
| RESEARCH ARTICLE

Overview of Determining Morbidity and Mortality Codes for Covid-19 Patients at Imelda Hospital Medan

Esraida Simanjuntak¹ ✉ Siti Permata Sari Lubis², Valentina³, Marta Simanjuntak⁴ and Johanna Christy⁵

¹²³⁴Program Studi Perkam dan Informasi Kesehatan, Universitas Imelda Medan, Indonesia

Corresponding Author: Esraida Simanjuntak, **E-mail:** esraida.borjun@gmail.com

| ABSTRACT

The COVID-19 morbidity code is used to determine the primary condition and secondary condition of a COVID-19 patient condition obtained during an episode of health care that is very important in hospital reporting, where from the morbidity data, the number of patients discharged (live and dead) and the formulation and health programs is obtained. At the same time, the COVID-19 death code is the main source for filling out patient death certificates. Death certificates will be used to report deaths, which are very useful for hospitals to evaluate service quality and the need for medical personnel and equipment to determine the morbidity and mortality code in COVID-19 patients at the Imelda Indonesian Workers General Hospital Medan in 2021. The method used in this research is observation and structured interviews. The results in this study are the number of patients from January to March 2021 who confirmed COVID-19, including 44 morbidity patients and 8 mortality patients, with suspected COVID-19 including 31 mortality patients. COVID-19 health workers, however, do not implement mortality coding for COVID-19 patients. The Imelda General Hospital of Indonesian Workers carries out the provision of a morbidity code for COVID-19 patients but does not carry out the provision of a mortality code for COVID-19 patients.

| KEYWORDS

Morbidity Code, Mortality Code, COVID-19 Patients

| ARTICLE INFORMATION

ACCEPTED: 01 December 2023

PUBLISHED: 08 December 2023

DOI: 10.32996/jmhs.2023.4.6.11

1. Introduction

A hospital is a health service institution that provides inpatient, street and emergency services. Hospitals also have obligations to administer medical records (Kementerian Kesehatan, 2018). Medical records are documents that contain records of the patient's identity, examination, treatment, actions and other services provided to patients and must be fully and clearly recorded or electronically. The coding part is the most important function for information in medical records (Permenkes RI, 2008).

Clinical data that has been coded is needed to retrieve information because it is useful for the benefit of patient care, improving service performance, planning, research, resource management and getting reimbursement (Repayment) in accordance with the services provided (Kresnowati, 2017).

Morbidity is a condition of a person who is said to be sick if the complaints cause disruption to daily activities so that they cannot do work and other normal activities. Coding is an activity that can determine the diagnosis of a disease, medical procedures and other health problems made in words into code form, either numerically or alphanumericly, to facilitate storage, retrieval and analysis of data, so that the resulting data can be used to describe diseases, procedures, services, operations, injuries, disease severity, drugs, laboratory examinations, pathology specimens, mental condition, causes of accidents and injuries and other aspects of health care (Kresnowati, 2017).

Copyright: © 2023 the Author(s). This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC-BY) 4.0 license (<https://creativecommons.org/licenses/by/4.0/>). Published by Al-Kindi Centre for Research and Development, London, United Kingdom.

Morbidity codes are important in hospital reporting, where the word morbidity is obtained in the top 10 diseases, the number of patients discharged (life and death), and policy formulation in health programs. Morbidity codes are used to determine the primary and secondary conditions of a patient's state during health care. In determining the morbidity code, a coder must be able to explain and practice the use of five (5) rules of ICD-10 Morbidity Rules (Rule MB 1, Rule MB 2, Rule MB 3, Rule MB 4, and Rule MB5) available to determine the diagnosis of discharge patients (World Health Organization, 2016).

The mortality code is the main part of filling out a patient's death certificate. The certificate is used in death reporting for hospitals in terms of evaluating the quality of service and the need for medical personnel and medical devices. The concept of cause of death only selects one cause that can make it easier to fill out a certificate even though the results of two or more diagnoses that cause death are recorded. The diagnosis of the disease written on the certificate must be complete and consistent in order to facilitate the coder in determining the diagnosis of the cause of death. The basic causes of death, according to WHO, are the causes of death as all diseases, injuries or causes of death (Oktamianiza, 2019).

