COMPLETENESS OF COMPUTED TOMOGRAPHY (CT) REQUISITION FORMS IN A TERTIARY CARE CENTER OF NEPAL: A MIXED-METHOD STUDY

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ABSTRACT

Properly completed Computed Tomography (CT) requisition forms are essential for accurate imaging, timely diagnosis, and patient safety. Incomplete documentation may lead to delays, errors, and potential harm. This audit evaluated the completeness of CT requisition forms at Nepal Medical College Teaching Hospital. A cross-sectional audit of 267 CT requisition forms was performed. Data on patient demographics, clinical information, and administrative details were collected and analyzed against established standards. Descriptive statistics were used to quantify completeness. Patient name and age were recorded in 99.3% and 98.9% of forms, respectively, while 97.4% documented patient sex. Hospital numbers were missing in 50.2%, provisional diagnosis in 59.6%, and the referring department in 77.9%. Doctor signatures were absent in 29.2%, and allergy history was omitted in 92.5%. Only 7.5% of the forms were fully complete. The audit revealed considerable gaps in the completion of CT requisition forms. Targeted interventions, staff training, and periodic re-audits are recommended to enhance documentation quality and patient safety.

KEYWORDS

CT requisition forms, clinical audit, documentation completeness, patient safety, Nepal

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INTRODUCTION

Computed Tomography (CT) has become an indispensable tool in modern medical diagnostics, providing detailed cross-sectional images crucial for diagnosing and managing a variety of conditions.[1] It is extensively used not only for evaluating injuries but also for diagnosing both symptomatic and asymptomatic patients and for characterizing and staging lesions.[2] Given that CT contributes to approximately 50.0% of total medical exposure to ionizing radiation, the International Commission on radiological protection underscores the necessity of justification and effective communication in radiation protection.[3] The high doses associated with CT about 100 times greater than those from lower-dose modalities like plain film radiography highlight the importance of ensuring that each examination is justified.[4]

A radiology request form (RRF) is a critical document completed by a licensed physician to request an opinion from a clinical radiologist. It serves as a primary communication tool between referring clinicians and radiologists.[5] Accurate and comprehensive completion of these forms is vital for adhering to proper protocols, minimizing unnecessary radiation exposure, and facilitating prompt and accurate diagnoses.[6] Referring doctors are responsible for ensuring that these forms are filled out correctly and include all relevant patient data.[7] Incomplete requisition forms have been identified as a significant issue in various audits, including some conducted in Nepal.[8,9] Such deficiencies can delay the diagnostic process as radiologists may need additional time to interpret incomplete information about the patient's clinical condition.[10] Moreover, inadequately completed forms can lead to misleading communication, potentially resulting in unnecessary scans and delays in providing final reports.[11]

Although there are no specific National Institute for Health and Care Excellence (NICE) guidelines for CT request forms, the Royal College of Radiologists advocates that "*Reasons for the request should be clearly stated and sufficient clinical details supplied to enable the imaging specialist to understand the particular diagnostic or clinical problems to be resolved by the radiological investigations*".[12] This guidance highlights the importance of detailed documentation for effective radiological assessment. The widespread issue of incomplete radiology request forms underscores the need for standardized practices to ensure patient safety and the accuracy of diagnoses.[13] Inadequate request forms not only compromise the quality of care but also increase the risk of unnecessary radiation exposure and diagnostic delays.

Improving the accuracy and completeness of radiology request forms is essential to enhance diagnostic precision, reducing unnecessary radiation, and improving patient outcomes. Addressing this issue through better standards and practices is critical as the use of imaging modalities like CT continues to grow. By fostering adherence to rigorous documentation practices, the medical community can better ensure the effectiveness and safety of diagnostic imaging services.

MATERIALS AND METHODS

This audit was conducted from August to October 2024 at Nepal Medical College Teaching Hospital, a tertiary care center in Kathmandu, Nepal. A total of 267 CT requisition forms submitted during the audit period were retrospectively reviewed.

Inclusion criteria: All patients, including adults and children, who underwent CT imaging during the study period.

