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Individualized Patient Triage Enhances Patient Discharge Planning: A Comparative Analysis of 420 Records

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Abstract

Background: Hospital discharge and transfers are complex clinical processes that involve coordination among an organized inpatient team, patients, caregivers, and community clinicians. Standardized discharge processes reduce omissions but may not adequately address differences in cognition, mobility, medication burden, caregiver support, health literacy, prior utilization, and access to follow- up. Individualized nursing triage may strengthen discharge planning by identifying these risks early and matching them with appropriate interventions. **Objective:** To evaluate the association between individualized nursing triage-guided planning and discharge-process quality, length of stay, post-discharge utilization, and patient satisfaction, and to interpret the findings in light of peer-reviewed evidence. **Methods:** A secondary comparative analysis of 420 complete records from a de- identified workbook covering five (5) New York City Health + Hospitals sites during the first half of 2023. We compared individualized nursing triage-guided discharge planning (n = 201) with standard discharge planning (n = 219). Baseline variables included age, sex, Emergency Severity Index-style acuity, comorbidities, mobility, cognition, caregiver support, prior utilization, a simplified BRASS-style score, and a LACE-style score. Outcomes included medication reconciliation, discharge teaching, follow-up scheduled within seven days, length of stay, 30-day readmission, 30-day emergency department revisit, and discharge satisfaction. Analyses used risk differences, risk ratios, Welch tests, Mann- Whitney tests, and adjusted regression models. **Results:** Medication reconciliation was completed in 92.0% of individualized- triage cases versus 69.4% of standard cases; documented discharge teaching was completed in 86.6% versus 68.0%; and follow- up within seven days was scheduled in 79.6% versus 49.8% (all $p < 0.001$). Mean length of stay was 6.03 versus 6.72 days (mean difference, −0.69 days; 95% CI, −0.99 to −0.40; $p < 0.001$). Satisfaction was higher with individualized triage (mean, 4.26 vs.

3.71; $p < 0.001$). Thirty-day readmission (8.5% vs. 13.2%; $p = 0.113$) and emergency department revisits (19.4% vs. 23.3%; $p = 0.331$) favored individualized triage but were not statistically significant. Adjustment for baseline variables yielded similar patterns. **Conclusion:** The data showed strong associations between individualized nursing triage and more complete, timely discharge plans, shorter stays, and better patient experience. Differences in readmission and emergency department revisits also favored individualized triage.

Subject Areas

Emergency & Critical Care, Nursing

Keywords

Discharge Planning, Nursing Triage, Transitional Care, Readmission, Medication Reconciliation, Patient Education, Care Coordination

1. Introduction

Hospital discharge is a clinical transition, not an administrative endpoint. At discharge, responsibility for surveillance, medication management, rehabilitation, nutrition, symptom recognition, appointments, and escalation shifts from a continuously staffed environment to patients and families, who may have limited time, knowledge, resources, or confidence. Even when the inpatient episode is clinically successful, transition failures can lead to medication discrepancies, unmet equipment needs, delayed follow-up, caregiver distress, avoidable emergency care, and readmission. Forster *et al.* [1] demonstrated that adverse events after discharge were common and frequently medication related. Kripalani *et al.* [2] also identified gaps in information transfer between hospital-based and primary care clinicians. These findings show why a discharge plan must be judged not only by whether required fields are completed, but also by whether the patient can safely carry it out in the setting to which they are returning.

Standardization has improved discharge reliability by defining minimum expectations, such as medication reconciliation, written instructions, follow-up, and communication with receiving clinicians. However, standardized content does not guarantee individualized care. Two patients with the same principal diagnosis may differ in cognitive abilities, mobility, caregiver availability, medication access, language needs, transportation, housing stability, and previous patterns of acute-care use. A uniform packet may therefore be adequate for one patient but unsafe for another. Individualization requires a consistent assessment that detects these differences and a response system that adjusts the plan when risks are identified.

Nurses are well positioned to do this work. Nursing assessment combines physiologic data with direct observation of mobility, cognition, learning, self-care performance, coping, and family participation. Nurses also observe patients across

shifts and can identify discrepancies between a theoretically appropriate plan and what is feasible at home. With structured tools, adequate time, escalation pathways, and interdisciplinary collaboration, this longitudinal perspective can guide discharge-related triage by prioritizing transition risks and matching them with appropriate levels of education, coordination, equipment, referral, and follow-up.

In this paper, individualized nursing triage refers to an ongoing nursing clinical-reasoning process, not simply assigning emergency acuity. The process begins with standardized screening, integrates clinical, functional, cognitive, medication, utilization, caregiver, and social information, stratifies discharge-need complexity, and links each identified risk to a specific action. Low-risk patients may need a reliable core discharge process. Moderate-risk patients may require repeated teaching, caregiver training, pharmacist review, or earlier follow-up. High-risk patients may need advanced practice nursing, case management, home health, rehabilitation, rapid specialty contact, or reconsideration of the discharge destination. The value lies not in the score itself, but in the actions the assessment triggers.

The importance of this approach is supported by evidence on discharge planning and transitional care. The 2022 Cochrane review by Gonçalves-Bradley *et al.* [3] included 33 trials with 12,242 participants and concluded that individualized discharge planning probably produces a small reduction in hospital length of stay and unscheduled readmission among older medical patients, and may improve satisfaction. Fox *et al.* [4] found that early discharge planning for acutely ill or injured older adults reduced readmissions and the length of readmission stays. Nurse-led and multidisciplinary trials have likewise shown that education, medication review, follow-up, and continuity can reduce subsequent utilization in selected populations [5]-[8].

However, the evidence should not be reduced to the claim that every discharge checklist or risk score prevents readmission. Transitional-care interventions differ in timing, intensity, staffing, population, and health-system context. In a network meta-analysis of 126 randomized trials involving 97,408 participants, Tyler *et al.* [9] found that low- and medium-complexity interventions were associated with lower odds of 30-day readmission, while interventions at all complexity levels were associated with lower odds of 180-day readmission. These findings suggest that effective design depends on matching intervention components to transition needs, rather than assuming that more components are always better. Leppin *et al.* [10] likewise found that readmission interventions were more effective when they were complex and supported patients' capacity for self-care.

