

Audit on the compliance rate of completion of radiology request forms for CT–brain in Colombo North Teaching Hospital (CNTH), Sri Lanka

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Abstract. Accurate completion of radiology request forms (RRFs) is vital for effective communication between clinicians and radiologists, particularly in high-stakes imaging such as CT-brain studies. Globally, poor RRF compliance has been linked to diagnostic delays and increased radiation exposure. At Colombo North Teaching Hospital (CNTH), incomplete CT-brain RRFs—especially during off-hours—have raised concerns regarding diagnostic accuracy and patient safety. This audit aimed to assess compliance with mandatory fields in CT-brain RRFs at CNTH, identify documentation gaps, and inform targeted interventions to enhance radiological communication and patient care. A retrospective audit of 262 CT-brain RRFs from January to March 2021 was conducted at CNTH. Every third form was sampled, and data were assessed using a standardized 12-field checklist covering demographic, administrative, and clinical information. Compliance was categorized as high (>95%), moderate (80–90%), or low (<50%). Descriptive statistics were used to report field-wise compliance. Ethical approval and institutional permissions were obtained, and data confidentiality was strictly maintained. Administrative fields demonstrated high compliance: Patient name, Ward number, BHT detail, and Date were completed in over 98% of forms. Moderate compliance (80–90%) was observed for Age, Sex, Requesting doctor's signature, and Legibility. In contrast, clinical fields showed poor compliance: History (45.8%), Urgency (51.5%), Probable diagnosis (35.9%), and Consultant name (24.1%). Only 6.5% of forms were fully completed. These disparities suggest a prioritization of logistical data over essential clinical context. This audit identified significant lapses in the completion of clinical information on CT-brain RRFs at CNTH, jeopardizing diagnostic quality and patient safety. The findings support the implementation of targeted, context-appropriate interventions such as standardized request forms and interdisciplinary training. Future audits should evaluate the impact of such interventions on compliance rates and patient outcomes.

Keywords. Radiology request forms (RRFs), Clinical documentation, Communication gaps

BACKGROUND

Effective communication between clinicians and radiologists via radiology request forms (RRFs) is pivotal for accurate diagnosis and patient management, as these forms serve as the primary conduit for conveying essential patient details, including demographics, clinical history, and requester credentials (1,2). Despite their critical role, global audits highlight widespread deficiencies in RRF completion, with key fields such as probable diagnosis and requester's name omitted in 70–82% of cases in Pakistan and Nigeria (3,4). Such gaps compromise radiological interpretation, leading to reporting delays, repeat imaging, and unnecessary radiation exposure, particularly concerning in high-dose

modalities like computed tomography (CT) (1,5). At Colombo North Teaching Hospital (CNTH), CT-brain scans represent one of the commonest radiology requests, frequently marked as urgent during off-hours. Incomplete RRFs exacerbate challenges for on-call radiologists, who must interpret studies without adequate clinical context, risking diagnostic delays and patient safety concerns—an issue mirrored in other settings where poor documentation correlates with errors (6,7). Triggered by internal reports of delayed diagnoses and aligned with global evidence (3,4), this audit aimed to assess compliance rates for completion of mandatory fields on CT-brain RRFs at CNTH, identifying gaps to aim for targeted interventions. By evaluating which fields

exhibited the lowest compliance and exploring contextual factors (e.g., clinician workload, training), the study sought to enhance radiological communication, reduce diagnostic delays, and align practices with international patient safety standards (8), particularly amid rising CT utilization and growing awareness of associated radiation risks (5).

METHODOLOGY

This retrospective audit was conducted in the Radiology department of Colombo North Teaching Hospital (CNTH), Ragama, Sri Lanka - a tertiary care hospital serving diverse urban and rural populations. Ethical approval for the audit was obtained from the Ethical Review Committee of the CNTH, with permissions secured from the Head of Radiology and the Hospital Director. The audit focused on 262 systematically sampled CT-brain request forms (every third form) from January to March 2021, when the department processed approximately 10 daily requests.