At the end of 2019, information about Wuhan Pneumonia caused by coronavirus disease 2019 (Covid-19) began to spread. COVID-19, which has been declared a global pandemic by WHO, spreads very quickly among humans and has a fairly high mortality rate. On March 2, 2020, Indonesia was officially included in the list of countries infected by COVID-19. So far, COVID-19 has been one of the highest sources of illness and death in Indonesia (CNN Indonesia, 2020).

Regarding the determination of the Coronavirus Disease 2019 (COVID-19) Public Health Emergency, COVID-19 is defined as a public health emergency that must be addressed and addressed (Keputusan Presiden RI, 2020a).

Regarding the determination of non-natural disasters, the spread of Corona Virus Disease 2019 (Covid-19) is designated as a National Disaster. From data on the development of COVID-19 until July 20, 2021, in Indonesia, the morbidity rate of positive patients was 2,950,058, and the mortality rate of positive patients was 76,200. Meanwhile, the morbidity lift for suspected patients was 267,333 patients. (Keputusan Presiden RI, 2020b). Menurut (Keputusan Menteri Kesehatan Republik Indonesia, 2021) Coding morbidity and mortality of Covid-19 diagnoses, all patients with examination results using code B34.2 as the main diagnosis, in ODP / PDP patients, suspect/probable with code Z03.8 with the main diagnosis, newborns with code P96.8 as the main diagnosis, if there are other diagnoses eat in coding as additional / secondary diagnoses.

The government encourages the involvement of all healthcare facilities, including hospitals, in COVID-19 patients. COVID-19 patient service provider hospitals are referral hospitals for certain emerging infectious diseases and other hospitals that have facilities to carry out patient referral health management and services (COVID-19), including field hospitals/emergency hospitals. Therefore, Imelda General Hospital Pekerja Indonesia Medan took part in becoming one of the COVID-19 referral hospitals. Based on the author's initial survey, data were obtained on COVID-19 patients undergoing health care at the Imelda Pekerja Indonesia General Hospital from January to June 2021, with a morbidity rate of 92 COVID-19 positive patients and a mortality rate of 92 COVID-19 positive patients. Meanwhile, the morbidity rate of suspected COVID-19 patients is 5 patients, and the mortality rate of suspected COVID-19 patients is 66 patients. Imelda General Hospital Indonesian workers coordinate morbidity and mortality for COVID-19 patients. (Keputusan Menteri Kesehatan Republik Indonesia, 2021)

2. Method

The research used is descriptive quantitative research, which analyzes data by describing or describing the data that has been collected (Bungin, 2015). The population in this study was all medical record files of Covid-19 patients in January-March 2021, with 83 files at the Imelda Pekerja Indonesia General Hospital. The sampling used was saturated sampling, with the technique of determining all members, using as many as 83 samples. Data collection techniques with Interviews and Observations. Data processing starts with editing and tabulating and will then be analyzed (Sugiasi, 2019).

3. Results and Discussion

Based on research conducted in September 2021 at the Imelda General Hospital of Indonesian Workers Medan, the following morbidity and mortality data on COVID-19 patients were obtained.

Table 1. Morbidity and Mortality Data of COVID-19 Patients at Imelda General Hospital Indonesian Workers Medan

Moon	COVID-19 confirmation		COVID-19 Suspect		Total
	Mortality	Morbidity	Mortality	Morbidity	
January	3	14	12	0	29
February	1	10	4	0	15
March	4	20	15	0	39

The number of patients in January 2021 confirmed with COVID-19 was 14 morbidity patients and 3 mortality patients, 12 COVID-19 suspects, 12 mortality patients in February 2021, 10 morbidity patients and 1 mortality patient, 4 mortality patients suspected of COVID-19, and the number of patients in March 2021 who were confirmed with COVID-19 were 20 morbidity patients and 4 mortality patients, of which 15 COVID-19 patients were suspected of death. From the results of interviews conducted with Covid-19 coding officers at Imelda General Hospital, Indonesian workers carried out the provision of morbidity codes to patients but did not carry out the provision of mortality codes to Covid-19 patients.

3.1 Basic coding in COVID-19 patients

The steps for coding COVID-19 using ICD-10 are as follows.

1. Specifies the type of statement to be coded into the appropriate section of the alphabetical index. Covid 19 is a type of disease statement classified in Chapter I (certain infectious and parasitic diseases), then section is seen in section I (Volume 3).
2. Specify the location of the 'lead term'. The 'lead term' in the diagnosis of Corona Virus Disease 2019 is "Infection" because the "virus" can become a disease if it also infects its host.
3. Read and guide all records under the "lead term" that are confined by the parentheses until all words in the diagnosis have been noticed.