Exclusion criteria: Forms that were illegible or lacked essential patient identifiers, making data extraction impossible were excluded.

Data collection: A structured reference checklist, adapted from the CT requisition form guidelines of the NHS Hospital in Warwick,[18] was used in this study to evaluate the accuracy and completeness of the collected forms. Information collected included:

- Patient demographics: name, age, sex, and hospital number
- Clinical information: provisional diagnosis, allergy history, last menstrual period (LMP) in women aged 15–49, renal function tests (RFT) for contrast-enhanced scans
- Administrative details: date of requisition, referring department, requesting physician signature, and use of abbreviations
- Type of CT scan and whether contrast was required

All forms were assessed for completeness against these predefined standards. Data were entered into a spreadsheet and analyzed using descriptive statistics. Percentages were calculated for each component to quantify documentation completeness. We also reviewed all CT request forms for abbreviations. With the assistance of two radiologists, abbreviations whose meanings were unclear were marked as inappropriate.[17]

Ethical considerations: The audit was approved by the Institutional Review Committee of Nepal Medical College. Patient confidentiality was maintained throughout, and all data were anonymized prior to analysis.

Data presentation: Summary tables, pie chart, and bar graph were prepared to illustrate completeness levels for each form component for clarity.

RESULTS

A total of 267 CT requisition forms were reviewed. Key findings are summarized in Table 1 and illustrated in Fig. 1 and 2.

- The patient's name and age were documented in 99.3% and 98.9% of forms, respectively, and sex in 97.4%.
- Hospital numbers were missing in 50.2%, provisional diagnosis in 59.6%, and date of requisition in 21.3%.
- The referring department was absent in 77.9%, and requesting physician signature in 29.2%.
- Allergy history was not recorded in 92.5% of forms.
- Among women aged 15–49, last menstrual period (LMP) was missing in 22.1% of relevant forms, while RFT for contrast studies was absent in 30.7% of forms where indicated.
- Overall, only 7.5% of forms were fully complete.

Table 1: Completeness of CT requisition form components

CT requisition form component	Completeness (%)
Patient name	99.3
Patient age	98.9
Patient sex	97.4
Hospital number	49.8
Provisional diagnosis	40.4
Examination requested	100
Date of requisition	78.7
Referring department	22.1
Requesting doctors' signature	70.8
Allergy history	7.5
Abbreviation usage	92.9
LMP documented	22.1
RFT documented	69.3
Fully complete	7.5