A standardised checklist, aligned with institutional protocols and literature (4, 9),

was developed to assess compliance across 12 mandatory fields: Patient name, Age, Sex, Ward number, BHT detail, Date, History, Urgency, Probable diagnosis, Consultant name, Requesting doctor's signature, and Legibility. A single investigator extracted data from patient registers and request forms using the checklist, with internal validity ensured through standardised procedures and a pilot test (20 forms) confirming tool reliability. Patient identifiers were anonymised during data extraction, and all data were stored in a password-protected database accessible only to investigators, with retention for five years before secure disposal.

Data were analysed descriptively using Microsoft Excel® to calculate compliance frequencies (Equation 1) and percentages, categorised as high (>95%), moderate (80–90%), or low (<50%). No inferential statistics were applied, as the audit aimed to establish baseline compliance. External validity was limited to comparable tertiary care settings.

Equation 1. Compliance rate

$$\text{Compliance rate} = \frac{(\text{Total} - \text{Non-compliances})}{(\text{Total})} \times 100\%$$

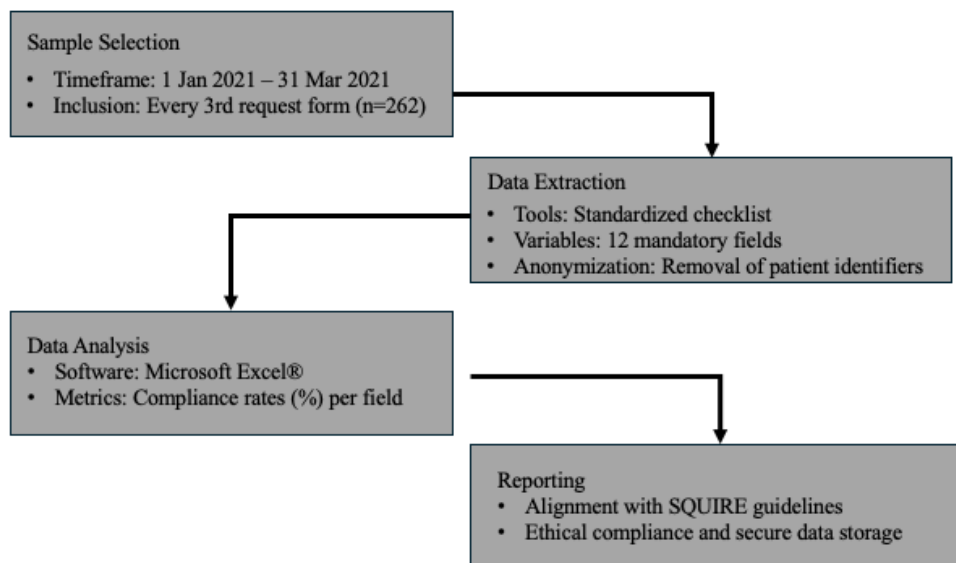


Figure 1. CT-Brain Request Forms Audit Process

RESULTS

A total of 262 request forms were reviewed during the study period. Compliance rates varied significantly across fields (Table 1). Administrative fields such as Patient name, Ward number, BHT detail, and Date demonstrated near-universal adherence (>95% compliance), reflecting robust institutional protocols for patient identification and documentation. Moderate compliance (80–90%) was observed for Patient Age, Patient Sex, requesting doctors' signature, and Legibility, suggesting occasional lapses in attention to detail. However, critical clinical fields exhibited alarmingly low completion rates: History (45.8% filled), Urgency (51.53%), Probable diagnosis (35.88%), and Consultant name (24.05%), highlighting systemic gaps in documenting clinical rationale and prioritisation.

Unexpectedly, the audit revealed a stark contrast between high compliance in administrative fields and poor adherence to clinical documentation, implying institutional prioritisation of logistical over clinical data. This discrepancy may stem from insufficient clinician training, time constraints during form completion, or a lack of awareness regarding the impact of incomplete clinical information on radiology workflows and patient outcomes. Notably, no missing data were reported for the audited fields, as all forms underwent structured assessment against predefined completeness criteria. These findings underscore the need for targeted interventions to address gaps in clinical documentation, which are vital for ensuring accurate imaging prioritisation, interpretation, and overall patient care quality.

