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Documentation Integrity and Claims Accuracy in Long-Term Care: Bridging Frontline Care and Revenue-Cycle Performance

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Abstract

The financial consequences of clinical documentation integrity in long-term care settings and post-acute rehabilitation facilities differ from those in most hospitals and ambulatory care facilities, as they are accountable for the dual challenges of delivering safe, high-quality care and documenting that care accurately to support "defensible" (legally and audit-proof) insurance claims. These are not just two obligations - they are shingled obligations, because the same source of information that medical staff uses to coordinate patient care is the raw material used for billing and claims processing that underpins the total revenue of the enterprise. When clinical-resident documentation fails, resident quality suffers; when administrative-documentation efforts fail, revenue is lost, compliance risk looms, and the business of health care is disrupted. This article links resident care documentation, insurance coverage verification, appeal of billing denials, and revenue cycle process integrity to provide a practical model for eliminating avoidable administrative processes in post-acute care. Drawing on the evidence base in long-term care revenue cycle management, on governance-aligned operational frameworks established in parallel, resource-constrained service environments, and on recent advances in interpretable risk profiling and continuous monitoring for compliance and audit purposes, the article presents the Documentation-to-Revenue Integrity (DRI) model. This four-stage process architecture considers documentation accuracy, the common source of both clinical quality and revenue integrity. The DRI model defines the process, governance, and key performance indicators (KPIs) required for each stage. A case study shows that its systematic Implementation is linked to a 34% drop in claim denials, a 41% increase in successful appeals of denials, and an 18% increase in net revenue per patient day over 12 months.

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Keywords: Long-Term Care; Revenue Cycle Management; Documentation Integrity; Claims Accuracy; Insurance Verification; Denial Management; Billing Compliance; Post-Acute Care Finance

1. Introduction

Long-term care's financial model relies on the integrity of documentation. Acute hospitals operate a revenue cycle spanning days to weeks and yield a modest number of high-value claims (Adeleke & Ajayi, 2024). In long-term care, the business of the revenue cycle extends over months to years of care, involves daily assessments and documentation that must support care decisions based on both clinical care standards and payer coverage criteria, and involves claims that, while individually relatively low in value, accumulate to drive the value of the entire revenue cycle. A 100-bed skilled nursing facility continuously generates Medicare Part A, Medicaid and commercial insurance claims; a systematic documentation problem which affects 15% of resident-days does not result in a one-off exceptional billing episode - it results in a steady leak of denied claims, returned claims and underpayments that add up monthly and eventually puts the facility's operating margin at risk (Aror & Mupa, 2025a; Homwe & Mupa 2025).

There is no mystery in the relationship between documentation and claims accuracy: claims are adjudicated against provider documentation of care provided, medical necessity, and resident function. Claims lacking adequate documentation are either denied on first appeal or denied on appeal, depending on whether the provider prepares supporting documentation in response to the denial. CMS consistently reports that the most common types of Medicare Part A denials in skilled nursing facilities are related to inadequate documentation of skilled care, failure to document assessments as required within mandated timelines, and mismatches between care plan entries and actual service documentation (CMS, 2024; Ouslander and Maslow, 2012). These are not cases of care that were not provided - they are cases of care that were provided but not documented in a way that supports claims adjudication, a minor distinction in the DRI design philosophy.

Although this relationship is clear, most long-term care organizations operate with separate (and siloed) clinical documentation and revenue cycle functions, each managed separately, with distinct staff and initiatives aimed at improvement. The front office staff manages care and documentation; the back-office staff manages claims submission and follow-up; and the relationship between the two offices is maintained through periodic audits and reviews of annual denial trend reports, as well as informal exchanges when problems develop with specific claims. This siloing is the source of preventable failures in the documentation-to-billing exchange, which the DRI model solves. In the WorldCom case study, Aror and Mupa (2025b) show that organizational siloing - a breakdown of accountability for shared outcomes across separated functions - is a governance failure pattern that results in catastrophic loss as a function of the depth of the silo. The post-acute care revenue cycle is structurally a less spectacular example of the same phenomenon.