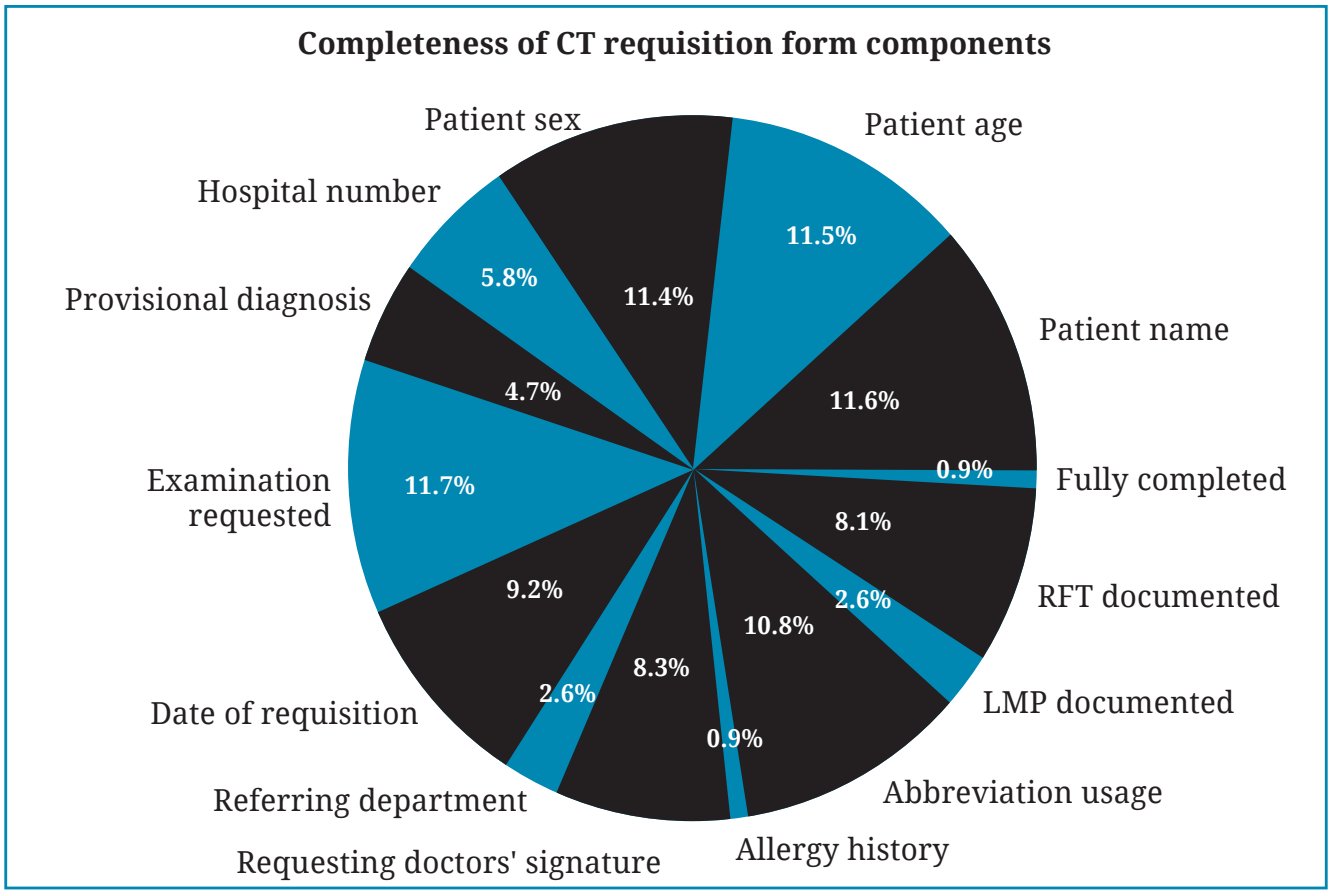

Fig. 1: Pie chart illustrating completeness of CT requisition form components.

