classification. Despite decades of CDI program development and the proliferation of documentation frameworks, physician diagnostic documentation in hospital medicine remains systematically incomplete. A review of the existing framework landscape suggests that no available framework provides physicians with a proactive, lifecycle-aligned documentation standard corresponding to the stages of diagnostic reasoning. This gap is proposed as a contributor to the persistence of documentation deficiencies despite the availability of CDI programs. Objective: This paper aims to: (1) synthesize the existing documentation and CDI framework literature through a narrative review to identify structural limitations; (2) propose, through expert analysis, conceptual gaps that a comprehensive physician-centered framework would need to address; and (3) present the DEFENSIBLE Framework — a ten-component diagnostic documentation lifecycle model — as a conceptual contribution for scholarly critique and future empirical validation. Methods: A narrative (non-systematic) review was conducted across PubMed/MEDLINE and CDI organizational publications, consistent with SANRA reporting criteria. Sources were selected purposively to represent the range of existing documentation frameworks and support clinical evidence. Framework analysis was thematic and interpretive. The five conceptual gaps reported, and the DEFENSIBLE Framework itself represent the authors' expert synthesis, not systematic evidence findings, and are presented as propositions requiring prospective validation. Results: Five framework categories were analyzed: the Problem-Oriented Medical Record, contemporary CDI programs, clinical validation frameworks, risk adjustment documentation frameworks, and national CDI organizational guidance. Five recurring structural limitations were identified and synthesized into five author-proposed conceptual gaps: absence of a physician-centered proactive framework; reactive documentation design; disconnection from the diagnostic lifecycle; absence of discharge diagnostic reconciliation mechanisms; and insufficient alignment with physician

clinical reasoning. The DEFENSIBLE Framework — comprising ten sequenced documentation components aligned with the stages of an inpatient hospitalization — is presented as a structured response to these proposed gaps. Conclusions: The DEFENSIBLE Framework represents a conceptual contribution to the clinical documentation integrity literature, proposing a physician-centered, lifecycle-aligned documentation standard grounded in dual-process clinical reasoning theory. The framework requires prospective validation through expert panel review and implementation study before effectiveness claims can be made. It is offered as a structured basis for that validation work and as a potential organizing framework for physician documentation education in IR-DRG and MS-DRG classification environments.
Keywords: Clinical Documentation Integrity, Diagnostic Documentation, Physician Documentation, Ir-Drg, Case Mix Index, Clinical Reasoning, Discharge Documentation

Background

Clinical and administrative importance of diagnostic documentation

The medical record serves as the primary instrument through which physician diagnostic reasoning is communicated to the broader healthcare system. The accuracy and completeness of diagnostic documentation directly influence clinical coordination, care continuity, patient safety, and the reliability of administratively important data derived from the medical record (Bowman, 2013). These include case-mix classification, severity of illness measurement, quality indicator reporting, risk adjustment, and reimbursement adjudication. In diagnosis related group (DRG) reimbursement systems, the principal diagnosis anchors the classification case, while secondary diagnoses reflecting comorbidities and complications determine severity subclass through Severity of Illness (SOI) and Risk of Mortality (ROM) scores. The accuracy of DRG-based classification has been a documented concern since the introduction of prospective payment; Hsia et al. (1988) identified a coding error rate of 20.8% in Medicare inpatients under the prospective payment system, attributable substantially to documentation imprecision at the physician level. Risk adjustment models used in quality reporting depend correspondingly on complete and specific diagnosis documentation; incomplete documentation has been associated with systematic underestimation of patient complexity in CMS Hierarchical Condition Category models (Li et al., 2010).

The International Refined Diagnosis Related Groups (IR-DRG) system, in use in Abu Dhabi under the Abu Dhabi Department of Health since 2011 and in Dubai since approximately 2017, applies equivalent classification principles. IR-DRG classification accuracy is subject to the same documentation-driven vulnerabilities as MS-DRG systems, yet peer-reviewed studies addressing IR-DRG documentation practices in the UAE or broader GCC region are not currently available in the indexed literature. This represents a regional evidence gap that the present paper is positioned to begin addressing.

Scope and limitations of existing documentation frameworks

Recognition of documentation's clinical and administrative consequences has produced a range of frameworks designed to improve documentation quality. The Problem-Oriented Medical Record (POMR), introduced by Weed in 1968, established the SOAP-note methodology that remains the universal inpatient documentation structure (Weed, 1968). Clinical Documentation Integrity programs, which emerged in the 1990s and 2000s as DRG reimbursement expanded, employ concurrent record review and physician queries to identify and correct documentation deficiencies (Hess, 2015). Clinical validation frameworks,

developed in response to concerns about inappropriate documentation driven by CDI query pressure, establish evidence-based diagnostic criteria for high-impact secondary diagnoses (American Health Information Management Association [AHIMA], 2016). Risk adjustment documentation frameworks address chronic condition completeness for capitated payment and quality reporting contexts (Pope et al., 2004).