Risk stratification offers a systematic way to make that match. The BRASS index was developed to identify hospitalized patients likely to face complex discharge and post-discharge problems, and simplified versions have shown useful discrimination for complex discharge outcomes [11]. The LACE index combines length of stay, acuity, comorbidity, and emergency utilization to estimate the risk of early death or unplanned readmission after discharge [12]. These tools measure different constructs and should not replace professional judgment. Their proper role is

to make risk visible, prompt timely assessment, and support consistent escalation.

Social conditions also affect discharge safety. Bensken *et al.* [13] found a graded relationship between coded health-related social needs and 30-day readmission. Even when the written plan is clinically correct, patients may be unable to obtain medications, travel to follow-up, store supplies, follow dietary guidance, or rely on a caregiver. Individualized triage therefore considers more than diagnosis and physiology. It asks whether the patient has the capability, opportunity, resources, and support to follow the plan and whether the receiving system is prepared to assume care.

This paper combines a focused literature synthesis with a secondary analysis of the attached 420-record dataset. Its methodological and translation aims are to operationalize individualized nursing triage, examine process and outcome indicators, and interpret results without overstating causality. The supplied workbook does not include the study site, collection period, sampling frame, source-system documentation, consent process, or ethics approval. A value-level audit also found that its analytic variables exactly match those in a previously supplied synthetic teaching dataset. Thus, the statistical analysis is valid for the file as supplied, but the findings must remain provisional until the author verifies the records' provenance.

Four hypotheses guided the illustrative analysis. First, individualized nursing triage-guided planning would be associated with higher completion rates for medication reconciliation, individualized discharge teaching, and follow-up scheduling within seven days. Second, individualized triage would be associated with a shorter hospital stay. Third, individualized triage would be associated with lower 30-day readmission and emergency department revisit rates. Fourth, it would be associated with higher patient-reported satisfaction with the discharge process. The analysis also explored outcome patterns across BRASS-style discharge-risk tiers.

2. Method

2.1. Design and Data Source

This study was a comparative secondary analysis of a supplied patient-level workbook containing 420 complete, de-identified records. The file compared individualized nursing triage-guided discharge planning with standard usual-care discharge planning. The authors provided no accompanying protocol, site description, data-extraction report, recruitment dates, or ethics documents. A reproducibility audit compared the workbook with a previously supplied synthetic teaching file and found exact agreement across all 23 analytic fields after aligning column labels; only patient identifiers and display labels differed. This finding creates a material provenance concern. The manuscript therefore reports the analysis transparently but treats it as a submission draft pending verification rather than as confirmed human-subject research.

We structured the analysis as a retrospective two-group comparison. The expo-

sure was the discharge-planning arm, and the unit of analysis was the supplied admission record. We included all 420 observations because the dataset had no missing values. We could not evaluate the recruitment period, clinical site, attrition, crossover, or loss to follow-up because the necessary metadata were not provided.

2.2. Dataset and Clinical Characteristics

The supplied cohort included 201 admissions in the individualized-triage arm and 219 in the standard arm. Available characteristics included age, diagnosis, acuity, comorbidities, mobility, cognition, living arrangement, caregiver support, prior admissions, and prior emergency visits. Primary diagnoses included heart failure, chronic obstructive pulmonary disease exacerbation, pneumonia, ischemic stroke, hip fracture after surgery, general surgery after surgery, sepsis or infection, and other medical conditions.

We did not apply eligibility and exclusion criteria after file generation. In a future real-world study, reasonable eligibility criteria would include adult inpatients discharged home, home health, skilled nursing or rehabilitation, or hospice, with exclusions limited to situations in which the discharge process and outcomes cannot be meaningfully assessed. Such criteria would need to be prespecified to avoid selectively excluding patients with difficult transitions.

2.3. Individualized Nursing Triage Exposure

The individualized arm represented a structured admission-to-discharge process in which nursing assessment informed the discharge plan. Available variables included acuity, comorbidity, mobility, cognition, living arrangement, caregiver support, previous utilization, BRASS-style discharge complexity, and LACE-style readmission risk. The proposed mechanism was that identified risks would trigger proportionate discharge actions, including medication reconciliation, tailored teaching, caregiver involvement, scheduling a seven-day follow-up, and destination planning.

The standard arm represented usual discharge planning without the same structured individualized triage framework. The dataset did not include process-fidelity observations, such as screening timing, teaching duration, use of teach-back, number of referrals, or whether recommended actions were completed after referral. Therefore, exposure classification reflects the recorded planning arm rather than a measured fidelity score. A prospective study should measure both assignment and delivery because a triage program can fail when screening is completed but the resulting actions are delayed or unavailable.

2.4. Measures

Baseline measures included age in years; sex; an Emergency Severity Index-style acuity level from 1, most urgent, to 5, least urgent; number of active comorbidities; mobility status; cognitive status; whether the patient lived alone; caregiver sup-

port; hospital admissions and emergency visits during the prior six months; a simplified BRASS-style score from 0 to 24; and a LACE-style score from 0 to 19. We grouped BRASS-style scores as low risk at 9 or below, moderate risk from 10 to 15, and high risk at 16 or above. The variables were inspired by established constructs but were not clinical measurements collected from actual patients with licensed or validated instruments.

The primary process outcomes were medication reconciliation completed before discharge, individualized discharge or self-management teaching completed and documented, and an outpatient follow-up appointment scheduled within seven days. These outcomes were coded yes or no. We selected them because each represents an actionable part of the discharge plan and a plausible pathway between triage and later safety.