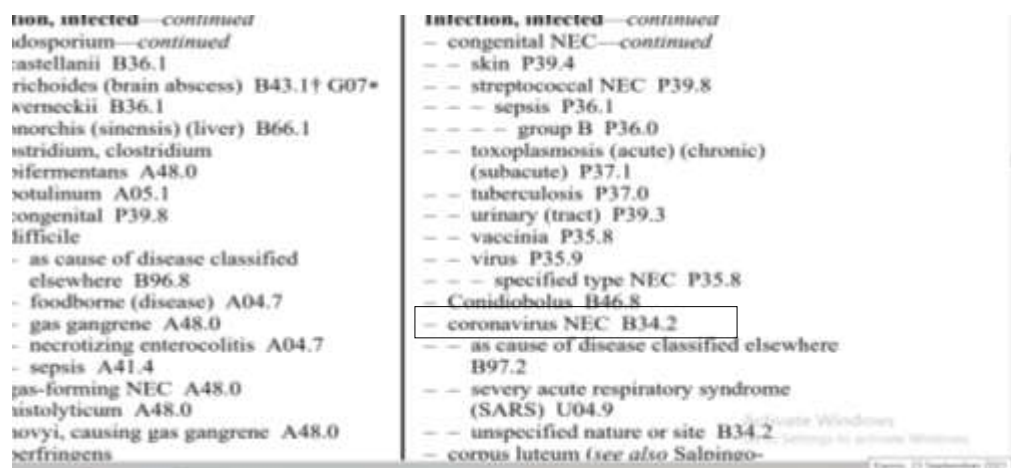


Figure 1. ICD-10 Volume 3 Page 350

4. Dissection I (Volume 3) found that the coronavirus code is B34.2
5. Refer to the tabulation list (Volume I) to ensure the code number is selected

B33.8	Other specified viral diseases
B34	Viral infection of unspecified site <i>Excl.:</i> cytomegaloviral disease NOS (B25.9) herpesvirus [herpes simplex] infection NOS (B00.9) retrovirus infection NOS (B33.3) viral agents as the cause of diseases classified to other chapters (B97.-)
B34.0	Adenovirus infection, unspecified site
B34.1	Enterovirus infection, unspecified site Coxsackievirus infection NOS Echovirus infection NOS
B34.2	Coronavirus infection, unspecified site <i>Excl.:</i> severe acute respiratory syndrome [SARS] (U04.9)

Figure 2. ICD-10 Volume 1 Page 144 (Part B34)

- Govern each exclusion term under code and block categories. Coronavirus Disease 2019 that infects the human body cannot be ascertained; the location of the infection in the body can be in the lungs, throat, and others, or it can even attack two parts of the entire body.

B33.8	Other specified viral diseases
B34	Viral infection of unspecified site <i>Excl.:</i> cytomegaloviral disease NOS (B25.9) herpesvirus [herpes simplex] infection NOS (B00.9) retrovirus infection NOS (B33.3) viral agents as the cause of diseases classified to other chapters (B97.-)
B34.0	Adenovirus infection, unspecified site
B34.1	Enterovirus infection, unspecified site Coxsackievirus infection NOS Echovirus infection NOS
B34.2	Coronavirus infection, unspecified site <i>Excl.:</i> severe acute respiratory syndrome [SARS] (U04.9)

Figure 3. ICD-10 Volume 1 Page 144 (Section B34.2)

- Then the code of Corona Virus Disease 2019 is **B34.2 Coronavirus infection, unspecified site**.

The measurement of giving diagnosis codes using ICD-10 categories of codes filled in completely and accurately up to the 4th character will greatly support and produce accurate reports so that the completeness and accuracy of the code will also help policy stakeholders and as a form of prediction related to diseases that cause death (Markus *et al.*, 2022).

Diagnosis coding refers to ICD-10, which has been provided for the classification of diseases and health problems and health statistics consisting of XXII BAB based on body systems. In addition, the completeness of the data is very helpful for doctors to establish the diagnosis correctly so that treatment can also be adjusted to what has been established (Ilmi, 2018).

The process of providing a diagnosis code based on ICD-10 in cases of outpatient diseases at the Pleret Health Center. The coding process at Puskesmas Pleret is carried out computerized using the SIMPUS application based on ICD-10 (Setiyawan, Nugroho and Agita Widyawati, 2022).