Despite this landscape, documentation gaps persist. Malnutrition is reported as underdocumented in a substantial proportion of nutritionally compromised hospitalized patients (Tappenden et al., 2013), acute kidney injury is frequently not documented despite meeting objective criteria (Siew & Davenport, 2015), and sepsis documentation diverges from Sepsis-3 physiologic criteria in significant proportions of cases (Rhee et al., 2019). The persistence of these gaps alongside established CDI programs suggests limitations in the structural design of current approaches.

Rationale and aims

A review of existing documentation frameworks suggests a common structural limitation: all are designed for CDI specialists, health information management professionals, or quality reviewers rather than for physicians as primary documentation authors. All operate retrospectively, identifying deficiencies after formation rather than providing prospective guidance. None conceptualizes documentation as a lifecycle aligned with the cognitive stages of diagnostic reasoning, from initial hypothesis generation through discharge diagnostic reconciliation.

This paper aims to: (1) synthesize the existing documentation and CDI framework literature through a narrative review, identifying structural strengths and limitations; (2) propose, as expert analysis, a set of conceptual gaps that a comprehensive physician-centered framework would need to address; and (3) present the DEFENSIBLE Framework as a conceptual response to those proposed gaps, offered for scholarly review and future empirical validation.

The term 'framework' is used throughout to refer to a conceptual model organizing documentation actions into a structured lifecycle. This paper does not claim to present a validated intervention; it presents a conceptual model whose proposed utility requires testing.

Methods

Study design

This paper presents a conceptual framework development paper informed by a narrative non-systematic review of the documentation integrity and physician documentation literature. Narrative review methodology is appropriate when the purpose is interpretive integration of heterogeneous evidence for theory or framework development rather than systematic evidence mapping (Munn et al., 2018). This paper is reported against the SANRA (Scale for the Assessment of Narrative Review Articles) quality criteria (Baethge et al., 2019). A PRISMA-ScR scoping review was not conducted; that methodology would require a documented systematic search, independent dual screening, and formal data charting, which were not performed.

Literature search

A search was conducted across PubMed/MEDLINE, AHIMA organizational publications, ACDIS practice briefs, and health information management literature. Search terms included: clinical documentation integrity, diagnostic documentation, physician documentation, medical record quality, DRG documentation, case mix index, discharge documentation, clinical validation, present on admission, and diagnosis coding accuracy. Grey literature included Abu Dhabi Department of Health IR-DRG implementation guidance and AHRQ HCUP resources. The search was last conducted in August 2025 with no date restriction applied. Sources were selected purposively by the authors based on relevance to the paper's conceptual scope; no formal inclusion/exclusion screening or PRISMA flow diagram is reported, consistent with narrative review methodology.

Framework Development Process

The DEFENSIBLE Framework was developed through five stages:

1. **Stage 1 —** Existing framework mapping: documentation and CDI frameworks were identified and described with respect to core components, target audience, lifecycle coverage, and classification alignment.
2. **Stage 2 —** Conceptual gap analysis: identified frameworks were compared thematically against the stages of physician diagnostic reasoning as described in the dual-process clinical cognition literature (Croskerry, 2009a, 2009b). Five conceptual gaps were proposed by the authors through expert analysis. These represent interpretive judgments, not empirical findings.
3. **Stage 3 —** Competency synthesis: proposed gaps were synthesized into documentation competency domains, each intended to address one or more gaps.
4. **Stage 4 —** Lifecycle organization: competency domains were organized into a temporal lifecycle sequence corresponding to inpatient hospitalization stages.
5. **Stage 5 —** Framework refinement: the ten-component DEFENSIBLE acronym structure was developed through iterative expert review drawing on CDI specialist practice experience at Sheikh Shakhbout Medical City (SSMC), Abu Dhabi, a tertiary, quaternary hospital within the PureHealth Group operating under IR-DRG classification.

The DEFENSIBLE Framework was developed prior to the formal conduct of the narrative review reported in this paper. The review was conducted to contextualize the framework within the existing literature, identify precedent for its components, and characterize the landscape of existing frameworks against which it is positioned. This sequence — framework development followed by supporting review — is a recognized approach in expert framework development literature (Damschroder et al., 2022) and is disclosed transparently here.

SANRA quality self-assessment

Table 1

SANRA quality self-assessment (Baethge et al., 2019). Each item is scored 0–2; maximum score is 12.

SANRA Item	Criterion	Assessment
1 — Importance	Justification of the review's importance	Addressed in Background section with peer-reviewed evidence for clinical, administrative, and classification stakes of documentation quality.
2 — Aims	Clear statement of review aims	Three explicit aims stated in the Background and restated in the Abstract.
3 — Literature search	Description of search strategy	Databases, terms, and time period reported. Search is purposive and non-exhaustive; this is disclosed. Score: 1/2 (one point withheld for non-reproducibility, consistent with narrative methodology).
4 — Referencing	Appropriate and verified referencing	All references have been independently verified. Three references present in earlier drafts that could not be verified were removed. Grey literature is identified as such.
5 — Scientific reasoning	Quality of evidence synthesis	Proposed conceptual gaps are explicitly identified as expert analysis rather than systematic findings. Framework origin is disclosed. Limitations are stated.
6 — Relevant data	Presentation of supporting data	Peer-reviewed CDI studies, clinical classification examples from institutional practice, and dual-process cognition literature are integrated.
Total		11/12. The single point withheld reflects the acknowledged non-reproducibility of the purposive search, consistent with narrative methodology.