Table 1. Compliance Rates for Mandatory Fields in CT-Brain Request Forms (N=262)

Information on the request form	Unfilled fields (%)	Filled fields (%)
Patient name	0 (0)	262 (100)
Patient Age	42 (16.0)	220 (84.90)
Patient Sex	25 (9.5)	237 (90.5)
Ward number	1 (0.3)	261 (99.7)
Bead head ticket (BHT) number	1 (0.3)	261 (99.7)
Date	4 (1.5)	258 (98.5)
History	142 (54.2)	120 (45.8)
Urgency	127 (48.4)	135 (51.6)
Probable diagnosis	168 (64.1)	94 (35.9)
Consultant name	199 (75.9)	63 (24.1)
Requesting doctor's signature	29 (11.1)	233 (88.9)
Legibility	31 (11.8)	231 (88.2)

DISCUSSION

This audit at Colombo North Teaching Hospital (CNTH) revealed significant variability in compliance rates for completing radiology request forms for CT-brain scans. While administrative fields (Patient name, Ward number, BHT detail, Date) demonstrated near-perfect adherence (>95%), critical clinical fields (History, Urgency, Probable diagnosis, Consultant name) showed alarmingly low completion rates (24–55%). These findings underscore systemic prioritisation of logistical over

clinical documentation, potentially compromising imaging prioritisation, diagnostic accuracy, and patient safety.

The observed disparity between administrative and clinical field compliance mirrors global trends. Depasquale and Crockford (2005) reported only 4% fully completed forms (10), while CNTH's 6.5% fully compliant forms (n=17) reflect similar inadequacies (10). High compliance in administrative identifiers (Patient name, BHT number) aligns with studies from Sri Lanka(11)and Nigeria(3), suggesting an institutional emphasis on patient

identification. However, CNTH's lower Age compliance (83.96%) contrasts with global studies where age is consistently documented (6,12–14), highlighting local gaps.

The audit's most concerning finding of low clinical data completion resonates with evidence linking inadequate clinical information to diagnostic errors (7,14). For instance, Castillo et al. (2021) demonstrated that incomplete histories increase reporting inaccuracies by 30% (7). Similarly, Garba et al. (2021) associated poor clinical documentation with prolonged patient waiting times and unnecessary radiation exposure(10), a critical concern given CT's higher radiation risk (5).

The stark contrast between administrative and clinical field compliance suggests an institutional culture that prioritizes bureaucratic accuracy over clinical communication. This misalignment may stem from insufficient training, as highlighted by Hajalamin et al., who identified poor clinician awareness of radiology workflows as a key barrier (15). Additionally, as noted in Nigerian and Zambian audits (9,10), time constraints in busy tertiary care settings likely exacerbate incomplete documentation.

Multipronged interventions are warranted to address these gaps. Structured templates with mandatory clinical fields, as successfully implemented in Pakistan (14), could standardize documentation. Regular clinician education on the impact of incomplete forms, coupled with feedback mechanisms (e.g., radiologist-clinician forums), may improve compliance, as demonstrated by Rajanikanth (6). Furthermore, integrating electronic request systems with forced-entry fields, advocated by Brady et al. (8), could reduce omissions while enhancing legibility.

This study has several limitations. First, as a single-center audit, its generalizability to other Sri Lankan or global settings may be limited. Second, the absence of longitudinal data prevents the assessment of compliance trends over time. Third, potential observer bias during form evaluation could affect data reliability, though standardized criteria

mitigated this risk. Finally, the audit did not explore clinician perspectives (e.g., time constraints, training gaps) driving non-compliance, limiting causal inference. The strengths of this study include its structured audit design, comprehensive data collection, and alignment with SQUIRE guidelines for quality improvement reporting.

CONCLUSIONS AND RECOMMENDATIONS

This audit highlights critical deficiencies in clinical documentation within CT-brain request forms at CNTH, with implications for patient safety and resource utilization. The findings align with global evidence, reinforcing the need for context-specific quality improvement strategies. Future studies should evaluate the effectiveness of electronic requisition systems and interdisciplinary training programs in enhancing compliance. By addressing these gaps, CNTH can mitigate radiation risks, improve diagnostic accuracy, and align with value-based healthcare principles (8).

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