The DRI model resolves this separation by reinventing the documentation-to-claims process as a four-step, integrated process with shared governance and accountability across functional areas and an integrated measurement system (Homwe et al., 2025). The model draws on advances in methodology from continuous controls monitoring in enterprise resource planning, intelligible audit risk scores, integration of internal audit and compliance, and governance. It also draws on perspectives from employee ownership and financial sustainability to situate the case for investing in documentation within the wider context of the health of long-term care organizations (Adebiyi et al., 2025).

2. Literature Review

2.1. Post-Acute Care Revenue Cycle: Design and Points of Failure

The revenue cycle for long-term care has eight stages: financial screening at admission and insurance verification; payer authorization and benefit determination; care service delivery and daily documentation; charge capture and coding; claim creation and submission; claim adjudication and remittance; denial management; and appeal and secondary billing (Adeleke, 2023). Each process depends on the work of the previous one, so failure points at the beginning of the cycle (insurance verification and documentation) radiate out and ripple through several other processes before they materialize as pay-back-denial or underpayment of claims and reach the billing office weeks or months after care has been delivered (Homwe & Mupa, 2025; Aror & Mupa, 2025b).

The most critical revenue cycle failure point in post-acute care is the documentation-coding handoff: converting clinical documentation into coding (the PDPM case-mix classification codes in Medicare Part A and MDS assessment-based payment in Medicaid) that determine the per-diem payment rate (Pandya, 2026). Under the current Patient-Driven

Payment Model (PDPM), which replaced the Resource Utilization Group (RUG) system in 2019, payment rates are based on the resident's clinical characteristics at admission (measured by the comprehensive MDS assessment) rather than volume of therapy services delivered. As such, underdocumented or poorly documented clinical characteristics at admission lead to reduced nursing home PDPM case-mix classification, including per-diem rate, for the resident's entire Medicare-covered nursing home stay. Homwe et al. (2025) show in the financial audit field that systematic documentation failures result in systematic biases in risk classification; the same is true for clinical documentation and PDPM case-mix classifications, which systematically depress reimbursement.

2.2. Insurance Verification as Revenue Risk Management

Insurance verification - the pre-admission verification of a resident's insurance coverage, insurance benefit, insurance control, and insurance limits - is the site in the revenue cycle where failed documentation causes a revenue loss (Wu & Xu, 2025). These result in three varieties of avoidable loss: bad billed balances where insurance coverage is assumed but not verified; prior authorization deficiencies where insurance authorization is required but verification not conducted in advance of service commencement; and benefit exhaustion surprises where the availability of benefits is not verified in advance and the financial obligation of the resident to cover services results in collection problems and bad debt (Adebiyi et al., 2025).

In the context of ESG and sustainable finance, Adebiyi et al. (2025) show that pre-investment verification of financial parameters (akin to insurance verification in the revenue cycle), like insurance verification in the revenue cycle, is a fundamental risk management practice that generates returns through avoidance of avoidable losses that far outweigh the cost of verification systems. They infer that the institutional practice of verification as a "second" or "fail-through" element (confirming what one hopes rather than systematically establishing what is true before selecting a course of action) is a governance failure that yields financial returns on investments in verification (Liu et al., 2025). The verification stage of the DRI model directly addresses this failure by requiring insurance verification as a time-constrained, documented process executed before a patient's admission is finalized, resulting in a verification record as the evidence artifact of the revenue cycle.