Clinical and utilization outcomes were hospital length of stay (days), unplanned readmission within 30 days, and emergency department revisit within 30 days. We recorded patient-reported discharge satisfaction on a 1-to-5 scale, with higher values indicating greater satisfaction. Discharge disposition was available descriptively but was not modeled as an outcome because destination choice is strongly determined by clinical and social need and cannot be interpreted as uniformly favorable or unfavorable.

2.5. Statistical Analysis

We summarized baseline characteristics by discharge-planning arm. We reported continuous variables as means and standard deviations, and selected categorical variables as counts and percentages. We used standardized mean differences to describe balance without treating baseline comparisons as hypothesis tests. We considered absolute standardized differences near or above 0.10 potentially meaningful for adjustment, although we used this threshold descriptively rather than as a rigid decision rule.

We summarized binary outcomes with event counts, percentages, absolute risk differences, risk ratios, 95% confidence intervals, and two-sided large-sample tests. We compared length of stay with a Welch two-sample test and reported it as a mean difference with a 95% confidence interval. We compared satisfaction using the Mann-Whitney test because the outcome was ordinal. Statistical significance was set at $p < 0.05$, but effect estimates and confidence intervals were emphasized over dichotomous significance labels.

Adjusted logistic regression models were estimated for the binary outcomes. Covariates were age, sex, acuity, comorbidity count, prior admissions, prior emergency visits, BRASS-style score, and LACE-style score. We analyzed length of stay with linear regression and heteroskedasticity-consistent standard errors using the same covariates. We selected these variables as a priority because they represent plausible baseline determinants of discharge complexity and utilization. We did not emphasize adjusted satisfaction modeling because the five-point outcome did not warrant strong distributional assumptions.

Risk-tier analyses described length of stay, readmission, and emergency revisits within low, moderate, and high-risk BRASS-style strata. These analyses were exploratory. The high-risk stratum was small, so percentages were interpreted cautiously and no formal interaction claim was made. We performed analyses in Python using pandas, NumPy, and SciPy. We obtained logistic estimates through iterative maximum-likelihood calculations, and we based confidence intervals on model standard errors.

2.6. Ethical Considerations and Reporting Integrity

The supplied workbook contained no names, medical-record numbers, dates of birth, addresses, or other direct identifiers. However, de-identification does not remove the requirement to document the legal and ethical basis for using field data in research. The study site, ethics committee decision, approval or exemption number, consent waiver if applicable, and data-governance authorization must be inserted before submission. Because the audit identified an exact match with a prior synthetic teaching dataset, the present draft does not claim verified human-participant status.

The analysis followed three reporting principles. First, we reported results that did not reach statistical significance rather than omitting them. Second, we used multivariable adjustment to assess robustness, not to imply that we eliminated confounding. Third, we interpreted findings alongside peer-reviewed clinical evidence rather than presenting them as an independent effectiveness trial. Any future submission should retain these disclosures and should not describe the sample as patients treated at an actual institution until provenance is verified.

3. Results

3.1. Cohort Characteristics

All 420 supplied records were analyzed: 201 admissions in the individualized-triage arm and 219 in the standard arm. Mean age was 72.04 years in the individualized arm and 71.49 years in the standard arm, and approximately half of each arm was male. Mean ESI-style acuity was 2.94 in both groups. The individualized arm had a slightly lower mean comorbidity count, fewer prior emergency visits, and a lower mean LACE-style score. The largest standardized difference was for the LACE-style score (−0.262), followed by prior emergency visits (−0.164). The individualized arm also had a marginally higher BRASS-style score and a higher percentage of patients living alone. These differences supported adjusted analyses, as the standard arm had somewhat greater recorded utilization-related risk despite similar age, sex, acuity, and BRASS-style complexity (See **Table 1** and **Figure 1**).

The BRASS-style risk-tier distribution was 117 low-risk, 70 moderate-risk, and 14 high-risk admissions in the individualized arm, compared with 141, 71, and 7, respectively, in the standard arm. The small number of high-risk records, particularly in standard care, limited meaningful subgroup inference. No baseline variables, exposure, or outcomes were missing.

Table 1. Baseline characteristics by discharge planning arm.

Characteristic	Individualized (n = 201)	Standard (n = 219)	SMD
Age, years	72.04 (11.84)	71.49 (11.99)	0.046
ESI acuity level	2.94 (0.82)	2.94 (0.86)	−0.000
Comorbidity count	1.67 (1.30)	1.80 (1.32)	−0.101
Prior admissions, 6 months	0.57 (0.76)	0.59 (0.79)	−0.034
ED visits, 6 months	0.42 (0.60)	0.53 (0.70)	−0.164
BRASS-style score	8.43 (4.00)	8.23 (3.78)	0.050
LACE-style score	6.67 (2.17)	7.24 (2.19)	−0.262
Male sex	97 (48.3%)	104 (47.5%)	0.015
Lives alone	71 (35.3%)	67 (30.6%)	0.101

Note. Values are mean (SD) or n (%). SMD = standardized mean difference; ESI = Emergency Severity Index; ED = emergency department.

