The completeness and accuracy of clinical coding for diagnosis and medical procedure on the INA-CBGs claim amounts at a hospital in South Jakarta

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Abstrak

Latar belakang: *Kelengkapan resume dan ketidaktepatan koding masih menjadi penyebab terbesar pengembalian berkas klaim dari BPJS. Penelitian ini bertujuan untuk melakukan analisis kelengkapan dan ketepatan koding diagnosis dan prosedur terhadap besaran klaim di satu rumah sakit (RS) Pemerintah di Jakarta Selatan.*

Metode*: Penelitian observasional yang dilakukan dengan penelusuran rekam medis (RM) bulan November 2017 dan wawancara mendalam terhadap 7 informan yang terdiri dari manajemen, koder, dokter penanggung jawab pasien (DPJP) dan verifikator RS. Ketepatan koding didapatkan dengan membandingkan pengkodean oleh koder RS dan koder standar. Analisis data dilakukan dengan analisis konten.*

Hasil*: Dari 105 sampel rekam medis didapatkan angka ketidaklengkapan resume terbanyak pada pemeriksaan penunjang (12,2%), ketidaksesuaian pengisian pada diagnosis sekunder mencapai 68,6% dan ketidaktepatan koding paling tinggi pada diagnosis utama (21,9%). Rerata klaim INA-CBGs yang dihasilkan koder RS lebih rendah dari koder standar dengan selisih klaim sebesar 4%. Hal tersebut disebabkan adanya ketidakpatuhan dokter dan tidak semua dokter mendapatkan pelatihan pengkodean. Proses pencatatan RM masih banyak didelegasikan kepada residen. Pemeriksaan resume oleh verifikator dan pengkodean oleh koder masih kurang pemahaman tentang diagnosis dalam konsep INA-CBGs.*

Kesimpulan*: Ketidaklengkapan resume dan ketidaktepatan koding di RS menyebabkan klaim INA-CBGs yang diterima lebih rendah rata-rata 4% sehingga dapat mengurangi pendapatan RS.* ***(Health Science Journal of Indonesia 2018;9(1):14-8)***

Kata kunci: *Ketidaktepatan koding, diagnosis dan prosedur, klaim rendah*

Abstract

Background: Coding inaccuracy and inadequate physician documentation are still the major problem of BPJS claims that resulting potential loss of hospital finance. This study aims to analyze the completeness and accuracy of diagnosis and procedure coding on the INA-CBGs claim amounts at one government hospital in South Jakarta.

Methods: This observational study was conducted through medical record review during the period of November 2017 and in-depth interview involved 7 informants consist of hospital management, coders, responsible physicians and hospital verifiers. Re-coding was carried out by standar coder and the results were compared with hospital coders outcome. Content analysis was used to analyze the data.

Results: The review of 105 medical record found incomplete documentation for supporting medical examination variable (12.2%), inconsistency documentation of secondary diagnoses were the highest, at 68.6% and the most frequent for inaccurate coding was primary diagnoses at 21.9%. The claims generated by hospital coders are lower than standard coder by an average 4%. The indepth interview revealed low physicians compliance on the documentation standard procedure and lack of coding training for physician. The process of the documentation practice was still delegated to the resident physicians. The discharge summary review by verifier and coding by the coders was still lack of understanding of the diagnosis in the INA-CBGs concept.

Conclusion: Incomplete discharge summary and inaccurate coding of diagnosis and procedure generate loss of hospital revenue by an average 4%. ***(Health Science Journal of Indonesia 2018;9(1):14-8)***

Keywords: Inaccuracy of clinical coding, diagnosis and procedure, lower claim

The Indonesian government has launched the National Health Insurance programme (JKN) at the beginning of 2014 managed by social security agency (BPJS). The payment method for hospitals used a casemix system known as the Indonesian Case Base Groups (INA-CBG). The data used to assign INA-CBG codes are obtained from diagnosis (coded using ICD-10) and procedures (coded using ICD 9 CM) data in the discharge summary and medical record when necessary.[1] Incorrect coding for diagnosis and procedure contribute to financial loss for many hospitals.[2] Therefore coding accuracy becomes very important for hospitals in claim reimbursement.