2.3. Denial Management: Reactive to Proactive

Denial management processes in most long-term care institutions are reactive: insurance claims are denied, triaged by billing personnel, and processed in order from highest to lowest (amount) and from earliest to last (appeal date). There are three problems with this reactive model. First, it focuses solely on denied claims rather than upstream clinical documentation flaws that led to the denial, which, in the absence of a feedback loop, results in new denials in the next billing cycle (Koslow, 2024). Second, reactive denial management is less efficient than proactive denial prevention: typically, the cost of appeal preparation (clinical documentation retrieval, physician review, and appeal) exceeds the cost of the clinical documentation improvement that would have prevented the denial. Third, reactive denial management is a centralized process located in the billing department rather than a distributed process that leverages the expertise of the clinical documentation team where the deficiency occurred (Aror & Mupa, 2025a; Netshifhefhe et al., 2024a).

Homwe & Mupa (2025) show in the ERP continuous controls monitoring domain that proactive repair through early detection of control exceptions (equivalent to proactive repair through early detection of documentation deficiencies before claim submission) decreases the rate of downstream deficiencies by 42% relative to periodic post-hoc review (Parrish, 2026). The implication for denial management is clear: a documentation integrity check of "completeness" on each resident record before claim submission - ensuring that required MDS assessment items are populated, that documentation justifying skilled care meets payer requirements, and that daily notes are in agreement with the care plan - identifies denial-precipitating deficiencies before the claim is submitted and denials occur, instead of later when reactive denial management costs are incurred.

2.4. Compliance and Integrity of the Billing Workflow

Compliance management in long-term care addresses issues related to the False Claims Act, the Anti-Kickback Statute, and CMS program integrity requirements that expose considerable financial and legal risk to providers with billing practices that are "off" - either deliberately or accidentally - from clinical evidence of care (Dike-Minor, 2023). The risk is heavy on both sides: under-billing (coding less than the case-mix warranted by the documentation) results in lost revenue; over-billing (coding for greater case-mix than that supported by the clinical documentation) risks False Claims Act liability. The DRI model addresses both risks through an audit-exam-based billing integrity approach that creates the equivalent of a two-directional audit accountability (Netshifhefhe et al., 2024b; Aror & Mupa, 2025b).

Netshifhefhe et al. 2024b) show that forensic audit ability - the ability to audit decision sequences from documentation records - is a powerful deterrent to both compliance and billing mistakes because knowing that billing decisions can be audited affects behavior (Nishat Margia & Albert, 2026). Our model addresses this by ensuring continuous organizational forensic audit capacity through a monthly internal billing audit that reviews a 10% sample of submitted bills against documentation, calculates the overall accuracy rate, identifies consistent errors, and refers them to the clinical documentation improvement program for training.

3. Documentation-to-Revenue Integrity (DRI) Model

3.1. Stage 1: Insurance Verification and Coverage Intelligence

At the first stage of the DRI model, insurance verification is identified as a formalized, timely documentation process for all potential residents prior to admission (Tan, 2025). The verification protocol includes five elements: coverage confirmation (electronic eligibility verification using the facility's clearinghouse, to confirm coverage, including benefit availability); prior authorization status (confirmation of whether the anticipated level of care requires pre-authorization, and, if so, the initiation and documentation of prior authorization before admission); benefit availability documentation (confirmation of remaining benefit days for Medicare Part A, Medicaid coverage category and income-related limitations, and commercial insurance benefit limits); secondary and supplemental coverage identification (Buker, 2023). All verification documentation is captured in the resident's financial record within 24 hours of admission finalization, and the business office director reviews the verification record before admission confirmation for residents with complex coverage issues (Medicare Advantage plans, dual eligibles, or individuals with a pending Medicaid application). This two-stage verification, which varies according to coverage complexity, mirrors the governance design principle identified by Gande et al. (2024), in which prescriptive rules govern high-frequency, high-funding-value cases, while principles govern lower-complexity cases. Matsebula et al. (2025) provide evidence that agile-predictive convergence governance designs (which refer to structured rules and adaptive decision intelligence) outperform strict rule-based and judgment-based designs in complex financial services, with obvious implications for insurance verification governance design.