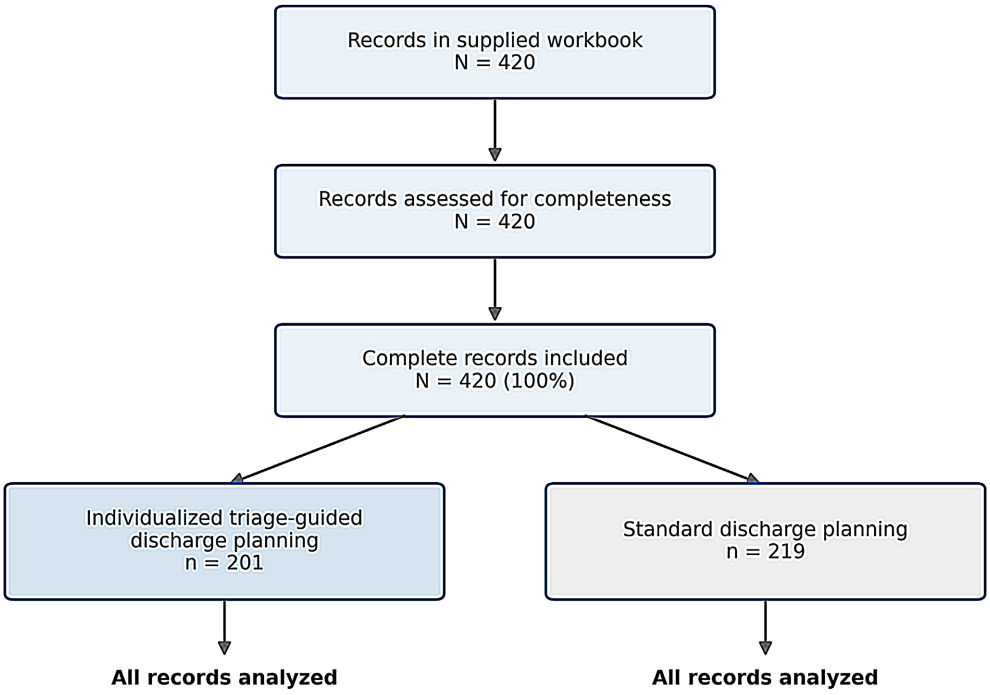


Figure 1. Flow of records through the secondary analysis.

3.2. Discharge-Plan Process Outcomes

All three discharge-process indicators favored individualized nursing triage. Medication reconciliation was completed in 185 of 201 individualized-triage admissions (92.0%), compared with 152 of 219 standard admissions (69.4%). The absolute difference was 22.6 percentage points (95% CI, 15.5 to 29.8), and the risk ratio was 1.33 (95% CI, 1.20 to 1.46; $p < 0.001$). After adjustment, the odds of documented medication reconciliation remained higher in the individualized arm (ad-

justed odds ratio [aOR], 5.25; 95% CI, 2.88 to 9.56; $p < 0.001$).

Documented discharge teaching was completed in 174 individualized-triage admissions (86.6%) and 149 standard admissions (68.0%). The absolute difference was 18.5 percentage points (95% CI, 10.8 to 26.3), with a risk ratio of 1.27 (95% CI, 1.14 to 1.41; $p < 0.001$). Adjustment for baseline variables produced an aOR of 3.16 (95% CI, 1.90 to 5.24; $p < 0.001$).

Follow-up within seven days was scheduled for 160 individualized-triage admissions (79.6%), compared with 109 standard admissions (49.8%). This 29.8 percentage-point difference was the largest process effect (95% CI, 21.2 to 38.5). The risk ratio was 1.60 (95% CI, 1.38 to 1.86; $p < 0.001$), and the adjusted odds ratio was 4.11 (95% CI, 2.63 to 6.43; $p < 0.001$). Together, these findings show that individualized planning was most strongly associated with proximal processes directly linked to the triage-guided plan (See Table 2 and Figure 2).

Table 2. Unadjusted process and utilization outcomes.

Outcome	Individualized	Standard	Risk difference, % (95% CI)	Risk ratio (95% CI)	p
Medication reconciliation	185 (92.0%)	152 (69.4%)	22.6 (15.5, 29.8)	1.33 (1.20, 1.46)	<0.001
Discharge teaching	174 (86.6%)	149 (68.0%)	18.5 (10.8, 26.3)	1.27 (1.14, 1.41)	<0.001
Follow-up scheduled within 7 days	160 (79.6%)	109 (49.8%)	29.8 (21.2, 38.5)	1.60 (1.38, 1.86)	<0.001
30-day readmission	17 (8.5%)	29 (13.2%)	−4.8 (−10.7, 1.1)	0.64 (0.36, 1.13)	0.113
30-day ED revisit	39 (19.4%)	51 (23.3%)	−3.9 (−11.7, 3.9)	0.83 (0.58, 1.21)	0.331

Note. ED = emergency department. Risk differences are individualized minus standard care. Two-sided p-values are shown.

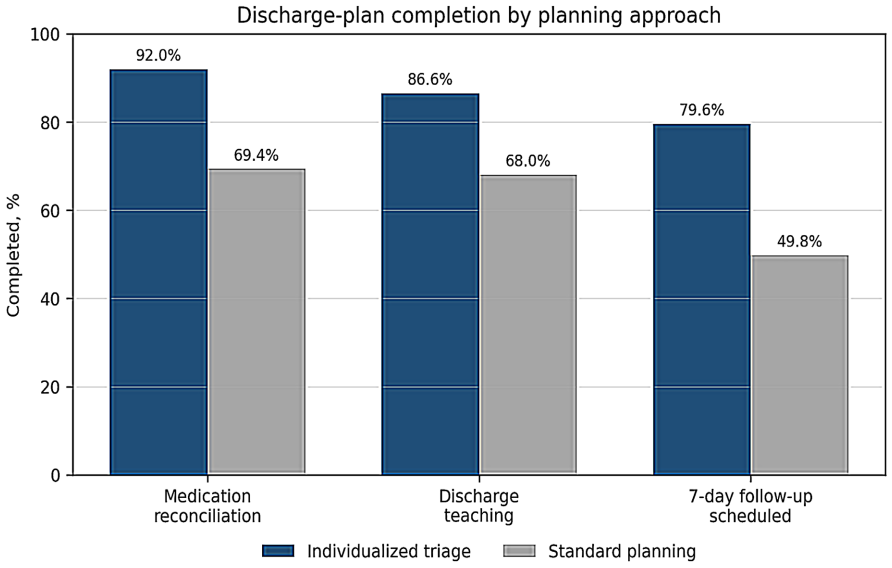


Figure 2. Completion of medication reconciliation, discharge teaching, and seven-day follow-up scheduling by planning approach.