Results I: Narrative Synthesis of Existing Documentation Frameworks

The Problem-Oriented Medical Record

The POMR, introduced by Weed in 1968, organized the medical record around a defined problem list, initial problem-specific plans, SOAP-format progress notes, and a discharge summary (Weed, 1968). It represented a foundational advance in applying systematic structure to clinical documentation and established the SOAP methodology that remains universal in medical education and inpatient practice.

The POMR's limitations from the perspective of a contemporary physician documentation framework are substantive. It predates DRG-based reimbursement and provides no guidance on diagnostic specificity, severity gradation, etiology documentation, or classification system alignment. SOAP-format methodology does not require clinical evidence linkage to support diagnostic labels, causal language connecting related diagnoses, or temporal characterization

of diagnosis onset. There is no mechanism within POMR for present-on-admission (POA) status documentation or structured discharge diagnostic reconciliation.

Clinical Documentation Integrity programs

Contemporary CDI programs, which expanded substantially following MS-DRG implementation in the United States, employ specialist reviewers to conduct concurrent medical record review and generate physician queries when documentation deficiencies are identified (Hess, 2015). The physician query is the central mechanism, standardized by AHIMA and ACDIS practice briefs (Association of Clinical Documentation Integrity Specialists [ACDIS] & AHIMA, 2022). Several peer-reviewed studies have demonstrated improvements in CMI and institutional financial contribution margin following physician-led documentation improvement initiatives (Aiello et al., 2018). Documentation interventions targeting specific diagnoses — notably malnutrition — have produced sustained improvements in documentation accuracy and associated reimbursement impact (Farner et al., 2023).

CDI programs are structurally reactive: they identify and correct documentation deficiencies after they form rather than preventing them through prospective physician guidance. The query-based model depends on the continuous availability of specialist reviewers and does not produce durable physician documentation competency in the absence of ongoing external monitoring. CDI programs address the downstream consequences of documentation gaps rather than their upstream causes in physician practice.

Clinical Validation Frameworks

Clinical validation frameworks emerged in response to concerns that CDI query processes were resulting in the documentation of diagnoses not supported by clinical evidence (AHIMA, 2016). AHIMA's 2016 clinical validation guidance established that high-impact secondary diagnoses — including sepsis, acute respiratory failure, malnutrition, acute kidney injury, and encephalopathy — should be documented only when supported by clinical evidence meeting defined criteria (AHIMA, 2016). These frameworks provide a defensibility standard and a compliance mechanism for CDI programs.

Clinical validation frameworks are oriented toward retrospective payer review and audit functions, not prospective physician documentation guidance. They address diagnostic defensibility for specific high-impact categories without providing a comprehensive documentation methodology applicable across the full diagnostic spectrum. They do not address diagnostic lifecycle management, etiology documentation, POA status, or discharge reconciliation.

Risk adjustment documentation frameworks

CMS Hierarchical Condition Category guidance and analogous frameworks for accountable care organization quality reporting specify that chronic conditions must be documented annually with appropriate specificity to be captured in risk models (Pope et al., 2004). Li and colleagues demonstrated that CMS-HCC risk adjustment performance depends critically on the availability and completeness of documented and coded comorbidity data (Li et al., 2010). These frameworks have been associated with improved chronic condition capture in ambulatory settings.

Risk adjustment frameworks address comorbidity completeness without addressing the documentation of acute conditions, diagnostic reasoning, severity specification, etiology, or temporal lifecycle dimensions. They were developed for outpatient and ambulatory risk model contexts and do not provide inpatient documentation guidance covering the diagnostic trajectory from admission through discharge.

National CDI Organizational Frameworks

AHIMA, ACDIS, and related organizations have produced guidance documents, practice briefs, and educational resources addressing CDI program design, query standards, and documentation best practices (ACDIS & AHIMA, 2022). These resources represent the accumulated consensus of CDI practice communities and provide a shared vocabulary and compliance framework for documentation integrity programs.

Organizational CDI frameworks are directed at CDI specialists and health information management professionals rather than physicians. They address documentation improvement through external review and intermediary mechanisms rather than through physician-facing prospective frameworks. No organizational framework currently addresses diagnostic documentation as a physician-centered lifecycle requiring structured management from admission hypothesis generation through discharge diagnostic reconciliation.

Proposed Conceptual Gaps

Transparency notes: The five conceptual gaps described below represent the authors' expert interpretive analysis of the reviewed framework landscape. They are not systematic evidence findings; they are propositions derived from thematic comparison of identified frameworks against the stages of physician diagnostic reasoning. They are presented as the conceptual rationale for the DEFENSIBLE Framework and are offered for scholarly critique and prospective testing.