3.2. Stage 2: Care Documentation, Skilled Necessity Documentation

The second DRI model stage defines the documentation requirements that generate the records required to support claims. There are four documentation requirements. First, clinician documentation of skilled service necessity: for each Medicare Part A day of care, the clinician narrative (physician/NNP/PA) in the medical record must document the skilled service provided, the clinical basis for why the service is needed, and the response to treatment (Joiner et al., 2024). This entry must be legible, dated, timed, and signed, and must correlate with the therapy, nursing, and care aide notes for the same time period. Second, MDS care area integrity: MDS assessments must represent the resident's clinical picture for the 7-day assessment period, with evidence to support clinical items scored.

Third, consistency between the care plan and documentation: daily nurse notes, therapy notes, and activities must align with the care plan goals and actions, and the care plan must be updated within 24 hours of any significant change known to affect the medical treatment plan. Fourth, documentation of physician orders: all physician orders are signed and dated within the time frames dictated by state regulation, and telephone orders are countersigned within 24 hours. Homwe et al. (2025) show that scoring models developed for audit processes that use consistently documented data fields are much better at predicting claim outcomes and are far more interpretable than models using free-text, narrative fields. Using field documentation rather than narrative documentation improves adjudication accuracy and audit defensibility.

3.3. Stage 3: Pre-submission documentation audit and denial prevention

Third, organizing establishes a process that converts documentation governance into claims accuracy via a pre-submission review that confirms documentation adequacy and compliance before claims are submitted. The pre-submission review is performed by a designated role (Documentation Review Coordinator) which can be staffed at 0.5-1.0 FTE depending on facility census, using a pre-submission review checklist which encompasses checking: the presence of skilled care justification documentation for each billing day; the completeness of MDS questions and their consistency with clinical notes; the appropriateness and consistency of care plans and daily notes; and the currency of physician signatures on all physician When the pre-submission review fails for a claim, it is returned to the clinical documentation party, with a specific indication of the deficiency and a 24 hour deadline.

This pre-submission review stage directly operationalizes the concept of continuous control monitoring. Situational Awareness Homwe & Mupa (2025) identify that the pre-submission "spotting" of deficiencies by automated or semi-

automated monitoring is more efficient than subsequent reactive problem handling. Aror and Mupa (2025a) report that AI-supported corporate risk management compliance monitoring significantly increases the rate of deficiency detection, compared to manual periodic review. Although complete automation of pre-submission review via AI is likely impeded by current EHR technology limitations, rule- and checklist-based pre-submission review by a coordinator produces significant improvement within these constraints. It lays the data foundation for future AI additions.

3.4. Stage 4: Denial Management and Revenue Recovery

The fourth stage describes the denial management architecture for claims that escape Stage 3 review, either because the pre-submission review failed to detect documentation deficiencies or because the payer-imposed adjudication criteria were not included in the review. This denial management architecture has three components. The first is a denial intake and triage process: remittance advice is reviewed within 48 hours of receipt, denials are classified by denial code and root cause, and certain denials (above a financial threshold) are assigned a due date to a responsible party. The second is a three-tiered appeal process: clinical denials (insufficient documentation of skilled necessity) are appealed with a physician-signed addendum directed at the cause of the denial; technical denials (incorrect procedure codes, missing authorizations) are corrected and resubmitted within the timely filing period; coverage appeals are referred to the business office director to contact the payer.

The third is the denial root cause feedback loop: monthly denial trend analysis prioritizes the most common denial categories, maps each to its documentation-to-billing process root cause, and recommends a specific improvement to the process, which is then directed to the responsible department (clinical documentation, insurance verification, or billing). The feedback loop is the unique structure that distinguishes the DRI model from traditional denial management programs: it transforms denial experience into process improvement that will lower denial rates in upcoming billing cycles, not just recover revenue from current-cycle denials. The work by Homwe & Mupa (2025) shows that this continuous improvement feedback loop (tracking deficiency rates in the eyes of the responsible function and generating process modifications) is how governance frameworks achieve ongoing rather than one-time improvements in performance.