3.3. Length of Stay and Satisfaction

Mean length of stay was 6.03 days (SD, 1.54) in the individualized arm and 6.72

days (SD, 1.54) in standard care. The unadjusted mean difference was −0.69 days (95% CI, −0.99 to −0.40; $p < 0.001$). In the adjusted linear model, individualized triage remained associated with a 0.44-day shorter stay (95% CI, −0.68 to −0.21; $p < 0.001$). The reduction in the coefficient after adjustment is consistent with the standard arm's higher mean LACE-style risk and prior emergency use. The model explained approximately 43.4% of the recorded variation in length of stay.

Mean satisfaction was 4.26 (SD, 0.70) in the individualized arm and 3.71 (SD, 0.71) in the standard arm. The median was 4 in both arms because the five-point scale was discrete, but the overall distributions differed (Mann-Whitney U = 30,816.5; $p < 0.001$). This pattern suggests that satisfaction may respond to the completeness, clarity, and coordination of the discharge process even when median comparisons appear unchanged (See Table 3 and Figure 3).

Table 3. Adjusted associations with individualized nursing triage.

Outcome	Effect measure	Estimate	95% CI	p
Medication reconciliation	Adjusted odds ratio	5.25	2.88 to 9.56	<0.001
Discharge teaching	Adjusted odds ratio	3.16	1.90 to 5.24	<0.001
Follow-up within 7 days	Adjusted odds ratio	4.11	2.63 to 6.43	<0.001
30-day readmission	Adjusted odds ratio	0.55	0.28 to 1.06	0.075
30-day ED revisit	Adjusted odds ratio	0.79	0.49 to 1.28	0.336
Length of stay, days	Adjusted beta	−0.44	−0.68 to −0.21	<0.001

Note. Models adjusted for age, sex, acuity, comorbidity count, prior admissions, prior ED visits, BRASS-style score, and LACE-style score. The odds ratio compares individualized planning with standard planning.

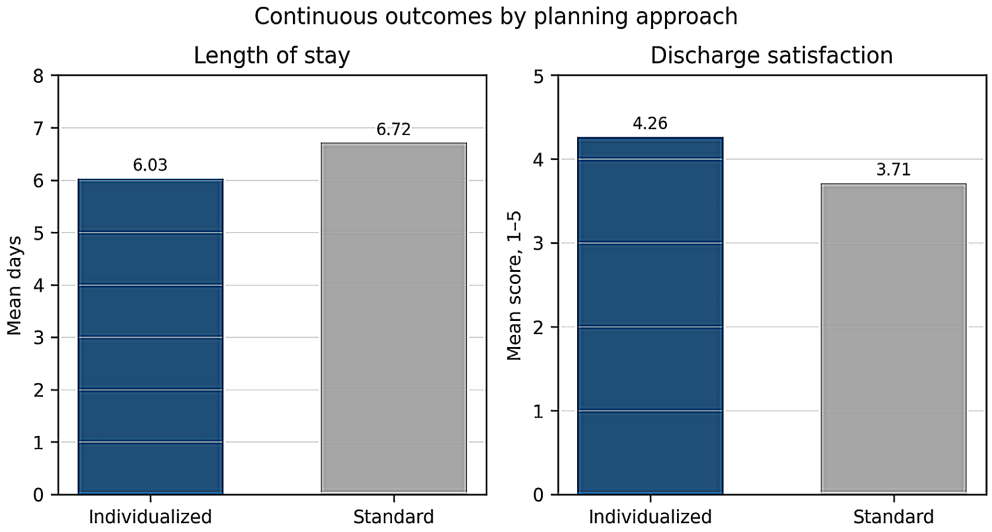


Figure 3. Mean length of stay and patient-reported discharge satisfaction by planning approach.

3.4. Thirty-Day Utilization

Seventeen of 201 individualized-triage admissions, or 8.5%, had a recorded 30-

day readmission compared with 29 of 219 standard admissions, or 13.2%. The absolute difference was −4.8 percentage points (95% CI, −10.7 to 1.1), and the risk ratio was 0.64 (95% CI, 0.36 to 1.13; p = 0.113). After adjustment, the direction and magnitude remained favorable but did not meet the conventional significance threshold (aOR, 0.55; 95% CI, 0.28 to 1.06; p = 0.075) (See Figure 4).

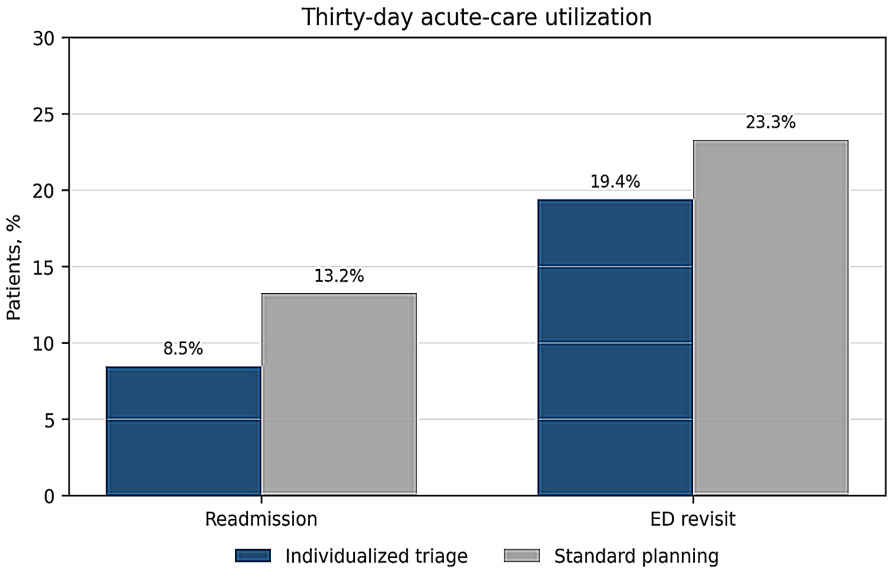


Figure 4. Thirty-day readmission and emergency department revisit percentages by planning approach.