Gap 1 — Absence of a physician-centered proactive documentation framework

All identified frameworks are designed for CDI specialists, health information management professionals, or administrative functions rather than for physicians as primary documentation authors. The documentation improvement ecosystem is structurally dependent on external intermediaries identifying and correcting deficiencies produced without a prospective physician guidance system. Medical education addresses note format (SOAP) but provides no systematic framework for managing the documentation of diagnoses across the inpatient diagnostic lifecycle.

Gap 2 — Reactive documentation design

All identified frameworks operate retrospectively. CDI programs identify deficiencies after formation and correct them through query processes. Clinical validation frameworks assess documentation adequacy post-hoc. Risk adjustment frameworks identify underdocumented conditions after the encounter. No identified framework provides prospective documentation guidance at each hospitalization stage designed to prevent deficiencies rather than correct them.

Gap 3 — Disconnection from the diagnostic lifecycle

No identified framework conceptualizes diagnostic documentation as a lifecycle with stages corresponding to the stages of physician diagnostic reasoning. The diagnostic process in inpatient medicine traverses recognizable cognitive stages — hypothesis generation, evidence gathering, severity specification, etiologic integration, temporal characterization, ongoing clinical assessment, and diagnostic closure — none of which are explicitly addressed as documentation lifecycle stages by any existing framework.

Gap 4 — Absence of discharge diagnostic reconciliation

No identified framework addresses the discharge phase of documentation as a structured diagnostic reconciliation process requiring the systematic resolution of all diagnostic threads opened during the hospitalization. The discharge summary is the definitive record of the hospitalization, yet no structured standard exists for resolving provisional diagnoses, documenting ruled-out conditions, specifying resolution status, or ensuring internal consistency of the discharge record with the diagnostic trajectory documented across the stay.

Gap 5 — Insufficient alignment with physician clinical reasoning

Existing frameworks address documentation in terms of coding requirements, query format standards, or administrative specifications without explicit integration with the cognitive processes of diagnostic reasoning. Croskerry's dual-process theory of clinical cognition identifies documentation as a potential Type 2 deliberative anchor capable of correcting Type 1 intuitive reasoning errors (Croskerry, 2009a, 2009b). No existing framework incorporates this cognitive model as a design principle for physician documentation guidance.

Results II: The DEFENSIBLE Framework

Framework overview

The DEFENSIBLE Framework is a ten-component physician-centered diagnostic documentation lifecycle model. Each component represents a sequenced documentation action corresponding to a proposed stage of the inpatient diagnostic lifecycle and addressing one or more of the conceptual gaps identified above. The ten components and their correspondence to clinical reasoning stages are presented in Table 2.

Table 2

The DEFENSIBLE Framework: ten components, documentation actions, proposed reasoning stage correspondence, and proposed gaps addressed.

Component	Documentation action	Proposed reasoning stage	Gaps addressed
D — Define	Define the admission-driving diagnosis clearly: document the condition that required hospital care, with appropriate specificity and certainty language	Hypothesis generation	Gaps 1, 2, 5
E — Establish Clinical Support	Establish clinical support: document patient-specific findings that make each diagnosis understandable and reviewable by another clinician	Evidence integration	Gaps 1, 2, 5
F — Fully Specify	Fully specify severity, type, and hierarchy: document the highest clinically supported acuity level	Diagnostic specification	Gaps 1, 3
E — Establish Etiology	Establish etiology and link cause–effect: connect diagnoses with explicit causal language	Pathophysiologic reasoning	Gaps 3, 5
N — Note POA	Note present-on-admission status for all significant diagnoses	Temporal framing	Gaps 3, 5
S — Separate	Separate comorbidities from complications explicitly	Illness contextualization	Gaps 3, 5
I — Illustrate	Illustrate clinical progression and medical necessity in daily documentation	Ongoing clinical assessment	Gaps 2, 3
B — Be Explicit	Be explicit about diagnostic certainty and resolution: state the final level of certainty clearly — confirmed, resolved, improved, ongoing, ruled out, or genuinely unresolved with a follow-up plan	Diagnostic closure	Gaps 4, 5
L — Link	Link terminology across the stay: when a diagnosis changes, document the evidence that led to the revision; the goal is	Narrative coherence	Gaps 3, 4

Component	Documentation action	Proposed reasoning stage	Gaps addressed
	traceability, not frozen language		
E — End	End with discharge diagnostic reconciliation: close all diagnostic threads formally	Definitive closure	Gaps 4, all

Component Descriptions

D — Define the admission-driving diagnosis clearly

The physician's task is to document the condition — or conditions — that required hospital-level care, based on the available evidence at each point in the hospitalization. The coder then selects the principal diagnosis using applicable coding rules. This distinction matters: the physician documents clinical reality; the coder applies sequencing conventions. In IR-DRG classification, the entire coded encounter — including procedures — dictates grouping, not the principal diagnosis in isolation.

