

Accuracy of Coding Related to Mammary Carcinoma in Surgery Cases According to ICD-9-Cm Procedures in the Smoothness of BPJS Health Claims at Toto District Hospital in Bonebolang Regency, Gorontalo Province

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ABSTRACT

Accurate coding of surgical procedures is essential for the quality of medical records, health information reporting, and the verification of BPJS Kesehatan claims. This study analyzed the accuracy of coding for carcinoma mammae in surgical cases according to ICD-9-CM procedures and examined its relationship with the smooth processing of BPJS Kesehatan claims at Toto Kabila Regional General Hospital, Bone Bolango Regency, Gorontalo Province. A descriptive qualitative design with an observational approach was used. Five informants were selected purposively, consisting of a coding officer, the head of the medical records unit, case-mix staff, a case-mix coordinator, and medical records staff. Data were collected through in-depth interviews, observation, and document review and analyzed through data reduction, data presentation, and conclusion drawing. The findings indicate that diagnosis coding for carcinoma mammae was relatively consistent because tumor topography was generally documented clearly. In contrast, procedure coding using ICD-9-CM remained vulnerable to errors because surgical reports did not always specify important procedural details, including unilateral or bilateral status, the extent of excision, and axillary dissection. In the 14 carcinoma mammae cases reviewed, 11 claims were successfully processed, whereas three could not be claimed because of coding inaccuracies and incomplete surgical documentation. Internal clarification between coders, medical records staff, operating units, and physicians helped correct incomplete records, but also increased the workload and could delay claims. The study concludes that completeness of surgical documentation, coder competence, interprofessional communication, and routine evaluation are central to improving coding accuracy and supporting timely BPJS claim processing.

INTRODUCTION

Medical records are a fundamental component of health service management because they contain patient identification, examination findings, treatment, procedures, and other services provided during care. In Indonesia, medical record documentation is also the basis for diagnosis and procedure coding, reporting, financing, quality evaluation, research, and administrative verification. The source study refers to Minister of Health Regulation No. 24 of 2022 concerning Medical Records and emphasizes the responsibility of medical record professionals to maintain complete and accurate information.

Diagnosis coding and procedure coding have different functions. ICD-10 is used for disease diagnosis, whereas ICD-9-CM is used in the source study for coding medical and surgical procedures. Accurate procedure coding is important because the coded information is used in administrative and financing processes, including BPJS Kesehatan claims and INA-CBGs grouping. Errors or insufficient specificity may lead to clarification, revision, delayed verification, or differences between the documented service and the submitted claim.

Breast cancer, or carcinoma mammae, is a major health problem and requires accurate clinical documentation. The source document notes that carcinoma mammae coding can be complex because clinical and procedural characteristics differ between cases. Surgical procedures may range from breast-conserving procedures to simple

or more extensive mastectomy procedures, and the coding decision depends on the actual procedure documented in the medical record.

Initial observation at Toto Kabila Regional General Hospital identified incomplete surgical reports in carcinoma mammae cases. The reported gaps included patient identification, date and time of surgery, surgical technique, tumor location and size, intraoperative findings, and postoperative condition. Such omissions can make it difficult for coders to identify the most specific procedure code supported by the medical record.

The research problem is therefore not limited to whether a code can be assigned, but whether the code accurately represents the procedure that was actually performed and whether the supporting documentation is sufficient for claim verification. The study specifically focuses on the accuracy of carcinoma mammae coding in surgical cases according to ICD-9-CM and its implications for the smooth processing of BPJS Kesehatan claims.

The objective of this study was to describe the accuracy of carcinoma mammae surgical procedure coding, assess the role of medical record completeness, identify factors contributing to coding inaccuracies, and examine the implications of coding accuracy for BPJS Kesehatan claims at Toto Kabila Regional General Hospital.

METHODS

Research Design and Setting

This study used a descriptive qualitative design with an observational approach. It was conducted at Toto Kabila Regional General Hospital, Jl. Kesehatan No. 25, Permata, Kabila District, Bone Bolango Regency, Gorontalo Province. The research was conducted in July 2026, with the principal interview and observation activities reported in the source occurring on 6–8 July 2026.

3.2 Participants

Table 1. Five informants were selected through non-probability purposive sampling because they were directly involved in coding, medical records management, case-mix activities, or related verification processes.