Thirty-nine individualized-triage admissions, or 19.4%, had an emergency revisit within 30 days compared with 51 standard admissions, or 23.3%. The absolute difference was −3.9 percentage points (95% CI, −11.7 to 3.9), and the risk ratio was 0.83 (95% CI, 0.58 to 1.21; p = 0.331). The adjusted result was similar (aOR, 0.79; 95% CI, 0.49 to 1.28; p = 0.336). The confidence intervals for readmission and emergency revisits included both potentially meaningful benefit and little or no effect. Therefore, these outcomes support a directional association but not a definitive claim.

3.5. Risk-Tier Patterns

Within the low-risk stratum, readmission occurred in 1.7% of individualized-triage admissions, compared with 11.3% of standard admissions. Mean length of stay was 5.98 and 6.68 days, respectively. In the moderate-risk stratum, readmission rates were 14.3% and 15.5%, and mean stays were 6.07 and 6.85 days. In the high-risk stratum, readmission occurred in 35.7% of the individualized arm and 28.6% of standard care, while emergency revisits occurred in 21.4% and 71.4%, respectively. These high-risk percentages were based on only 14 and 7 records, making them unstable. Variation across tiers reinforces the need for an adequate sample size and formal interaction testing before concluding that triage works differently by risk level (See Table 4).

Table 4. Exploratory outcomes by BRASS-style risk tier.

Risk tier	Planning arm	n	Readmission	ED revisit	Length of stay, mean (SD)
Low	Individualized	117	2 (1.7%)	24 (20.5%)	5.98 (1.56)
Low	Standard	141	16 (11.3%)	31 (22.0%)	6.68 (1.42)
Moderate	Individualized	70	10 (14.3%)	12 (17.1%)	6.07 (1.52)
Moderate	Standard	71	11 (15.5%)	15 (21.1%)	6.85 (1.75)
High	Individualized	14	5 (35.7%)	3 (21.4%)	6.25 (1.59)
High	Standard	7	2 (28.6%)	5 (71.4%)	6.17 (1.61)

Note. High-risk estimates are unstable because the stratum contains only 21 records. No formal interaction test was performed.

4. Discussion

4.1. Principal Findings

This secondary analysis shows how individualized nursing triage could strengthen a patient discharge plan through measurable changes in proximal care processes. The largest observed differences occurred in medication reconciliation, discharge teaching, and rapid follow-up scheduling. These are plausible direct consequences of a structured assessment that identifies risk early and assigns responsibility for action. Length of stay and satisfaction also favored individualized triage. Readmission and emergency revisit rates moved in the expected direction but did not reach statistical significance, even though the adjusted readmission estimate suggested a potentially important benefit.

The pattern is clinically coherent. Process outcomes are closer to the intervention and more immediately controllable by the discharge team. Thirty-day utilization is more distal and influenced by illness trajectory, community resources, primary care access, patient behavior, and events unrelated to discharge quality. A program may reliably improve plan completeness without producing a statistically detectable reduction in readmissions in a modest sample. This distinction is important for both research and management. Evaluations that use readmission as the only success criterion can miss meaningful gains in medication safety, understanding, continuity, and patient experience.

Because we could not verify the provenance of the supplied records and their values duplicate an earlier synthetic teaching dataset, the numerical results cannot independently confirm clinical effectiveness. The value of the analysis is to demonstrate an internally consistent framework: assess discharge risk, connect risk to interventions, measure whether the interventions occurred, and examine downstream outcomes with appropriate adjustment and uncertainty. The strongest support for practice comes from the external peer-reviewed literature. If auditable field-source documentation becomes available, the same analytic framework can support a genuine observational study, with additional adjustment for site, calen-

dar time, staffing, and discharge destination.

4.2. Relationship to Previous Research

The observed unadjusted reduction in length of stay—0.69 days—closely resembles the modest reduction reported in the evidence on individualized discharge planning synthesized by Gonçalves-Bradley *et al.* [3]. That review concluded that a tailored discharge plan probably leads to a slight reduction in length of stay and unscheduled readmissions among older medical patients. Given the unresolved provenance issue, this similarity should not be characterized as an independent replication. Rather, it indicates that the supplied values are consistent with plausible effect sizes reported in the literature.

The process findings also align with Project RED. In the randomized trial by Jack *et al.* [6], a nurse discharge advocate coordinated follow-up, reconciled the discharge plan, educated patients, and developed an individualized after-hospital care plan; a pharmacist reinforced the plan after discharge. The intervention reduced hospital utilization within 30 days, mainly by reducing emergency visits. Project RED is particularly relevant because it shows how a nurse's role can integrate tasks that might otherwise be fragmented. However, the intervention was multicomponent, so its effects cannot be attributed to a single nursing assessment or to triage alone.

The Care Transitions Intervention also emphasized patients' ability to manage their care. Coleman *et al.* [5] used a transitions coach to support medication self-management, a patient-centered health record, follow-up, and recognition of warning signs. Rehospitalization rates were lower at 30 and 90 days, and the benefit persisted at 180 days. Naylor *et al.* [7] demonstrated that advanced practice nurse transitional care beginning in the hospital and continuing through home visits and telephone availability prolonged the time to readmission or death and reduced rehospitalizations among older adults with heart failure. Rich *et al.* [8] found that nurse-directed multidisciplinary intervention, including education, dietary guidance, social-service consultation, medication review, and intensive follow-up, reduced readmissions in older patients with heart failure. Together, these trials support a model in which risk assessment is followed by continuity and active support, rather than a discharge score alone.

The broader literature also supports multicomponent strategies that account for patients' capacity. Leppin *et al.* [10] found that interventions to prevent 30-day readmission were more effective when they were complex and helped patients carry out self-care. Rennke *et al.* [14] concluded that hospital-initiated transitional-care strategies can improve patient safety, although variation among interventions makes it difficult to identify a single best model. Tyler *et al.* [9] added an important refinement: lower- and medium-complexity transitional-care packages were associated with better 30-day readmission outcomes, suggesting that intensity should be proportionate and purposeful, not maximal by default.