Several factors affect inaccurate codes of diagnosis and procedure, among others, incomplete clincial documentation, the physicians do not assign the codes, , unreadable handwriting, use abbreviations, coding training, workload, infrastructure, complexity of diseases.[3,4,5,6]

Previous study in Malaysia reported coding error rates were 89.4% of the selected records, in which the secondary diagnoses had the highest percentage of coding errors.[7] The study done in RSUD kota Semarang showed coding errors in medical procedures were 50% and principal diagnosis 20.6%.[2] Inaccurate coding affects inappropriately grouper results in INA-CBGs applications that cause inappropriate or delayed claim reimbursements.[8,9] Based on the preliminary study in the hospital, the claim documents of BPJS inpatient returned by BPJS verifier was 24.5% during the period of Januari to March 2017, while the target is under 20%. The most common cause of claim documents returned was confirmation of diagnosis and procedure coding (43.4%). This paper aims to analyze the completeness and accuracy of diagnosis and procedure coding on the INA-CBG claim amounts.

METHODS

This study was an observational study conducted at one government hospital in South Jakarta.The data were collected through medical record review to obtain the description of discharge summary completeness, conformity of the medical record and discharge data, accuracy of diagnosis coding based on ICD 10 as well as procedure coding based on ICD 9 by hospital coders.

Considering the medical record from January to September 2017 has been revised in term of discharge summary completeness and coding confirmation according to the verification result from BPJS, the sample of this study used BPJS inpatient medical records during the period of data collecting on November 2017. The sample size in the study was calculated based on the proportion estimation formula and the total sample required was 105 samples (P=43%; Zα=1,96; d=0,10 with additional samples 10% to anticipate missing data). Medical records that has been checked, coded and grouped into INA-CBG software version 5.1. were included using consecutive sampling technique. The data from medical record were collected using a checklist which contain all required aspects (patient identity, chief complaint, physical examination, laboratory and other supporting medical examination, primary diagnosis, secondary diagnosis, ICD-10 code, principal procedure, ICD-9 CM code, therapy).

Discharge summary completeness was categorized as complete (The components in the discharge summary were filled completely) and incomplete. Conformity were grouped as conformity (the conformity of diagnosis and procedure writing between medical record and discharge data) and non conformity. Coding accuracy was classified as accurate (diagnosis and procedure codes resulted by hospital coders were compared with standard coder from national casemix center ministry of health by using similiar medical records) and inaccurate. The criteria of standard coder in this study was : Member of Pormiki (Perhimpunan professional perekam medis dan informasi kesehatan Indonesia), Mastering ICD-9 and 3 volume of ICD-10 (Having a certificate of competence / profession), and Senior coder

The corrected diagnosis and procedure codes by standar coder were regroup using similar INA-CBG Software to obtain the INA-CBG Tarif. The difference of claims were calculated by substracting INA-CBG tarif resulting by hospital coders and standar coder.

Beside medical record review, this study performed indepth interviews to obtain the information regarding the factors influencing completeness, conformity and coding accuracy of diagnosis and procedure such as human resources (education, experience, training, behavior, workload), funding, standard operating procedures (SPO), infrastructure facilities (medical record forms and computer), hospital information systems and the process process of medical record filling, checking, and coding.

The interview involved 7 informants that selected with purposive sampling method based on the adequacy and appropriateness with the research objective. The informants consisted of : Management (1 person), Hospital coders (2 persons), Hospital internal verifier (2 persons), and Responsible physicians (2 persons).

Responsible physicians were selected according to the highest percentage of incomplete / non-conformity of medical records file or discharge summary.

Triangulation approach was used to maintain the validity of the data. Content analysis technique was used to analyze the data. Ethical approval was obtained from Ethics Committee, Faculty of Public Health, University of Indonesia with letter number: 564/UN2.F10/PPM.00.02/2017.