No.	Role	Age	Sex	Informant Position
1	Coding officer	51	Male	Main informant
2	Head of Medical Records Unit	43	Male	Key informant
3	Case-mix staff	51	Male	Supporting informant
4	Case-mix coordinator	42	Male	Supporting informant
5	Medical records staff	27	Male	Supporting informant

Data Collection and Analysis

Data were obtained through in-depth interviews, direct observation, and document review. The observation focused on the completeness of operative reports and the process used to assign ICD-9-CM procedure codes. Interview questions addressed the coding workflow, documents used as coding sources, completeness of operative reports, coding discrepancies, standard operating procedures, and coordination between coding, medical records, physicians, and case-mix personnel. Data analysis followed three stages described in the source: data reduction, data presentation, and conclusion drawing.

Analytical Focus

The analysis focused on four interconnected dimensions: coding accuracy; completeness and authentication of operative documentation; coder competence and implementation; and the availability and application of standard operating procedures. The relationship of these dimensions to claim verification and INA-CBGs grouping was then examined.

RESULTS AND DISCUSSION

Coding Accuracy for Carcinoma Mammae Surgical Procedures

The findings show a difference between the relative accuracy of diagnosis coding and the accuracy of surgical procedure coding. The main carcinoma mammae diagnosis was generally easier to code because the tumor location was usually documented sufficiently for assignment to the C50 category. In contrast, the principal challenge occurred in procedure coding under ICD-9-CM. Informants explained that operative reports sometimes stated only “mastectomy” without sufficient information to determine whether the procedure was unilateral or bilateral or whether axillary dissection was performed.

The source study gives a concrete example in which a mastectomy accompanied by axillary dissection should be represented by a different procedure code than a simpler mastectomy. When the operative report did not describe the additional procedure clearly, the coder could enter a less specific code. This finding demonstrates that coding

accuracy is strongly dependent on the specificity of clinical documentation rather than on the coder's ability to search for a code alone.

The finding is consistent with the cited literature on coding accuracy, which emphasizes that incomplete clinical information, unclear diagnostic statements, and differences in interpretation can produce coding discrepancies. It also corresponds with the study by Febriadi and Nurwahyuni (2024), cited in the source, which found that coding errors may remain even when medical summaries are complete and recommended stronger review and coordination between physicians and coders.

Completeness of Operative Documentation

Incomplete operative documentation was identified as the central factor affecting coding accuracy. The source identifies several components that may be missing: patient identification, the date and time of surgery, the surgical technique, tumor location and size, intraoperative findings, and the patient's postoperative condition. For procedure coding, the most consequential gaps were the details that distinguish one operative technique from another.

When documentation is incomplete, coders may have to conduct clarification before assigning a final code. At Toto Kabila Regional General Hospital, incomplete records were returned to the originating unit so that the physician could complete the report. The medical records unit then coordinated with the operating unit and the claims section. This mechanism provides an internal correction pathway, but it also adds workload and may delay the claim process.

The result supports the source's discussion of prior studies, particularly Suryandari, Syajidah, and Zein (2025), which linked medical information completeness with diagnosis coding accuracy, and Febriadi and Nurwahyuni (2024), which examined the completeness of medical summaries and coding in breast cancer surgery services.

Factors Contributing to Coding Inaccuracy

First, incomplete operative documentation limits the evidence available to the coder. When technical details are absent, the coder may be forced to use a less specific code or seek clarification.

Second, communication between the physician responsible for the patient and the coder is not always immediate or sufficiently detailed. The source describes clarification through return of physical documents and communication channels such as WhatsApp groups. These mechanisms help resolve documentation problems but are essentially corrective rather than preventive.

Third, the coder must understand variations in carcinoma mammae procedures and the distinctions represented in ICD-9-CM. The source therefore identifies ongoing training and updating as important measures.

Fourth, standard operating procedures and cross-unit coordination influence consistency. A coding workflow that includes completeness checking, code review, and verification can reduce the risk of discrepancies before claims are submitted.

Implications for BPJS Kesehatan Claims

The study found a direct practical relationship between coding accuracy and the smoothness of BPJS Kesehatan claims. In the 14 carcinoma mammae cases reviewed, 11 cases were successfully claimed, while three could not be claimed because of coding inaccuracies and incomplete operative reports. This result should be interpreted as a finding from the hospital-level case review rather than as a general estimate of BPJS claim performance.