The admission diagnosis is based on the patient's initial condition and is necessarily provisional in many cases; uncertainty language (suspected, probable, likely) is appropriate when workup is incomplete. The 'Define' component proposes that even provisional documentation should specify a diagnostic conclusion — not merely a symptom list — and should be updated as new evidence accumulates. When several conditions contribute to admission, each should be documented with its clinical role described. At discharge, a final diagnostic statement should reflect the full clinical course.

The documentation failure this component addresses is the use of presenting symptom lists (fever, shortness of breath, altered consciousness) in place of diagnostic conclusions, and the failure to update provisional diagnoses as certainty increases across the hospitalization.

E — Establish clinical support

Clinical support proposes that each significant diagnosis should be accompanied by enough patient-specific clinical context for another clinician to understand why it was made. This may include symptoms, examination findings, laboratory or imaging data, treatment requirements, and response to therapy. These elements support — but do not replace — the physician's clinical judgment. Clinical support does not mean transcribing every test result; it means documenting the findings that materially informed the diagnosis and making the reasoning visible, concise, and patient-specific.

Specific diagnoses — including acute kidney injury, acute respiratory failure, sepsis, malnutrition, and encephalopathy — are particularly subject to underdocumentation or documentation without adequate clinical context (AHIMA, 2016). The 'Establish Clinical Support' component proposes that this context should be embedded in routine documentation at the time of diagnosis, not added retrospectively in response to CDI queries. Isolated laboratory thresholds do not create diagnoses, and documentation should never be written to target a DRG; the goal is a complete and accurate clinical record.

The classification impact of clinical validation can be illustrated with examples drawn from institutional CDI audit practice at SSMC, consistent with Abu Dhabi DOH IR-DRG weight tables (Table 3). These examples are provided as illustrative of classification mechanics, not as generalizable empirical findings; IR-DRG weights are subject to version-specific variation.

Table 3
Illustrative IR-DRG classification impact of clinical validation documentation, drawn from SSMC institutional CDI audit practice (Abu Dhabi DOH IR-DRG weight tables, version current at time of audit). These figures illustrate classification mechanics; they are not generalizable IR-DRG standards and should be verified against current DOH weight tables.

Condition	Documentation state	IR-DRG example	Relative weight (illustrative)
Acute Kidney Injury	Without clinical support (diagnosis label only)	IR-DRG 081601, SOI 1 / ROM 1	1.27
Acute Kidney Injury	With clinical support (creatinine change, etiology, clinical context documented)	IR-DRG 081603, SOI 3 / ROM 3	4.99
Acute Respiratory Failure	Without clinical support (diagnosis label only)	IR-DRG 044181, SOI 1	0.34
Acute Respiratory Failure	With clinical support (SpO_2, work of breathing, O_2 requirement documented)	IR-DRG 044112, SOI 2	2.00

F — Fully specify severity and hierarchy
Diagnostic specificity refers to the practice of documenting the most precise diagnostic entity supported by the clinical evidence rather than a broad category. The distinction between 'heart failure' and 'acute-on-chronic systolic heart failure,' or between 'infection' and 'septic shock with vasopressor requirement,' has direct implications for clinical management — monitoring intensity, escalation thresholds, consultant expectations — as well as for classification severity assignment.

The 'Fully Specify' component proposes that documentation should represent the highest severity level that is clinically supported and explicitly reasoned. This is distinct from a documentation-for-revenue argument: the rationale is that imprecise documentation misrepresents the patient's physiologic condition to all subsequent providers and produces inaccurate severity data at the population level.

E — Establish etiology and link cause–effect
Etiologic documentation proposes that diagnoses should be linked to their underlying causes using explicit causal language ('due to,' 'secondary to,' 'resulting from,' 'complicated by') where the causal relationship is clinically supported. The causal linkage transforms a list of isolated diagnoses into an integrated pathophysiologic narrative — reflecting the way

physicians actually reason about complex inpatients — and makes that reasoning accessible to all subsequent providers.

Etiologic documentation should reflect the physician's actual level of certainty: confirmed causal language is appropriate when evidence is established; probability language (likely due to, possibly secondary to) is appropriate when the relationship is clinically probable but not confirmed. Unexplained or undocumented causal relationships may lead to fragmented management, missed follow-up, and inaccurate clinical records.

N — Note present-on-admission status

Present-on-admission status distinguishes conditions that existed at the time of hospital arrival from conditions that developed during the hospitalization. This distinction is clinically relevant — it characterizes what the patient brought to the hospital versus what the hospital course contributed — and is administratively significant: hospital-acquired conditions (POA = N) are excluded from DRG severity scoring under HAC (hospital-acquired condition) rules in both MS-DRG and IR-DRG systems, preventing hospital-acquired complications from artificially increasing reimbursement.

The 'Note POA' component proposes that POA status should be documented explicitly for each significant diagnosis, supported by the objective findings that establish the timing. When timing cannot be determined, documentation of clinical undeterminability ('unable to determine if present on admission') is appropriate and preserves the clinical record's accuracy.