RESULTS

Table 1 shows most of the components were filled completely. Laboratory and other supporting medical examination were the incomplete component in which the total number of incomplete cases reached 13 (12.2%) cases consist of 8 cases of internal disease, 3 cases of surgery, and also 1 case of neurology and 1 case of urology, respectively.

From table 2 it is apparent that secondary diagnosis writing in discharge summary had highest proportion for non conformity to medical records, followed by primary diagnosis and procedures.

Table 1. Completeness of discharge summary

Variables	Complete		Incomplete	
	n	%	n	%
Patient identity (name, age, sex)	105	100	0	0.0
Chief complaint	105	100	0	0.0
Physical examination	104	99.1	1	0.9
Laboratory and other supporting medical examination	92	87.7	13	12.2
Primary diagnosis	105	100	0	0.0
Secondary diagnosis	105	100	0	0.0
procedure	105	100	0	0.0
Therapy	105	100	0	0.0

Table 2. Conformity of diagnosis and procedures writing betwen medical record and discharge summary

Variables	Frequncy (%)			
	Conformity		Non-conformity	
	n	%	n	%
Primary diagnosis	96	91.4	9	8.6
Secondary diagnosis	33	31.4	72	68.6
Procedures	72	94.4	4	5.6

Table 3. Coding accuracy of diagnosis and procedures

Variables	Frequency (%)			
	Accurate		Inaccurate	
	n	%	n	%
Primary diagnosis	82	75.3	23	21.9
Secondary diagnosis	94	89.5	11	10.5
Procedures	73	96.1	3	3.9

Based on table 3, inaccurate codes were found higher in primary diagnosis than secondary diagnosis and medical procedure. The primary diagnosis written by responsible physicians were not in accordance with the criteria of primary diagnosis and rule of morbidity coding in Permenkes 76 year 2016.

Table 4 ilustrates the diagnosis and procedur codes assigned by standard coder had higher claim on 14 (13.3%) cases while the lower claim was 7 (6.7%) cases. The total claims generated by hospital coders were Rp 1,584,607,500 and after recoding process by standard coder the total claim becomes Rp. 1,649,613,000. It means that the hospital losses was Rp. 65,005,500 or approximately 4% due to inaccurate codes.

Factors influencing completeness, conformity and coding accuracy of diagnosis and medical procedure

Based on interviews, it was known that all informants were generally aware that discharge summmary play an important role to determine hospital claims. However, the responsible physician felt overworkerd and the coding training for physicians were only representative from each departement. On the contrary the coders and hospital verifiers actually can achieve their target for discharge summary verification and coding, particularly if there was no claim document revision from BPJS. They got training both the quality of medical records and coding. But for verifier the coding training was not as much as the coders.

Table 4. The claim difference resulted by hospital coders and standar coder

Variable	Frequency (%)		Hospital coders claim	Standar coder claim	Difference
	n	%	(Rupiah)	(Rupiah)	(Rupiah)
Higher claim	14	13.3	148,147,700	225,150,600	-77,002,900
Equal	84	80.0	1,371,411,200	1,371,411,200	-
Lower claim	7	6.7	65,048,600	53,051,200	11,997,400
Total			1,584,607,500	1,649,613,000	-65,005,500

"....(discharge summary) is important, very important to determine the claim."(informant 6)
"....we conduct coding training, each departement... each medical specialist has representative to follow the training."(informant 6)
"...the returning medical records from inpatient room are 80 – 90, maximum 100 a day...we can handle it." (informant 3)
"....well it is hard....because the burden of person is subjective, but...objectively we feel overworked."(informant 6)

The hospital has made some policies to support completenss and coding accuracy such as standard operating procedures (SOPs) for medical record management, coding according to ICD, guidline on filling out medical record form, and forming responsible coding team in each departement. The SOPs has been socialized and disseminated but the medical records were filled by resident physicians who every month changed, thus its implementation were not effective. In addition, there was no reward and punishment policy to support completeness of medical record.