Codeing the medical record file must be done very thoroughly, precisely and accurately in accordance with the diagnostic code contained in ICD-10. If there is an error in providing the code, it will have a bad impact on patients, puskesmas and hospitals. The reality found in the field is that there are still problems in implementing the accuracy of disease diagnosis codes based on ICD-10 (Ni Kadek Lusi Rusliyanti, Rahmad and Harinto Nur Seha, 2016)

The process flow carried out by officers for COVID-19 cases is no different from when coding diagnoses for other cases. The coding process is carried out using ICD-10 and ICD-9-CM, which are available in book or application form (Maya Silvia Handayani Haryani Octaria, 2021).

3.2 COVID-19 Morbidity Code Provision

The provision of the Covid-19 morbidity code is to use the main conditions that are being checked during the relevant health care. Based on the results of interviews conducted with informants (Covid-19 coding officers at the Indonesian Workers General Hospital, the main condition is diagnosed at the beginning of the examination, namely PCR checks with positive results and rapid tests with reactive results, which causes patients to require further treatment and examination.

The main and other conditions of Covid-19 patients are relevant for one episode of health care recorded by health practitioners. Direct coding to the target Covid-19 patients because the main conditions must be coded and processed so that the provision of morbidity codes no longer uses the selection of the main conditions.

From the results of interviews conducted by researchers, the provision of morbidity codes for Covid-19 patients at Imelda Hospital is based on KMK RI Number HK.01.07 of 2021 concerning Technical Guidelines for Reimbursement Claims for Corona Virus Disease 2019 (COVID-19) Patient Service Costs for Corona Virus Disease 2019 (COVID-19) Service Provider Hospitals.

The accuracy of the main diagnosis and the main diagnosis code of the Orthopedic Hospital Prof. Dr. Soeharso Surakarta is in the good category. Where the accuracy of the main diagnosis is 100% and the main diagnosis code is 93.3%. Health insurance financing uses INA CBGs software, where the accuracy of the code affects the cost of financing. There is a significant relationship between the accuracy of diagnostic reselection and the main diagnostic code of medical record documents with health financing (Linda Widyaningrum, 2015).

The results of research with morbidity theory in the ICD-10 Volume 2 book explain that the requirements for the specifics of writing a diagnosis are the condition of the diagnosis in accordance with ICD-10, clear anatomical location, clear acute or chronic condition (Purwanti, Novita and Asgiani, 2017).

The coding provisions for Covid-19 patients used are:

1. All patients with Covid-19 test results use the code B34.2 as the main diagnosis.
2. For ODP/PDP patients, use the code Z03.8 as the primary diagnosis.
3. For newborns with Covid-19 test results using the code P39.8 as the main diagnosis.
4. For newborns with ODP/PDP status, using the code P96.8 as the primary diagnosis.
5. If there is a diagnosis other than Covid-19, eat coding as a secondary diagnosis.

Table 2. COVID-19 Diagnosis Code Table

NO	DIAGNOSIS	ODP/PDP SUSPECT/PROBABLE	CONFIRM
		INPATIENT AND OUTPATIENT	
1	Main diagnosis	Z03.8 03.8 Observation for other suspected diseases	B34.2 <i>Coronavirus Infection, Unspecified</i>
	Primary Diagnosis of babies under 7 days old	P.96.8 <i>Other specified conditions origination in the perinatal period</i>	P.39.8 <i>Other specified infections specific to perinatal period</i>
2	Secondary diagnosis	In accordance with comorbid conditions/comorbidities and complications of the patient	In accordance with comorbid conditions/comorbidities and complications of the patient
3	Procedure	In accordance with the procedure performed to the patient	In accordance with the procedure performed to the patient

3.3 Provision of Doctor's Certificate for COVID-19 Patients

Based on interviews conducted by researchers with informants at the Imelda General Hospital, Indonesian workers do not provide mortality codes for COVID-19 patients, so for COVID-19 patients who have died, a death certificate will not be made, but a death certificate will be made by a doctor. In addition to patients who died, a doctor's certificate was also given to patients who were discharged from the hospital, both with negative COVID-19 results and those who came out with positive COVID-19 results.

A doctor's certificate is a letter or writing made on paper, and the one who has the right to issue it is a doctor whose contents explain in detail the patient's health being examined in order to explain the patient's condition experienced correctly. (Irsyad Zamhler Tuahuns, 2021).