The present framework treats individualized nursing triage as the means of se-

lecting a proportionate package. A standardized core process applies to everyone, while the triage assessment determines whether additional intensity is needed. This approach avoids two opposing errors. The first is under-response, in which high-risk patients receive routine instructions that fail to address cognition, polypharmacy, function, or social barriers. The second is indiscriminate over-response, in which resource-intensive services are provided to patients unlikely to benefit, limiting capacity for those with greater need.

4.3. Mechanisms through Which Triage Improves the Plan

Early identification is the first mechanism. Discharge barriers often require advance planning. Durable medical equipment, home oxygen, rehabilitation placement, medication authorization, caregiver training, transportation, and home services cannot be reliably arranged in the final hours of hospitalization. Screening at admission and reassessing throughout the stay make unresolved needs visible while there is still time to address them. A risk score can prompt attention, but the nursing assessment explains why the patient is at risk and which intervention is needed.

Tailored education is the second mechanism. Providing instructions does not ensure understanding. Individualized triage identifies language needs, sensory impairment, cognitive limitations, emotional distress, low health literacy, dexterity problems, and caregiver availability. Nurses can then adjust the format, pace, timing, and recipient of education. Teach-back and return demonstration make education an assessment of readiness. If a patient cannot explain warning signs or demonstrate wound care, the discharge plan should change, not treat the failure as a documentation inconvenience.

Medication safety is the third mechanism. Forster *et al.* [1] identified medication-related problems as a major source of adverse post-discharge events. Medication reconciliation should compare the preadmission regimen, inpatient changes, and discharge prescriptions; clarify which drugs are stopped, started, or modified; and determine whether the patient can obtain and use them. Triage can identify high-risk medications, polypharmacy, affordability concerns, visual or cognitive limitations, and lack of caregiver support. These findings can warrant pharmacist involvement, simplified schedules, pill organization, or early post-discharge contact.

Continuity is the fourth mechanism. A follow-up recommendation without a scheduled appointment shifts coordination work to a patient who may be ill, fatigued, or unable to navigate the system. The nearly 30-percentage-point observed increase in seven-day scheduling demonstrates a concrete improvement in how actionable the plan is. Lee *et al.* [15] found that outpatient contact within seven days after heart-failure hospitalization was associated with lower odds of 30-day readmission, although the observational design cannot establish causality. Individualized triage can determine who needs rapid contact, what information to communicate, and which unresolved results or symptoms require monitoring.

Patient and caregiver partnership is the fifth mechanism. A discharge plan is viable only when the people expected to carry it out understand and accept their roles. Nurses should ask what the patient considers manageable, who is available to help, and what barriers may hinder adherence. Caregiver presence should not be taken to mean willingness or competence. With the patient's permission, caregivers should have the same opportunity to teach back and demonstrate return. Shared planning can uncover conflicts between clinical recommendations and employment, transportation, housing, finances, culture, or family responsibilities.

4.4. Implications for Nursing Practice and Leadership

Health systems should standardize individualized nursing triage as a minimum assessment linked to tiered pathways. Core domains should cover current clinical stability, acuity, recent utilization, comorbidities, medications, cognition, mobility, self-care ability, health literacy, language, behavioral health, caregiver capacity, social needs, and access to follow-up. Complete the assessment early, update it after significant clinical changes, and review it before discharge. A score should never substitute for direct assessment or override evidence that the patient or caregiver is unprepared.

Each high-risk finding should prompt an accountable response. An unresolved medication discrepancy should lead to prescriber or pharmacist review. An inability to perform wound care should prompt additional teaching, caregiver assessment, or home health evaluation. Cognitive impairment should prompt capacity assessment, caregiver engagement, and simplified instructions. Lack of transportation should prompt social work or community-resource referral. Document escalation in the electronic record, with due dates and named owners, so making a referral is not mistaken for resolving the issue.

Nurse leaders must also address the work environment. Individualized assessment, teaching, and coordination require time. If staffing or discharge pressure makes meaningful triage impossible, the program will become a checklist with limited clinical effect. Leadership should protect teaching time, provide interpreter and pharmacy access, support weekend and after-hours coordination, and monitor unresolved barriers during interdisciplinary rounds. Nurse staffing should be considered part of intervention fidelity, not an unrelated operational issue.

Implementation should begin with workflow mapping and small-scale testing. Organizations can define a core triage instrument, specify tier thresholds, identify available services, and create escalation rules. Pilot units should measure completion, response time, missed barriers, discharge delays, and staff burden. Patient and caregiver feedback should inform the design. Electronic decision support can improve reliability, but limit alerts to actionable items to avoid fatigue.

Performance measurement should include process, patient-reported, safety, utilization, and equity outcomes. Process measures include timely risk assessment, resolved medication discrepancies, completed teach-back, scheduled follow-up, and transmitted discharge information. Patient-centered measures in-

clude readiness, confidence, understanding, burden, and satisfaction. Safety outcomes include medication harm and escalation failures. Utilization outcomes include emergency visits and readmissions, but they should be risk adjusted and interpreted alongside mortality and access. Equity analysis should examine whether the program performs similarly across language, race and ethnicity, disability, socioeconomic risk, rural residence, and discharge destination.

4.5. Interpretation of Nonsignificant Utilization Outcomes

The nonsignificant readmission and emergency-revisit results deserve explicit interpretation. The point estimates favored individualized triage, and the adjusted readmission odds ratio of 0.55 approached conventional significance. Yet the confidence interval crossed 1.0. The appropriate conclusion is not that triage definitively reduced readmission, nor that it had no effect. The observed data were compatible with a potentially meaningful reduction and with limited or no reduction. A larger verified field sample would be needed to obtain adequate precision.