The source identifies several consequences of inaccurate coding. Administratively, staff must perform additional clarification and revision. Financially, a less specific or incorrect procedure code may result in differences in claim value or underpayment. Clinically and analytically, inaccurate codes can distort morbidity and mortality information and weaken the usefulness of hospital data. Legally, incomplete or inaccurate records may reduce the evidentiary quality of documentation. At the system level, repeated claim problems can slow the financing cycle associated with INA-CBGs.

The findings also show that rapid clarification can mitigate some problems. Informants reported that returning incomplete reports to the responsible unit and communicating with physicians allowed missing operative details to be added before claim submission. However, reliance on repeated clarification indicates that the documentation process itself still needs strengthening.

Interprofessional Coordination as a Corrective Mechanism

The study indicates that coding accuracy is a shared process involving physicians, coders, medical records personnel, case-mix staff, and claim verification personnel. The coder cannot reliably determine a specific procedure when the operative report does not describe the procedure. Conversely, physicians may not always recognize which procedural details are necessary for downstream coding and claim verification. A structured communication pathway can therefore reduce ambiguity.

At the hospital studied, the existing mechanism included returning incomplete documents to the originating service,

coordination with the operating room or central surgical unit, and subsequent review before coding and claim submission. This process is useful as an internal quality-control mechanism, but a preventive approach would be more efficient: the operative report should be complete before the record reaches the coding stage.

Comparison with Previous Studies

The findings are broadly consistent with the studies cited in the original KTI. Rahayuningsih et al. (2025) reported that insufficient diagnostic specificity and differences in coder interpretation can produce discrepancies in neoplasm coding. Suryandari, Syajidah, and Zein (2025) emphasized the importance of complete medical information. Nurhayati and Pratama (2025) reported that inaccurate surgical procedure coding could contribute to claim revision and verification delays. Febriadi and Nurwahyuni (2024) similarly demonstrated the relevance of medical-record completeness and coding review in breast cancer surgery services. Together, these studies support the interpretation that coding accuracy is produced through the interaction of documentation quality, coder competence, and coordination rather than by the coding classification system alone.

Overall Interpretation

The study's central finding is that the hospital already has a coding and claim-verification mechanism, but its effectiveness is constrained by documentation specificity. Diagnosis coding for carcinoma mammae was relatively stable, whereas procedure coding remained more vulnerable to ambiguity. Therefore, improving the completeness of operative reports is likely to address the problem at its source. Coder training, periodic audit, and structured communication should complement this documentation improvement.

The findings should be understood within the limits of the study design. The research involved five informants and a limited number of carcinoma mammae cases at a single hospital. The source also identifies incomplete documentation, variation in informant competence, a short research period, and limited generalizability as limitations. Accordingly, the results provide an in-depth hospital-level picture rather than a basis for broad generalization.

POLICY AND PRACTICE IMPLICATIONS

Standardize operative-report completeness. The hospital should define mandatory fields for carcinoma mammae surgery, including procedure type, laterality, extent of excision, axillary procedure when applicable, relevant findings, and postoperative status.

Introduce a pre-coding completeness check. Records with missing operative details should be identified before the coding stage rather than after a claim has been prepared.

Provide periodic ICD-9-CM training. Training should focus on breast surgery procedure distinctions and common documentation ambiguities identified in local cases.

Strengthen physician-coder communication. Clarification should follow a documented workflow so that communication is traceable and does not depend solely on informal channels.

Conduct routine coding audits. Periodic review of coded procedures against operative reports can identify recurring discrepancies and provide feedback to clinical and coding teams.

Integrate coding quality with claim monitoring. The medical records and case-mix teams can track returned, revised, delayed, or unprocessed claims to identify documentation and coding patterns requiring corrective action.

CONCLUSION

This study found that coding of carcinoma mammae diagnoses was relatively consistent at Toto Kabila Regional General Hospital, whereas ICD-9-CM surgical procedure coding remained vulnerable to inaccuracies caused primarily by incomplete and insufficiently specific operative documentation. Important details such as laterality, the extent of the surgical procedure, and axillary dissection were not always documented clearly, making it difficult for coders to select the most appropriate procedure code.

The findings further show that coding accuracy has practical implications for BPJS Kesehatan claims. Of the 14 carcinoma mammae cases reviewed, 11 were successfully claimed and three were not claimable because of coding inaccuracies and incomplete operative reports. Internal clarification and document correction helped resolve some cases, but also created additional workload and could delay verification.

Improving the situation requires a combination of complete operative documentation, coder competency development, periodic coding review, and stronger interprofessional coordination. These measures can improve the reliability of medical information and support a more efficient claim-verification process.

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