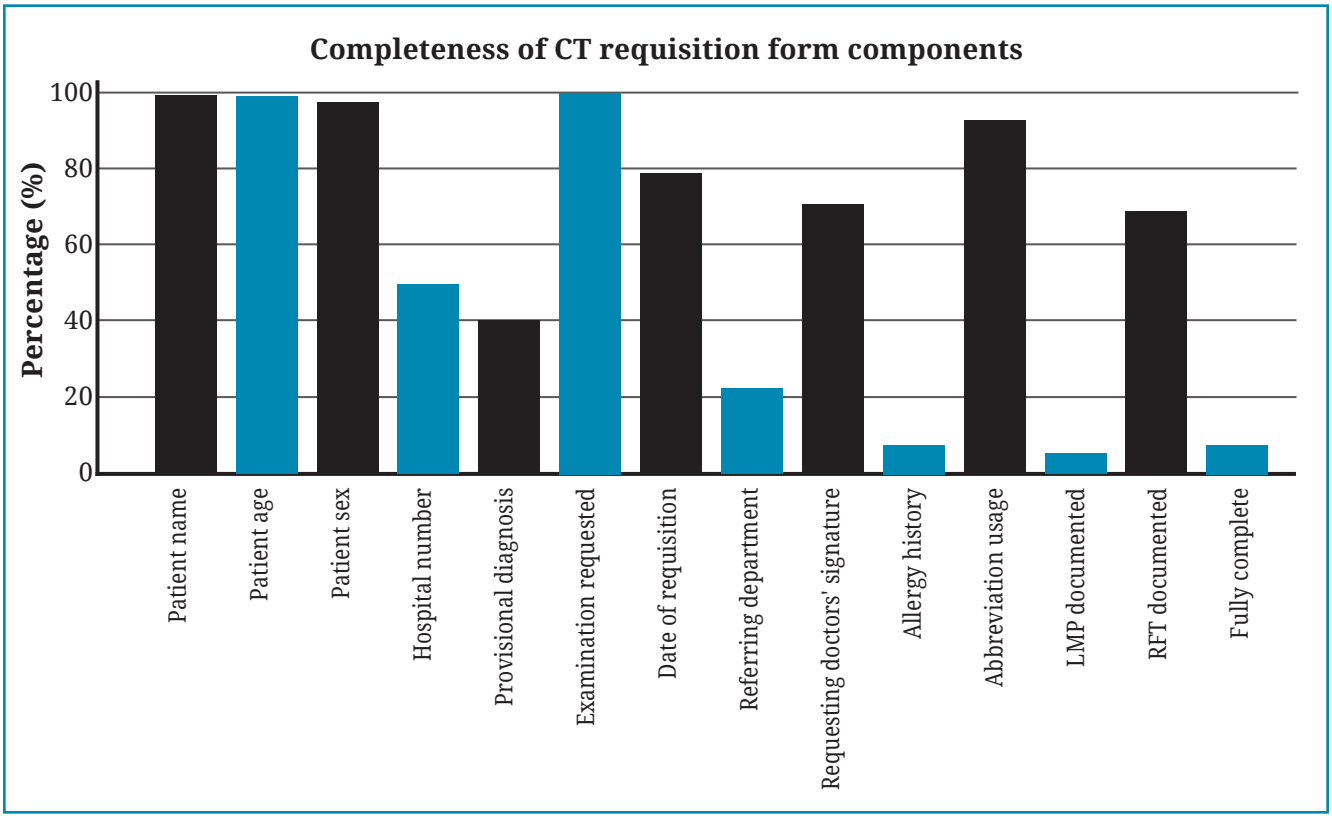

Fig. 2: Bar graph illustrating completeness of CT requisition form components.

DISCUSSION

This audit highlights that while basic identifiers such as name, age, and sex are generally well documented, significant gaps exist in administrative and clinical information. Missing hospital numbers, provisional diagnoses, referring departments, allergy history, and physician signatures reveal areas requiring urgent attention.[2,8,9,10]

Clinical significance: Missing allergy history can directly affect patient safety, particularly during contrast-enhanced CT scans. Omissions of LMP or renal function data may increase risk in vulnerable patient populations. These deficiencies may result in delayed investigations, repeated tests, and potential adverse outcomes.[1,11,14]

Comparison with other studies: Similar audits in tertiary centers have reported comparable challenges, indicating that incomplete requisition forms are a widespread issue.[2,4,9,14,15] Structured or electronic forms, staff training, and regular audits have consistently improved documentation quality in other institutions.[13,16,17]

Potential causes: Contributing factors may include high clinician workload, lack of awareness regarding documentation standards, and absence of standardized or electronic requisition forms.[4,5,16]

Recommendations:

1. Staff training and education on completing CT requisition forms correctly.[16,17]
2. Implementation of structured or electronic forms with mandatory fields for critical information.[13,16]
3. Regular audits and feedback to staff to monitor compliance.[17]
4. Use of checklists for high-risk data, including allergy history, LMP, and renal function tests.[11,12]

Future directions: A re-audit is planned 6–12 months after implementing these interventions to evaluate improvements. Continuous monitoring, training, and feedback will help sustain these enhancements.[17]

Limitation: This audit was conducted at a single center over a limited time frame. Retrospective review introduces potential bias, and findings. These limitations may restrict the generalizability of the findings.

Re-audit plan: Following the implementation of targeted interventions, a re-audit is planned to assess improvements in completeness. Feedback from this audit will inform

refinements in documentation practices and help establish sustainable improvements.

In conclusion, the audit revealed significant deficiencies in CT requisition form completion. Structured documentation processes, staff education, and ongoing monitoring are essential to enhance patient safety and optimize diagnostic imaging.

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