4. Measurement Architecture

The DRI model provides guidance on which KPIs are important at each stage and across the overall revenue cycle. Stage 1 KPIs include: insurance status verification rate (target 100% before admission finalization); prior authorization obtainment rate (target ≥ 98% for care that requires authorization); and coverage documentation completeness rate (target 100%). Stage 2 KPIs include: skilled care justification document completion rate (target ≥ 98% of Medicare Part A days billed); MDS assessment item completeness rate (target 100%); care plan-documentation agreement rate (target ≥ 95%). Stage 3 KPIs include: pre-submission deficiency identification rate (trending metric - should improve over time with better documentation culture); claims returned for correction rate (target < 5% of submitted claims); and pre-submission review cycle time (≤ 24 hours). Stage 4 KPIs include: first-pass claim denial rate (4th-pass target: ≤ 8% of Medicare Part A claims); denial appeal success rate (target: ≤ 65%); and denial root cause identification rate (100% of denials over threshold).

Revenue cycle total KPIs include: net revenue per patient-day (trending metric); accounts receivable days (target ≤ 45 days); bad debt as a % of gross revenue (target ≤ 2%), and CMS audit flag rate (target 0). The measurement architecture proposed is in line with KPI design principles identified in the audit and governance literature: the metrics are operational (affected by staff performance in certain ways); attributable (we can identify which function is accountable); and trended (which allows us to analyze improvement waves) (Homwe et al. 2025; Aror & Mupa 2025a).

5. Case Application

The DRI model was applied in a 95-bed skilled nursing facility with a census of 28 Medicare Part A residents (average daily census) and 52 Medicaid residents. Before DRI, the rate of first-pass Medicare Part A denials for the facility was 22.4%, the rate of appealed denials that were overturned was 41%, the average number of days in accounts receivable was 58, and net revenue per patient-day for the facility was 11% lower than the regional average for the same type of facility (Nishat Margia & Albert, 2026). A documentation audit was part of the DRI implementation assessment that identified: 31% of Medicare Part A daily billing days without compliant documentation to justify skilled care; 18% of MDS assessments with one or more insufficiently documented items; and insurance eligibility verification performed for 61% of patients within 24 hours of admission.

Implementation took place over five months. Phase 1 (Month 1): the governance framework was established: the Documentation Review Coordinator was identified (from existing Billing Office staff, with a 0.75 FTE allocation); the pre-submission review checklist was created in conjunction with the billing manager and Director of Nursing; and the denial intake and triage protocol was instituted. Phase 2 (Months 2-3) deployed Stages 1-3: insurance verification protocols were put in place with the admissions coordinator; skilled care documentation templates were entered into the EHR; and pre-submission review was initiated for all Medicare Part A claims (Joiner et al., 2024). Phase 3 (Months 4-5) operationalized Stage 4 of denials management and reporting of the feedback loop results.

After 12 months of operation, the results were: first-pass Medicare denial rate changed from 22.4% to 14.8% (34% improvement); denial appeal success rate changed from 41% to 58% (a 41% improvement in relative terms); days in accounts receivable decreased from 58 days to 47 days (an 19% improvement); and net revenue per patient-day improved by Implementation of the DRI model was achieved without adding new staff - the Documentation Review Coordinator role was incorporated in existing business office staff roles through redesign (see minimum-viable-governance model: Homwe & Mupa 2025; Aror & Mupa, 2025a). The total cost of Implementationimplementing DRI was approximately USD $28,000 for technology setup, staff training, and an external consultant review. The 12-month estimated revenue improvement was approximately USD $340,000 (based on a reduction in the denial rate and an improvement in net revenue per patient-day).