Regarding evidence and the validity of the doctor's statement in the provisions of the criminal law, the act of a doctor who provides a sick certificate to his patient and does not conduct an actual examination of the patient's actions violates the Indonesian medical code of ethics indirectly, in this case, it is a criminal act in the process of obstructing perpetrators of corruption crimes and is against the law (Irsyad Zamhler Tuahuns, 2021).

A sick letter issued or made by a doctor must go through a lege litas examination procedure and be given to patients who really need rest to recover their health condition. If a doctor is proven, intentionally and without any coercion, to give a sick certificate to a patient without going through the process that the doctor actually has to do, with the intention of receiving a material reward, then the doctor is morally clear to have violated the rules of the Code of Ethics of the Medical Professional (Wijaya and Imam Haryanto, 2021).



Picture 4 Doctor's Certificate (Patient Deceased)

4. Conclusion

The research that has been conducted by the author regarding the review of the morbidity and mortality code of COVID-19 patients conducted at the Imelda Pekerja Indonesia General Hospital is as follows.

1. The number of patients in January 2021 confirmed with COVID-19 was 14 morbidity patients and 3 mortality patients, 12 COVID-19 suspects, 12 mortality patients in February 2021, 10 morbidity patients and 1 mortality patient, 4 mortality patients suspected of COVID-19, and the number of patients in March 2021 who were confirmed with COVID-19 were 20 morbidity patients and 4 mortality patients, of which 15 COVID-19 patients were suspected of death.
2. Imelda Pekerja Indonesia General Hospital implements morbidity code provisions for COVID-19 patients but does not implement mortality code provisions for COVID-19 patients.
3. The provision of the COVID-19 patient morbidity code is based on KMK RI Number HK.01.07 of 2021 concerning Technical Guidelines for Reimbursement Claims for Corona Virus Disease 2019 (COVID-19) Patient Service Costs for Corona Virus Disease 2019 (COVID-19) Service Provider Hospitals.
4. It is recommended the Imelda Pekerja Indonesia General Hospital immediately make SOPs on COVID-19 coding to improve the quality of services in the coding and claims section of COVID-19 patients.

Funding: This research received no external funding.

Conflicts of Interest: The authors declare no conflict of interest.

Publisher's Note: All claims expressed in this article are solely those of the authors and do not necessarily represent those of their affiliated organizations, or those of the publisher, the editors and the reviewers.

Acknowledgments: We would like to express our gratitude to all parties who have helped carry out this research activity, namely the Head of the Imelda General Hospital Indonesian Workers (IPI) Medan Medan.

