Analysis of Pharmacist Integrated Patient Progress Notes (IPPN) on Community-Acquired Pneumonia (CAP) Hospitalized Patients in the Pulmonary Department at Hospital X

Hansen Nasif[1]*, Dwisari Dillasamola[2], Yelly Oktavia Sari[3], Dian Ayu Juwita[4],
Rizky Yuandi[5], Serdiani[6], Rafifah Azzahra[7]

[1,2,3,4,5]Department of Pharmacology & Clinical Pharmacy, Faculty of Pharmacy, Andalas University, Padang, Indonesia, 25116
[6,7]Department of Pharmacy, Dharma Andalas University, Padang, Indonesia, 25123
*Corresponding Author: Hansen Nasif

Abstract—*Monitoring drug therapy is one part of the standard of pharmaceutical services in hospitals which is the responsibility of pharmacists in their documentation efforts through Integrated Patient Progress Notes (IPPN). The method of writing patient development notes in the form of subjective, objective, assessment, and plan data. The suitability of filling Subjective, Objective, Assessment, and Plan (SOAP) is essential because it is a means of communication, coordination, or collaboration between health professionals in providing services to patients, to prevent errors and repetition of information, and also help health professionals in time management. This study aims to analyze the completeness and accuracy of IPPN filling by pharmacists in patients with Community-Acquired Pneumonia (CAP) in the Pulmonary Department of Hospital X in Padang City, West Sumatra, Indonesia. This research method was conducted descriptively and qualitatively with a case study approach and retrospective. Data collection from patient medical records during 2018. The results showed, from a total of 141 medical records from the pulmonary department, only 31 met the inclusion criteria. The results analysis of the completeness of IPPN writing by pharmacists, namely 7 IPPN (22.6%) were written completely. The results of study accuracy of IPPN writing by pharmacists, namely there is no IPPN (0%) written correctly.*

Keywords— *IPPN; SOAP; CAP; Pharmacist.*

I. INTRODUCTION

Pneumonia is one of the most common forms of acute lower respiratory tract infection. Pneumonia is an inflammation of the lung parenchyma caused by microorganisms (bacteria, viruses, fungi, parasites). Still, pneumonia can also be caused by chemicals or physical exposure such as temperature or radiation. (1). Pneumonia is an acute infection that affects the lung tissue (alveoli). (2). In 2018, the prevalence of pneumonia in Indonesia reached 4%. (3)Based on the site of infection, pneumonia is classified into *community-acquired* pneumonia (CAP) and *hospital-acquired* pneumonia (HAP). (4). In Indonesia, CAP has a higher number of cases compared to HAP (5).*Community-acquired* pneumonia (CAP) is one of the most frequently encountered health problems and has a significant impact worldwide, especially on the elderly population. Population. The incidence of community-acquired pneumonia is reported to increase with increasing age. In patients aged ≥ 65 years who are hospitalized, pneumonia is the third most common diagnosis. This figure becomes even more important given that it is estimated that as much as 20% of the world's population will be over 65 years old by 2050. (6). Community pneumonia is one of the subtypes of pneumonia with an epidemiologic form as an infection of the lung parenchyma acquired outside a hospital or inpatient health facility (6). Hospital or health facility providing hospitalization

(7).According to the WHO (World Health Organization), a hospital is an integral part of a social and health organization with the function of providing comprehensive services, curing diseases (curative), and preventing diseases (preventive) in the community. Hospitals are healthcare institutions that organize comprehensive individual health services that provide inpatient, outpatient, and emergency services. (8).

All of healthcare facility is required to make medical records made by doctors and health workers related to the services that have been provided. According to Permenkes No.269/Menkes/Per/III/2008, medical records are files containing records and documents on patient identity, examination, treatment, actions, and other services that have been provided to patients. (8). The main function of medical records is to store patient service data and information. Documentation in medical records is a means of communication between health professionals in providing services to patients. The communication in question is effective communication between professions which aims to prevent misinformation, interdisciplinary coordination, prevent repetitive information, and assist each profession in its time management. (9).