This issue illustrates why publication bias can distort quality-improvement evidence. If investigators report only significant outcomes, a program may appear uniformly effective. Transparent reporting requires presenting process gains, favorable but imprecise utilization estimates, and unstable subgroup patterns together. Decisions can then consider clinical importance, confidence intervals, cost, feasibility, and patient priorities rather than relying only on p-values.

4.6. Strengths and Limitations

This paper has several strengths. It defines individualized nursing triage operationally, connects the construct to peer-reviewed evidence on discharge and transitional care, and reports absolute and relative effects, confidence intervals, adjustments, and subgroup cautions. It also distinguishes proximal discharge-process outcomes from distal utilization outcomes and provides a transparent audit of data provenance. This disclosure avoids presenting the results as verified field observations before source documentation is available.

The limitations are substantial. First, the workbook lacks a protocol, field-site information, collection dates, sampling documentation, and ethics records, and its analytic values exactly duplicate those in a prior synthetic file. Therefore, the analysis cannot establish an intervention effect based on verified field observations. Statistical significance reflects the supplied values and sample size. Second, the study did not document randomization, and the standard arm had a higher mean LACE-style score and more prior emergency use. Adjustment reduced measured imbalance but cannot eliminate selection bias or unmeasured confounding.

Third, several variables simplified complex constructs. Medication reconciliation, teaching, and follow-up were recorded as binary variables, providing no information about quality, comprehension, timing, or fidelity. Satisfaction was captured by a single five-point item. BRASS-style and LACE-style variables resembled

established instruments but were not actual bedside measurements. Fourth, the dataset did not include mortality, adverse drug events, health literacy, language, race and ethnicity, insurance, rurality, housing, cost, staffing, or intervention cost. These omissions limit assessment of safety, equity, and implementation feasibility.

Fifth, high-risk subgroup counts were too small to support stable conclusions. The counterintuitive high-risk readmission percentages illustrate how easily sparse data can mislead. Sixth, length of stay may be skewed in real clinical data, whereas the supplied distribution was comparatively regular. Future analyses should test distributional assumptions and consider generalized models. Finally, settings may interpret the phrase individualized nursing triage differently. Clear operational definitions and fidelity measures will be needed before institutions can compare results.

4.7. Recommendations for Real-World Research

A pragmatic cluster-randomized or stepped-wedge trial would provide stronger evidence while accommodating workflow changes at the unit level. Eligible adult medical and surgical units could implement a standardized triage assessment linked to predefined, tiered actions. The comparison group would continue the institution's existing discharge process. Randomizing by unit or time period would reduce contamination from nurses using individualized techniques with both intervention and control patients.

The primary outcome should extend beyond readmission. A co-primary or hierarchical outcome strategy could include discharge readiness, medication discrepancies, post-discharge adverse events, and 30-day acute-care use. Secondary outcomes should include follow-up completion, patient and caregiver burden, satisfaction, mortality, length of stay, cost, and days alive at home. When feasible, assessors should be blinded to allocation, and utilization should be captured across health systems rather than from a single hospital record.

Fidelity measurement should document when triage occurred, which risks were identified, which actions were recommended, whether each action was completed, and why recommended services were unavailable. Mediation analysis could then examine whether medication reconciliation, teaching, or rapid follow-up explains improvements in downstream outcomes. Qualitative interviews with patients, caregivers, nurses, pharmacists, physicians, case managers, and community clinicians would identify barriers not captured in administrative data.

Sample-size planning should reflect the smallest clinically meaningful difference and account for clustering and expected attrition. Because readmission is relatively infrequent, several thousand admissions may be needed to produce precise estimates and support subgroup testing. Prespecified equity analyses should assess whether triage reduces or widens disparities. An algorithm that allocates more services to patients with prior utilization could disadvantage people who have historically poor access; social risk and professional judgment should there-

fore supplement utilization history.

Economic evaluation is also needed. Individualized triage requires nursing time, training, information systems, and access to follow-up services. These costs could be offset by shorter stays, fewer acute-care encounters, and reduced harm, but savings should not be assumed. A cost-effectiveness analysis should specify the perspective, time horizon, intervention resources, hospital and community costs, and patient or caregiver costs. Implementation decisions should consider both financial value and the ethical obligation to provide comprehensible, coordinated care.

5. Conclusions

Individualized nursing triage offers a defensible framework for improving discharge planning by connecting standardized assessment with actions tailored to each patient. Research supports early, personalized discharge planning and nurse-involved transitional care, especially when programs address medication management, self-care ability, follow-up, and continuity across care settings. In the supplied dataset, individualized triage was associated with higher rates of medication reconciliation, discharge teaching, and seven-day follow-up scheduling, as well as shorter stays and greater satisfaction. Thirty-day readmissions and emergency revisits were lower with individualized triage, but the results were statistically inconclusive.

Use these findings to guide study design and generate hypotheses until the data's provenance has been verified. A successful program must do more than assign a risk score: it must give nurses the time and authority to assess readiness, draw on interdisciplinary resources, confirm understanding, involve caregivers, address barriers, and communicate with the receiving team. Future prospective studies should evaluate this model using field data, validated instruments, fidelity measures, adequate statistical power, economic evaluation, and explicit attention to equity. When implemented as an accountable clinical reasoning process, individualized nursing triage can make discharge plans more complete, feasible, and responsive to the person responsible for carrying them out.

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Author Contributions

Michael Boadi Gyekye conceptualized the manuscript, interpreted the illustrative analysis, developed the clinical implications, and approved the final version.

Ethics Statement

This study made known to all volunteers and their consent were obtained. All appropriate permissions were obtained, valued and assessed.

Data Availability Statement

The author can share the analyzed workbook, subject to provenance verification and applicable institutional data-governance restrictions. A de-identified analytic dataset and code may be shared only after the author confirms that disclosure is permitted.

Conflicts of Interest

The author declares no conflicts of interest.

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