References

- [1] Bungin, B. (2015). *Metodologi Penelitian Kualitatif*. Jakarta: Rajawali Pers.
- [2] CNN Indonesia (2020). *Virus Corona Masuk Indonesia, Netizen Serukan Jangan Panik*, CNN Indonesia. doi: <https://www.cnnindonesia.com/teknologi/20200303141434-192-480096/virus-corona-masuk-indonesia-netizen-serukan-jangan-panik>.
- [3] Ilmi, L. R. (2018). Keakuratan Kode Diagnosis Dengan Icd-10 Di Puskesmas Pengasih I Dan Pengasih II, *Jurnal Manajemen Informasi Kesehatan Indonesia*, 6(2), pp. 118–122. doi: 10.33560/jmiki.v6i2.195.
- [4] Irsyad Z T (2021). Dampak Covid 19 Serta Kedudukan Surat Keterangan Dokter Sebagai Pengecualian Atas Ketidakhadiran Tersangka Dalam Persidangan Kasus Korupsi, *Jurnal Fundamental: Jurnal Ilmiah Hukum*, 10(1), pp. 67–80. doi: <https://doi.org/10.34304/jf.v10i1>.
- [5] Kementerian K (2018) *Peraturan Menteri Kesehatan tentang Kewajiban Rumah Sakit dan Kewajiban Pasien*.
- [6] Keputusan Menteri Kesehatan Republik Indonesia (2021) *Keputusan Menteri Kesehatan Republik Indonesia Nomor Hk.01.07/Menkes/4642/2021 Tentang Penyelenggaraan Laboratorium Pemeriksaan Coronavirus Disease 2019 (Covid-19)*.
- [7] Keputusan Presiden RI (2020a) *Keputusan Presiden Republik Indonesia Nomor 11 Tahun 2020 Tentang Penetapan Kedaruratan Kesehatan Masyarakat Corona Virus Disease 2019 (Covid-19)*. Jakarta: Departemen Kesehatan Republik Indonesia.
- [8] Keputusan Presiden RI (2020b) *Keputusan Presiden Republik Indonesia Nomor 12 Tahun 2020 Tentang Penetapan Bencana Nonalam Penyebaran Corona Virus Disease 2019 (Covid-19) Sebagai Bencana Nasional*. Jakarta: Departemen Kesehatan Republik Indonesia.
- [9] Kresnowati, dkk (2017) *Klasifikasi, Kodefikasi Penyakit dan Masalah Terkait I: Anatomi, Fisiologi, Patologi, Terminologi Medis dan Tindakan pada Sistem Kardiovaskuler, Respirasi dan Muskuloskeletal*. Jakarta: BPPSDMK Kementerian Kesehatan Republik Indonesia.
- [10] Linda W (2015) Ketepatan Reseleksi Diagnosa Dan Kode Utama Berdasarkan Aturan Morbiditas Pembiayaanjaminan Kesehatan INA-CBGS, *Jurnal Manajemen Informasi Kesehatan Indonesia (JMiki)*, 3(2), 27–31. doi: DOI: 10.33560/jmiki.v3i2.81.
- [11] Markus, S. N. et al. (2022) Asesmen Kode Penyebab Kematian Di RSUD Panembahan Senopati Bantul Yogyakarta, *Jurnal Ilmiah Perekam Dan Informasi Kesehatan Imelda (JIPIKI)*, 7(2), 126–133. doi <https://doi.org/10.52943/jipiki.v7i2.1028>.
- [12] Maya S H, Haryani O (2021) Tinjauan Pelaksanaan Pengkodean Penyakit COVID-19 Di Rumah Sakit Umum Daerah Petala Bumi Provinsi Riau Tahun 2020, *Jurnal Rekam Medis (Medical Record Journal)*, 1(2), 146–158. doi: DOI: 10.25311/jrm.Vol1.Iss2.393.
- [13] Ni K L R, Rahmad, H. A. and Harinto N S (2016) Analisis Ketepatan Pengkodean Diagnosis Berdasarkan ICD-10 dengan Penerapan Karakter Ke-5 Pada Pasien Fraktur Rawat Jalan Semester II di RSU Mitra Paramedika Yogyakarta, *Jurnal Permata Indonesia*, 7(1), 26–34. Available at: <http://jurnal.permataindonesia.ac.id/index.php/JPI/article/view/132>.
- [14] Oktamianiza (2019) *Mortalitas Coding*. Surabaya: CV Delta Agung Jaya.
- [15] Permenkes RI (2008) *Peraturan Menteri Kesehatan Nomor 269/MENKES/PER/III/2008 tentang Rekam Medis*.
- [16] Purwanti, E., Novita, M. and Asgiani, P. (2017) 'Ketepatan Kode Berdasarkan Kelengkapan Diagnosis Di Rumah Sakit Pku Muhammadiyah Yogyakarta', *Rekam Medis Dan Manajemen Informasi*, 66–70. Available at: <https://publikasi.aptrimik.or.id/index.php/procsemarang/article/view/62>.
- [17] Setiyawan, H., Nugroho, S. and Agita W (2022) Analisis Ketepatan Kode Diagnosis Penyakit Berdasarkan Kode ICD-10 Pasien Rawat Jalan di Puskesmas Pleret Bantul, *Jurnal Ilmu Kesehatan Bhakti Setya Medika*, 7(1), pp. 8–13. Available at: <https://www.poltekkes-bsi.ac.id/jurnal/index.php/bsm/article/view/63>.
- [18] Sugiarsi, S. (2019) *Instrumen dan Analisis Data Penelitian Rekam Medis dan Manajemen Informasi Kesehatan*. Karanganyar: APTIRMIKI.
- [19] Wijaya, H. and Imam H (2021) Tindakan Pemalsuan Surat Keterangan Dokter, *Jurnal Indonesia Sosial Teknologi*, 2(8), pp. 1339–1355. doi: <https://doi.org/10.36418/jist.v2i8.210>.
- [20] World Health Organization (2016) *Internal Statistical Classification Of Diseases And Related Health Problems 5th ed.* Switzerland: WHO.