



## **A REVIEW THE DEVELOPMENT OF INFECTION PREVENTION AND CONTROL PROGRAM IN NURSING CARE DURING COVID-19 PANDEMIC**

**Candra Dewi Rahayu<sup>1\*</sup>, Diah Fitri Purwaningsih<sup>2</sup>, Ika Silvitasari<sup>3</sup>**

<sup>1</sup>Universitas Sains Al-Qur'an, Jl. Kyai Hasyim Asy'ari No. Km, RW.03, Kalibebler, Mojotengah, Kabupaten Wonosobo, Jawa Tengah 56351, Indonesia

<sup>2</sup>Sekolah Tinggi Ilmu Kesehatan Indonesia Jaya, Jl. Towua No.114, Birobuli Sel., Kec. Palu Sel., Kota Palu, Sulawesi Tengah 94000, Indonesia

<sup>3</sup>Universitas Aisyiyah Surakarta, Jl. Ki Hajar Dewantara No.10, Jawa, Kec. Jebres, Kota Surakarta, Jawa Tengah 57146, Indonesia

\*[candra.ners@gmail.com](mailto:candra.ners@gmail.com)

### **ABSTRACT**

The hospital is the health service structure that plays the most prominent role with the Covid-19 pandemic. The nursing profession is still required to provide quality nursing care to Covid-19 patients, as well as to other patients so that the provision of nursing care must be in accordance with the procedures and management of patients with infectious diseases accurately and correctly and use Personal Protection Equipment in accordance with standard. Infection prevention and control during the pandemic is very important for patients and health workers to minimize the occurrence of nosocomial infections during hospital care. This review aims to determine the development of infection prevention and control program in the provision of nursing care during the Covid-19 pandemic. The research method with a review was carried out by searching for articles related to patient safety in providing Covid-19 nursing care. Literatures search were carried out in December 2020 - January 2021 through PubMed, Sciencedirect, google scholar, government policy then entered the online database list by entering keywords, namely patient safety, nursing care, Covid-19. Selected journals were based on inclusion and exclusion criteria through a critical assessment process with CASP to assess the quality of articles. The results of the critical appraisal obtained six articles that match the inclusion criteria with a minimum appraisal score of 85 in good categories which are then carried out by analysts. The results of the research by reviewing 6 articles show that prevention and control of patients safety in providing nursing care during a pandemic can be developed through nursing care management by using summarized checklists, patient safety-based nursing care service system, infection prevention and control during the pandemic and inclusive leadership. Nursing care management, patient safety, infection prevention and control and an inclusive leadership style are the development methods that can be used for the prevention and control of Covid-19.

**Keywords:** covid-19; infection control; nursing care

**First Received**

14 July 2021

**Revised**

20 July 2021

**Accepted**

24 July 2021

**Final Proof Received**

26 August 2021

**Published**

28 August 2021

### **How to cite (in APA style)**

Rahayu, C., Purwaningsih, D., & Silvitasari, I. (2021). A Review the Development of Infection Prevention and Control Program in Nursing Care During Covid-19 Pandemic. *Indonesian Journal of Global Health Research*, 3(3), 379-386. <https://doi.org/10.37287/ijghr.v3i3.511>

## **INTRODUCTION**

Indonesia is one of the countries infected the Covid-19 pandemic. Corona virus disease 2019 (COVID-19) is an infectious disease caused by the acute respiratory syndrome coronavirus 2 (SARS-CoV-2). The disease was first identified in December 2019 in Wuhan, the capital of China's Hubei province, and has since spread globally, resulting in the coronavirus pandemic. Common symptoms include fever, cough and shortness of breath. Other symptoms include muscle pain, diarrhea, sore throat, loss of smell, and stomach pain. While the majority of cases result in mild symptoms, some develop viral pneumonia and multi-organ

failure.(Isbania, Sitompu, Kusumowardhani, Susilo, & Wihastuti, 2020). The first COVID-19 was reported in Indonesia on March 2, 2020, totaling two cases. Data for 31 December 2020 The total confirmed covid-19 in the world is 83,060,276 with 1,812,046 deaths.(Verdiana, 2020) The total number of confirmed cases of covid-19 in Indonesia is 743. Cases recovered 611,097, and 22,138 cases died. (Sagita, 2020) The mortality rate for COVID-19 in Indonesia is 8.9%, this figure is the highest in Southeast Asia.