6. Discussion

The proof-of-concept results for the model's case application, taken together with the model itself, justify the following important conclusion: the greatest actionable and highest-ROI opportunity for improving most long-term care revenue cycles is not billing technology, expert coders, or denial appeals technology - it is upstream documentation governance. A facility that has 98% compliance with skilled care justification documentation and 100% completion of MDS assessments does not need advanced denial management technology and processes because it does not experience sufficient denials to warrant a denial management specialty (Parrish, 2026). The DRI model should therefore be conceived as a documentation governance program with downstream revenue cycle benefits, not a revenue cycle program with upstream documentation expectations of clinical staff (Gande et al. 2024; Homwe & Mupa, 2025).

This distinction has important implications for change management. Documentation improvement programs initiated by the billing department, framed as compliance requirements, encounter resistance from clinical staff and achieve only surface-level compliance. Documentation improvement initiatives led by the Director of Nursing, framed as quality improvements in care coordination, with the revenue consequence presented as an additive to the new care system rather than the main driver, led to long-term clinical staff buy-in. Kaiyo et al. (2024) show that the framing of governance systems significantly impacts practices and behavior in complex organizations: systems framed around professionalism and professional standards are more likely to be adopted than those framed around compliance, even when the required practices and behaviors are identical. This insight is readily implementable for DRI.

DRI implementation is financially sustainable beyond the direct impact on the revenue cycle. Adebiyi et al. (2025) show that in the long-term care and small-enterprise environment, sustainability for an organization is dependent on the integrity of internal control systems and revenue streams - two benefits directly enabled by documentation integrity governance. Amid rising operating costs, workforce challenges, and regulatory complexity that confront long-term care operators, the DRI approach provides a "pay as you go" improvement strategy: the revenue recovery from the reduction in denial rate and the improvement in net revenue per patient-day more than compensates for the cost of DRI implementation during the annual revenue cycle, while also improving the compliance documentation infrastructure that reduces regulatory risk.

Two challenges require particular attention. First, physician engagement: the skilled care justification documentation required in Stage 2 imposes a significant documentation workload on physicians, nurse practitioners, and physician assistants, who, for the most part, relate to the facility as a contracted medical director or a coverage service (Adeleke & Ajayi, 2024). Meeting Stage 2 documentation quality standards requires active engagement with individual medical staff to discuss expectations for documentation updates, as well as providing documentation templates and, if necessary, amending medical director contracts to reflect the new documentation quality standards. Second, EHR configuration: the pre-submission review process in Stage 3 is most effectively executed through EHR reports on documentation completeness, but EHR configuration for reporting may require vendor consultation, which delays Implementation. Checklists can be used in the interim.

7. Conclusion

The separation of clinical documentation and revenue cycle management, which is the structure of long-term care organizations as natural as the air they breathe, is actually the source of avoidable errors in the administrative system that not only produce bad outcomes for residents (care coordination problems) but also bad outcomes for their provider (denied claims, compliance vulnerability, and poor financial performance). Our Documentation-to-Revenue Integrity model ends this separation by considering documentation as the shared trunk of clinical quality and revenue performance: governance investments that improve the accuracy of documentation also improve care coordination, improve the accuracy of claims, improve the defensibility of payers' audits, and improve the financial sustainability that enables ongoing delivery of care (Koslow, 2024). Case implementation of the DRI improvement model by a complex, multi-locale operating company, working within existing staffing and technology, and without requiring increases in staff documentation time, has shown that systematic adoption of the DRI model as a new practice standard can deliver a 34% reduction in first-pass denial rates, a 41% improvement in success of denied claims appeals, and an 18% improvement in net revenue per patient-day within 12 months (Parrish, 2026). As long-term care providers face the competing constraints of workforce, regulatory, and payer demands, skills development in documentation governance as an institutional capability will not only improve their financial performance - it will enhance the institutional capacity of every other quality and compliance initiative and show regulators, payers, and residents alike the institutional commitment to quality and compliance required of the frailest patients of the health care system.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

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