" ...There are SOPs for outpatient, inpatient services, coding / medical record management, guideline for medical record filling."(informant 1)
".....actually the main obstacle in this hospital is 75% the discharge summary is filled by resident physcian."(Iinformant 1)
".....there is no reward and punishment, as far as I know."(informant 6)

Hospital infrastructre included medical record formulir, computer and hospital information system were avaliable sufficiently yet hospital have not developed inpatient electronic medical record. Unreadable handwriting and use abbreviations by physicians were often complained by verifiers and coders that can cause coding error.

The complexity of the diseases was mentioned causing difficulty in the verification and may caused the coders assigning inaccurate codes. Such condition referred to more than one diagnosis which required multidisciplinary team and spent more expenses. Hospital verifier must ensure whether all of diagnosis in accordance with interview, physical examination, diagnostic test and therapy provided. If the diagnosis was not in accordance with all aspects required after they clarify to the responsible physician and patient billing, the diagnosis will not be coded and therefore can not be reimbursed.

DISCUSSION

The limitations of this study was did not involve responsible physicians directly, the result of discharge summary checking depend on the hospital doctor verifiers which may contain error but the doctor verifiers will clarify the doubts found in the checking process to the responsible physician.

This study found the laboratory and supporting medical examination was the most incomplete component of discharge summary (13%). This result was higher than study done by Guslianti in Cempaka Putih District Hospital (1.6%). This difference may be due to the type of cases managed in the hospital were more complex which needed more than one medical examination and multidisciplin health care services.[10] A study by Maryati reported doctors with good medical record knowledge can properly fill out the discharge summary and vice versa.[11] However knowledge is not the only one factors affecting the completeness of discharge summary or medical record. According to Sarwanti, there were other factors, namely workload, training, compensation, and monitoring, in which compensation factor is the most dominant factor related to the completeness of discharge summary.[12] Unfortunately the hospital has not applied reward and punishment system yet. Although the main responsibility of medical records filling was the responsible physicians but in fact the completion of medical record in hospitalization patients were delegated to the resident physicians. This finding was similiar with study done by Indriwanto who reported that responsible physicians' noncompliance was motivated by presence of resident physicians who actually have a heavy workload as well, because they must learn and provide care services which may affected their performance.[13] According to Apriyantini, the error rate of medical record and discharge summary filling done by resident physicians was quite high because the primary and secondary diagnosis were unclear.[14] Yount found that resident physicians have poor knowledge of medical record filling guidelines and financial reimbursement.[15]

The secondary diagnosis writing in discharge summary was the highest proportion for non conformity to medical record. This was because many secondary diagnoses in medical records were underreporting in the discharge summary. This result was consistent with study conducted by Apriyantini who reported that the incompleteness of secondary diagnosis was caused by unwritten secondary diagnoses in

the discharge summary.[14] Missing documentation of secondary diagnosis or comorbidity can lead miscoding or undercoding. In some cases, misdiagnosis of comorbidity decreased the severity level of the diseases resulting in lower hospital claims. Undercoding in patients with complications or comorbidity may occur more frequently rather than overcoding, resulting in underpayment.[16]

Coding inaccuracy in this study caused by incorrect selection of primary diagnosis or code assignment by hospital coder. Unreadable handwriting and presence of abbreviations in medical records or discharge summary influenced inaccurate coding by coders. Similiar with Yuniati study who found that inaccurate coding was caused by unreadable handwriting, incomplete information and confusion in codes selection for diagnosis and procedures according to ICD rules that could be interpreted differently in different chapters.[8] Fever reveals that coding inaccuracy may occure due to errors in deciding what to code or inaccurate information in medical records.[17]

In conclusion, incomplete discharge summary and inaccurate coding of diagnosis and procedure generate loss of hospital revenue by an average 4%. Management needs to perform continuous training, reactivating the case manager, developing electronic medical records with alert systems, conducting clinical audit and reporting the claims at regular intervals.

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