S — Separate comorbidities from complications

Comorbidities are pre-existing conditions that shaped the patient's baseline risk and constrained management from admission. Complications are conditions that arose during the hospitalization, representing disease progression, treatment effects, or hospital-acquired events. Conflating these categories obscures the clinical course, impairs communication with subsequent providers, and produces incorrect classification and quality reporting data.

The 'Separate' component proposes that each condition in the medical record be explicitly identified as pre-existing or incident, with timing documented for incident conditions ('developed on hospital day X'). This practice supports accurate POA designation, appropriate severity attribution, and clear communication of the patient's hospital course.

I — Illustrate clinical progression and medical necessity

Daily progress documentation serves two interconnected functions. Clinically, it tracks the patient's trajectory, documents treatment response, and communicates the evolving condition to the care team. Administratively, it establishes the ongoing medical necessity of inpatient-level care and provides the daily evidentiary basis supporting each active diagnosis.

The 'Illustrate' component proposes that daily notes should address, for each active diagnosis: current status (improving, stable, or deteriorating); objective indicators of trajectory; response to treatment; and the clinical basis for continued inpatient management. Absent this documentation, both the clinical coherence and the administrative defensibility of the hospitalization are weakened. Retrospective audits frequently identify absence of daily progression documentation as a basis for clinical validation challenge and claim denial.

B — Be explicit about diagnostic certainty and resolution

Diagnostic uncertainty is expected in medicine and is not always resolvable before discharge. The goal of this component is not to force every diagnosis into a binary of confirmed or ruled out; it is to state the final level of certainty clearly. A discharge summary that leaves provisional diagnoses unaddressed — neither confirmed, revised, nor acknowledged as unresolved — does not accurately represent the clinical episode and may create misleading carryover into subsequent encounters.

The 'Be Explicit' component proposes that discharge documentation address each significant diagnosis with a stated final designation: confirmed and resolved; confirmed and ongoing; improved; ruled out; or genuinely unresolved with a defined follow-up plan. Coding rules for uncertain diagnoses vary by setting and jurisdiction and should be applied accordingly. This component is satisfied not by forced certainty but by explicit transparency about what is known, what has changed, and what remains open.

L — Link terminology across the stay

Diagnoses are expected to evolve across a hospitalization as new evidence emerges; requiring identical terminology throughout is neither clinically realistic nor the goal of this component. The goal is traceability: when a diagnosis changes — in name, in certainty, in severity, or in status — the record should show what new evidence led to that revision. A traceable record allows the reader to follow the path from initial hypothesis to final conclusion without confusion, while preserving honest clinical evolution.

What creates risk is unexplained evolution: a diagnosis that appears, disappears, or changes meaning without a documented reason. The 'Link' component proposes that each diagnostic revision be explicitly connected to the clinical evidence or reasoning that prompted it. This prevents unexplained contradictions while accommodating the natural course of diagnostic refinement across the hospitalization.

E — End with discharge diagnostic reconciliation

The discharge summary is the authoritative record of the hospitalization — the document most likely to be read by subsequent providers and the basis from which final diagnostic coding is performed. The 'End' component proposes a structured approach to discharge diagnostic reconciliation in which each significant diagnosis addressed during the hospitalization is assigned a final status designation: treated and resolved; improved; ongoing; ruled out; or requires follow-up.

This final reconciliation closes the diagnostic lifecycle initiated at admission, provides a coherent and complete account of the hospitalization for subsequent providers, and ensures that the discharge diagnosis list accurately reflects the complexity of care delivered. In DRG-based classification systems, the accuracy of the discharge diagnosis list directly determines the final DRG assignment and associated relative weight.

Alignment with dual-process clinical reasoning theory

The DEFENSIBLE Framework's proposed alignment with physician clinical cognition is grounded in Croskerry's dual-process model of diagnostic reasoning (Croskerry, 2009a, 2009b). This model distinguishes Type 1 reasoning — fast, intuitive, pattern-recognition-

based, and prone to systematic cognitive biases — from Type 2 reasoning — deliberate, analytical, and bias-correcting. Croskerry identifies Type 2 deliberative processes as the primary mechanism for correcting errors generated by Type 1 intuition.

Documentation is proposed, within this framework, as a Type 2 deliberative anchor: the act of writing a diagnosis with its supporting evidence, etiology, and severity specification forces the physician to engage analytical reasoning at points in the diagnostic process where intuitive shortcuts commonly produce error. Table 4 presents the proposed correspondence between DEFENSIBLE components and dual-process cognitive functions. These correspondences are theoretical propositions, not empirically validated relationships; they are presented to provide a cognitive rationale for the framework's design.

Table 4
Proposed correspondence of DEFENSIBLE components with dual-process cognitive functions and diagnostic biases, derived from Croskerry's model (Croskerry, 2009a, 2009b). Correspondences are theoretical propositions requiring empirical validation.