The hospital is the health service system most affected by the Covid 19 pandemic. It takes mental readiness and competence for health workers including nurses as the foremost profession in health services. Wearing WHO standard PPE for nurses caring for Covid 19 patients. Hand washing SOP, hand scrub how to open PPE, masks, gloves, boots must comply with the protocol set by the hospital. The nursing profession is still required to provide quality nursing care to Covid 19 patients, as well as to other patients, so that the provision of appropriate nursing care must be in accordance with the procedures and management of patients with infection diseases accurately and correctly. (Kementrian Kesehatan Republik Indonesia, 2020) The hospital is also taking action by prohibiting the patient's family from visiting as long as the large increase in COVID-19 is with the solution that each patient can only be taken care of by one of the family members, so that during this pandemic we can reduce the spread of COVID-19. In the current situation, the well-being of patients who are in the hospital, especially inpatients, is a priority for nurses by keeping the patient's room infected with COVID-19 away from other patients and distinguishing nurses who will treat COVID-19 patients from other disease patient nurses. .

According to the Indonesian Ministry of Health (2008) in the National Hospital Patient Safety Guide, the first action of a patient safety program in a hospital is to build a culture of patient safety or to raise awareness among all health employees about the importance of safety values in the hospital. So, to improve the quality of patient safety services at the unit level, efforts must be made to change the patient safety culture in all hospital units.(Departemen Kesehatan Republik Indonesia, 2008a). Patient safety culture can be evaluated from indicators about the number of cases, the number of deaths, the number of cure, the number of examination, the number of bed in the isolation room, a decrease in the incidence rate, a decrease in the mortality rate. This encourages the readiness of hospitals and health facilities in meeting the quality of services in the new normal period which focuses on the dimensions of the patient, fair, efficient, effective, timely, safe and integrated. The existence of a patient safety system/patient safety by recommending a disaster management system, disaster management program, PPI standards, health service facilities ensuring screening and triage of patients and visitors, implementing Occupational Health and Safety rules, access to all visitors, mapping risk areas, supply chain management.(Lubis, 2020; Pujianto, Dedi, Syaifudin, & Nurhayati, 2020; Putri, 2020).

According to the Ministry of Health of the Republic of Indonesia (2008). The system includes part of the risk assessment, identification and management of matters related to patient risk, incident reporting and analysis, the ability to learn from incidents and their follow-up and implementation of solutions to minimize the occurrence of risks. (Departemen Kesehatan Republik Indonesia, 2008b). The Covid-19 pandemic that has been experienced adds strength to the development of infection prevention and control program in nursing care during this pandemic. This review aims to determine the development of infection prevention and control program in the provision of nursing care during the Covid-19 pandemic.

## METHOD

The research method with a literature review was carried out by looking for articles related to patient safety in providing Covid 19 nursing care. Literature searches were carried out in December 2020 - January 2021 through PubMed, Sciencedirect, google scholar, then entered the online database list and entered keywords, namely patient safety, nursing care, Covid-19. Selected journals were based on inclusion and exclusion criteria through a critical assessment process with CASP to assess the quality of their articles. The results of the critical appraisal obtained six articles that match the inclusion criteria with a minimum appraisal score of 85 in good categories which are then carried out by analysts. Article identification can be seen in the following chart.