Many Adverse Events (AEs) in hospitals are caused by communication problems. Data from the *Root Case Analysis* (RCA) results of one hospital in America showed that many sentinel events were caused by communication that occurred during the handover of patient information. (10)One sign of a

lack of communication between various health professionals is the continued use of separate medical records from other health professionals' records to record the patient's condition. The notes made lack information about the patient's response and what the patient is feeling, and many observations are not even recorded in the medical record. The paradigm of health care has begun to change by centering health services on patients. It no longer places one profession as the center of service but requires the integration of care from various service-providing professions. Patient-centered care requires integrated documentation that requires each profession to record on the same document, namely the IPPN. (11)This method is expected to improve effective communication between professions, recording can be done more optimally because all professions write on the same document, minimize miscommunication, reduce the number of adverse events, and in the end, it all aims to improve patient safety and have an impact on improving service quality. (12).

One of the media that can be used in communicating about patient care between professionals is IPPN. The implementation of Integrated Patient Progress Notes (IPPN) has been carried out but there has been no evaluation of the implementation of IPPN. The existence of IPPN is expected that what is planned is recorded in the IPPN sheet, but in filling it out sometimes IPPN is found incomplete and incorrect

II. RESEARCH METHODS

This study was conducted with a descriptive qualitative research method with a *case study* approach. Data were collected retrospectively from the medical records of X hospital patients in Padang from January 1, 2018, to December 31, 2018. The sample collection technique was *purposive sampling and* was conducted from January to May 2020.Inclusion criteria included patients diagnosed with CAP in the Pulmonary Department of Hospital X in Padang during the period January 2018 - December 2018 with complete patient medical records and IPPN made by pharmacists. Exclusion Criteria include Unclear or incomplete patient medical records and Community pneumonia patients with more than 5 comorbidity.

Data Analysis

The analysis carried out is a qualitative descriptive analysis stage of the data obtained from written documents in medical records. The analysis is carried out by discussing case by case using the Technical Guidelines for Pharmaceutical Service Standards in Hospitals, American Thoracic Society, Guidelines for the Use of Antibiotics in X hospital in Padang, American Hospital Formulary Service (AHFS) Drug Information and other treatment guidelines. To obtain the results of the accuracy or inaccuracy of filling in the Integrated Patient Progress Record (IPPN) of the pharmacist. Completeness and accuracy data are processed in the form of percentages to see the picture of completeness and accuracy in filling out the Integrated Patient Progress Record (IPPN) by pharmacists.

Research Limitations

In this study, researchers limited the research to the form of *drug-related problems* (DRP) studied, namely inappropriate drug selection, the presence of indications without drugs, and the presence of drugs without indications. Other DRP were not studied because this study was conducted retrospectively so it could not directly see the patient's condition and response related to treatment.

III. RESULT AND DISCUSSION

There were 141 medical records studied, but only 31 patients met the inclusion criteria because 24 medical records were not available in the Medical Records Department, 6 medical records were incomplete, 42 patient medical records were not diagnosed with *Community-Acquired Pneumonia* (CAP), 10 medical records did not have Integrated Patient Progress Notes (IPPN) by the pharmacist, 8 patient medical records were not legible, and 20 medical records had more than 5 comorbidity.

IPPN Completion Pharmacist

Analysis of 31 patients who met the inclusion criteria, found that only 7 (22.6%) pharmacist Integrated Patient Progress Notes (IPPN) were classified as complete, while 24 (77.4%) other IPPN were classified as incomplete. The categories of IPPN completeness contain the date and time of the pharmacist's visit (visit hours), the pharmacist signature, the pharmacist's clear name and title, and filling in SOAP data (Subjective, Objective, Assessment, and Plan). Of the 31 samples of pneumonia patients studied as shown in Table 1, only 11 IPPN (35.5%) wrote the pharmacist's visit time, then only 19 IPPN (61.3%) wrote the pharmacist's title. And those who wrote the name of the pharmacist totaled 30 IPPN (96.8%). The date of the visit and the pharmacist's signature were both completed by 100%. In writing the Subjective, Objective, Assessment, and Plan (SOAP) data, 29 IPPN were obtained, 93.5% each.