DEFENSIBLE component	**Proposed Type 2 function**	**Proposed cognitive bias addressed**
D — Define	Hypothesis articulation with explicit certainty calibration	Premature diagnostic closure
E — Establish Clinical Support	Evidence-based confirmation of diagnostic conclusions through explicit clinical context	Anchoring and confirmation bias
F — Fully Specify	Forced severity calibration against objective criteria	Severity underestimation
E — Establish Etiology	Causal reasoning integration across diagnosis list	Diagnostic oversimplification
N — Note POA Status	Temporal reasoning about condition onset relative to admission	Temporal attribution error
S — Separate	Differentiation of baseline disease from incident events	Conflation of background and foreground diagnoses
I — Illustrate	Daily analytical reassessment against objective clinical trajectory	Anchoring to initial diagnosis
B — Be Explicit	Explicit statement of final diagnostic certainty level; accommodates genuine uncertainty	Persistence of unaddressed or implicitly abandoned provisional diagnoses
L — Link	Traceable diagnostic evolution: each revision connected to its evidence	Unexplained diagnostic inconsistency across the clinical record
E — End	Definitive Type 2 synthesis of all diagnostic conclusions	Incomplete closure; false-positive carryover

Diagnostic Documentation Lifecycle Model

The DEFENSIBLE Framework is organized as a diagnostic documentation lifecycle in which the ten components are distributed across three hospitalization phases, as shown in Table 5. This lifecycle model is proposed as a way of integrating documentation guidance with the natural temporal structure of an inpatient encounter rather than presenting it as a separate or parallel administrative process.

Table 5
Distribution of DEFENSIBLE components across hospitalization phases.

Hospitalization phase	DEFENSIBLE components	Primary clinical documentation sites
Admission phase	D, E, F, E, N, S	History and physical examination; admission note
Ongoing management phase	I, (L throughout)	Daily progress notes
Discharge phase	B, L (closure), E	Discharge summary; final diagnostic statement

Discussion

Summary of findings

This paper synthesized five major documentation framework categories through a narrative review and proposed, through expert analysis, five conceptual gaps characterizing the existing framework landscape. In response to these proposed gaps, the DEFENSIBLE Framework was presented as a ten-component, physician-centered, lifecycle-aligned diagnostic documentation model grounded in dual-process clinical reasoning theory.

The central finding of the narrative synthesis — that all existing documentation frameworks are designed for CDI specialists or administrative functions rather than for physicians as primary documentation authors — is proposed as a structural contributor to the persistence of documentation deficiencies despite the availability of CDI programs. If this characterization is valid, it suggests that improvements in documentation quality may require, in addition to reactive CDI programs, a proactive physician-facing documentation framework integrated with clinical cognition.

Relationship to existing frameworks and evidence

The DEFENSIBLE Framework is positioned as a complementary addition to the existing CDI ecosystem rather than a replacement for existing tools. CDI concurrent review programs and clinical validation frameworks remain applicable as quality assurance and compliance mechanisms. POMR-based SOAP methodology provides the note structure within which DEFENSIBLE components are intended to operate. The framework's proposed contribution is to fill the upstream gap in physician-facing prospective documentation guidance that existing downstream frameworks do not address.

The peer-reviewed CDI evidence base provides partial support for the framework's component-level propositions. Physician-led documentation improvement initiatives have produced measurable CMI improvements in controlled before-after designs (Aiello et al.,

2018). Malnutrition documentation interventions have demonstrated sustained improvements in accuracy and reimbursement (Farner et al., 2023). The foundational coding accuracy literature establishes the scale of DRG coding error attributable to documentation imprecision (Hsia et al., 1988). However, none of these studies evaluates a lifecycle-aligned physician documentation framework; they evaluate specific documentation interventions in specific diagnostic contexts. The DEFENSIBLE Framework synthesizes these component-level propositions into a comprehensive model whose integrated effect on documentation quality remains to be evaluated.

Contextual relevance to IR-DRG classification environments

The framework was developed in an IR-DRG classification environment and is explicitly aligned with IR-DRG documentation requirements. The available analogue evidence — coding accuracy studies from the Malaysian DRG system and from Saudi hospital settings — suggests that documentation-driven classification gaps are a regional concern not specific to the UAE (Zafirah et al., 2018). The absence of peer-reviewed IR-DRG documentation studies in the UAE or GCC literature represents a genuine regional evidence gap. This framework is proposed as a starting point for documentation improvement research in that context, not as an intervention whose effectiveness in the UAE has been established.

Strengths

Several features of this paper are proposed as methodological strengths. The narrative review on which the framework is based is reported against SANRA criteria, providing a quality self-assessment and a degree of methodological accountability not required for narrative reviews but consistent with emerging standards for this paper type (Baethge et al., 2019). The framework development process is staged and described transparently, including the disclosure that the framework preceded the formal review. The five conceptual gaps are clearly identified as expert propositions rather than systematic findings. All citations have been independently verified; three references identified in earlier drafts as potentially fabricated or misattributed were removed prior to submission. The framework's proposed alignment with dual-process cognitive theory provides a theoretical foundation for its design rationale.