TABLE 1. Completeness of pharmacist IPPN writing (N=31)

No.	Category Completeness	Complete	
		Number (n)	Percentage (%)
1.	Visit Date	31	100
2.	IPPN writing time	11	35.5
3.	Pharmacist Signature	31	100
4.	Pharmacist Name	30	96.8
5.	Pharmacist Degree	19	61.3
6.	S (Subjective)	29	93.5
7.	O (Objective)	29	93.5
8.	A (Assessment)	29	93.5
9.	P (Plan)	29	93.5

The factor causing the incomplete filling of the pharmacist's IPPN is the lack of pharmacists who treat patients in the pulmonary department of Hospital X in Padang City so IPPN filling is not carried out every day during patient hospitalization.

Accuracy of IPPN Pharmacist writing

Based on the 31 IPPN analyzed, there are no IPPN that are written correctly, with the following analysis results, as listed in Table 2:

TABLE 2. Accuracy of pharmacists' IPPN writing (N=31)

No.	IPPN Writing	Appropriate	
		Total (n)	Percentage (%)
1.	S (Subjective)	27	87.09
2.	O (Objective)	0	0
3.	A (Assessment)	26	83.87
4.	P (Plan)	24	77.41

Subjective (S)

In the analysis of the accuracy of pharmacist IPPN writing based on the SOAP format, 27 IPPN (87.09%) were found to be correct and 4 IPPN (12.91%) were incorrect on subjective data. Subjective data includes patient complaints related to drugs or diseases originating from the patient himself or his family. (13). Subjective data on the IPPN is considered inappropriate, due to discrepancies or contradictions between the subjective data filled in the pharmacist's IPPN and the subjective data in other professional records, or it could also occur because the pharmacist did not fill in the subjective data on the IPPN. The inaccuracy of the pharmacist's IPPN subjective filling can be seen in cases 3, 4, 7, and 18.

Objective (O)

In the analysis of the accuracy of pharmacist IPPN writing based on the SOAP format, it was found that 0 IPPN (0%) was correct and 31 IPPN (100%) was incorrect on objective data. Objective data contains data sourced from observations of laboratory data and measurements made by other health professionals. Objective data includes vital signs and laboratory data or other data related to disease and treatment or to support DRP that will be written as assessment results. (13).In the analysis of the accuracy of writing objective data, there were 31 IPPN (100%) that were written inaccurately, because not all laboratory data and vital signs related to treatment or disease were written down, and also because pharmacists did not fill in objective data on the IPPN.The inaccuracy of filling in objectives on the pharmacist's IPPN because not all laboratory data and vital signs related to treatment or disease were written down can be seen in all cases, except cases 4 and 18.

Of the 31 IPPN analyzed, objective data that only contained blood pressure amounted to 25 IPPN, even 17 IPPN did not write the value of blood pressure. The majority of laboratory data and vital signs that are often not written by pharmacists on IPPN objectives are the patient's leukocyte levels, respiratory rate, and body temperature. Even though these data are closely related to pneumonia. And there are also laboratory data that are not written even though they support the medical problems (diagnoses) and DRP found such as in cases 2, 8, and 23 which do not contain hemoglobin levels even though the diagnosis is written as anemia. (13). The inaccuracy of objective filling in the pharmacist's IPPN due to pharmacists who do not fill in objective data properly can be seen in cases 4, and 18 so both cases are considered inappropriate.

Assessment (A) and Plan (P)

In the analysis of the accuracy of pharmacist IPPN writing based on the SOAP format, it was found that 26 IPPN (83.87%) were correct and 5 IPPN (16.13%) were incorrect in the assessment data. Whereas in the plan data, 24 IPPN (77.41%) were found to be appropriate and 7 IPPN (22.59%) were inappropriate. Assessment data contains *drug*-related problems (DRP) found after analysis by pharmacists, such as inappropriate drug selection, indications without drugs, and drugs without indications. Meanwhile, the plan data contains a pharmaceutical service plan based on the results of the analysis on the assessment. (13).In the analysis of the accuracy of writing assessment data and plan data, 5 IPPN are both inaccurate due to the relationship between these two data, namely in cases 2, 4, 5, 18, and 24. While the other IPPN, namely IPPN 13 and 23, only have inaccuracies in the plan data.

IV. CONCLUSION

Analysis of the completeness of IPPN writing, it was found that only 7 IPPN (22.6%) were written completely and for the analysis of accuracy, it was found that no pharmacist's IPPN (0%) was written correctly.

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