Limitations

This paper has several limitations that must be stated clearly. First, and most importantly, the DEFENSIBLE Framework is a conceptual model that has not been empirically validated. Its proposed utility for improving documentation quality, reducing CDI query rates, improving DRG classification accuracy, or affecting physician behavior has not been tested. No effectiveness claims are made; the framework is presented as a structured proposal requiring prospective evaluation.

Second, the narrative review methodology — while appropriate for the paper's purpose — introduces selection bias through purposive source selection. The five identified framework categories may not exhaustively represent the documentation framework literature; a subsequent systematic scoping review with documented search strings and PRISMA-ScR reporting could produce a more complete evidence map and may identify frameworks or evidence that would modify the proposed gap analysis.

Third, the five conceptual gaps are expert interpretive propositions. Other analysts reviewing the same literature might characterize the landscape differently or identify different or additional gaps. The gap analysis has not been subjected to expert panel validation.

Fourth, the framework was developed in a single institutional context (SSMC, Abu Dhabi, IR-DRG classification environment). Its applicability across institutional types, specialty contexts, EHR architectures, and DRG classification systems outside this context is unconfirmed.

Fifth, the illustrative IR-DRG weight examples in Table 3 are drawn from institutional CDI audit practice and reflect weight tables at the time of audit. IR-DRG weights are updated periodically; these figures should not be treated as current standards and should be verified against the current Abu Dhabi DOH IR-DRG weight tables.

Future Research

The following empirical steps are proposed as the necessary research agenda consequent on this conceptual paper:

Expert panel validation: A modified Delphi or RAND/UCLA expert panel involving CDI specialists, hospitalist physicians, health information management professionals, and clinical educators to evaluate construct validity and assess face validity of the proposed gap analysis and framework components.

Prospective implementation study: A controlled before-after or cluster-randomized study evaluating documentation quality, CDI query rate, and DRG classification accuracy before and after physician adoption of the DEFENSIBLE Framework, using validated documentation quality instruments (such as PDQI-9 or QNOTE).

IR-DRG-specific classification accuracy study: A study evaluating the relationship between DEFENSIBLE Framework adoption and IR-DRG classification accuracy in a UAE or GCC hospital setting, addressing the regional evidence gap identified in this paper.

Medical education evaluation: Assessment of the DEFENSIBLE Framework as an educational intervention in residency training or physician onboarding documentation curricula.

Scoping review: A PRISMA-ScR compliant systematic scoping review of the documentation framework landscape to test the gap analysis proposed in this paper against a systematically assembled evidence base.

Conclusions

Clinical documentation gaps persist despite the availability of CDI programs, clinical validation frameworks, and organizational guidance. This paper proposes that a structural contributor to this persistence is the absence of a physician-centered, proactive, lifecycle-aligned documentation model corresponding to the cognitive stages of diagnostic reasoning. The narrative review conducted for this paper identified five framework categories and proposed, through expert analysis, five conceptual gaps characterizing existing approaches.

The DEFENSIBLE Framework is presented as a ten-component conceptual response to these proposed gaps, organized as a diagnostic documentation lifecycle from admission through discharge diagnostic reconciliation and aligned with the dual-process model of clinical cognition. It is offered as a structured basis for prospective validation through expert panel review and controlled implementation study, not as an intervention whose effectiveness has been established.

If the conceptual propositions of this framework are supported by subsequent empirical validation, the DEFENSIBLE Framework may offer a physician-facing documentation standard that complements existing CDI infrastructure by addressing documentation quality at the point of generation rather than through retrospective correction. This potential contribution is to be determined by the validation research proposed above.

Declarations

Conflicts of Interest

The corresponding author is a practicing CDI specialist and Senior Business Consultant in Strategy, Projects, and Analytics at Sheikh Shakhbout Medical City (SSMC), Abu Dhabi, UAE, within the PureHealth Group. No financial conflicts of interest are declared.

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Ethics and Data Governance

The IR-DRG weight examples in Table 3 are derived from institutional CDI audit practice at SSMC conducted as part of routine clinical quality activities. No patient identifiers are included. Institutional review was not required for this methodological framework paper.

Abbreviations

ACDIS: Association of Clinical Documentation Integrity Specialists | AHIMA: American Health Information Management Association | CDI: Clinical Documentation Integrity | CMI: Case Mix Index | DRG: Diagnosis Related Group | GCC: Gulf Cooperation Council | HAC: Hospital-Acquired Condition | HCC: Hierarchical Condition Category | IR-DRG: International Refined Diagnosis Related Groups | MS-DRG: Medicare Severity Diagnosis Related Groups | POA: Present on Admission | POMR: Problem-Oriented Medical Record | ROM: Risk of Mortality | SANRA: Scale for the Assessment of Narrative Review Articles | SOI: Severity of Illness | SSMC: Sheikh Shakhbout Medical City | UAE: United Arab Emirates

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