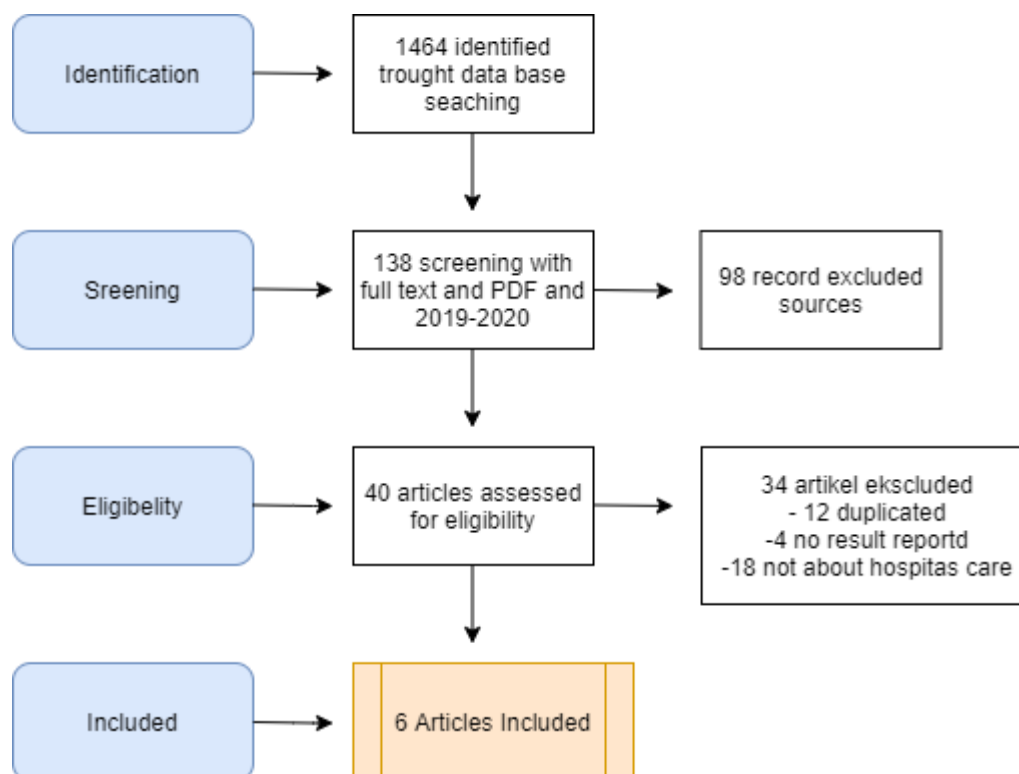


Figure 1: Flow diagram of studies included in this Review

## RESULTS

### Nursing Care Management

Nursing profession. is challenged to learn, be innovative and creative in providing quality nursing care to patients, especially Covid 19 patients. One of the management of nursing care for Covid-19 patients to increase patient safety is by using a summarized checklist. The checklist includes

1. Verification and new patient accounts
2. Verify the environment is clean and tidy
3. Verification of tools and individuals (patients)
4. Verification of mentoring and education

From the results of the research using the safety checklist on 840 respondents, it was found that the overall adherence increased from week 1 (72.4%) to week 4 (91.0%) ( $P < 0.01$  based on the chi-square test (Huang, Liu, Wu, Zhang, & Yang, 2020))

### **Patient Safety-Based Nursing Care Service System**

Patient safety is a basic principle in health care. Patient safety at the hospital is a system in which the hospital makes patient care safer. Quality nursing services related to the COVID-19 pandemic must pay attention to infectious disease management procedures specifically for Covid 19. These steps are: (Pujianto et al., 2020; Tadavarthy et al., 2020)

1. Provision of a special COVID infection treatment room, with beds, rooms, rooms that can be cleaned at any time.
2. Adequate ventilation and lighting
3. Is separated from other patient care rooms.
4. There are adequate and WHO standard means of washing hands and handsanitizer
5. Comprehensive use of existing guidelines and facilities and patient management assessments guides the development of the IPC program

### **Infection Prevention and Control during a Pandemic**

In a pandemic like Covid-19, this must start with infection prevention and control. In the practice of implementing infection prevention and control/IPC, it is strongly influenced by human factors, where the results of the study showed the practice of IPC in the patient's home (mean = 4.34, standard deviation=2.53). There was often a mismatch of action procedures (reported by 74.5% of nurses) and a dirty environment (70.3%). Nurses also reported limited availability of PPE (mean = 7.76, standard deviation = 2.44). (Adams et al., 2020)

Infection prevention and control is a key application in health services. Infection prevention and control strategies related to health services, namely (infection prevention guidelines)

1. Take preventive measures
2. Identify the patient by triage
3. Environmental control
4. Take precautions in confirmed patients
5. Use of Personal Protection Equipment

### **Inclusive Leadership**

Health worker well-being, safety, and minimizing moral stress are paramount, Inclusive leadership has an inverse relationship to psychological stress with a strong path coefficient. Psychological safety mediated the relationship between inclusive leadership and psychological distress 28.6%. Repeated or prolonged experiences of stress and anxiety at work, without a mechanism to counter these effects can lead to psychological distress that will impact patient safety. The results show that an inclusive leadership style serves as a sustainable mechanism for reducing psychological distress during a pandemic. It can operationalize the provision of real-time mental health support in work settings. The results provide empirical support for the theory of social exchange through high job involvement to help control psychological distress among nurses. (Ahmed, Zhao, & Faraz, 2020; Zhao, Ahmed, & Faraz, 2020).

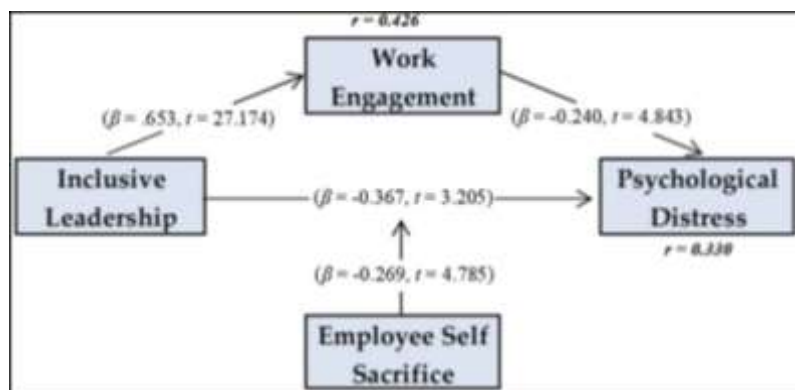


Figure 2: Result Model

## DISCUSSION

Development of infection prevention and control program in hospitals is very important because it describes the quality of hospital services as well as to protect patients, staff, visitors and families from the risk of contracting infection. Infections that occur in hospitals can not only be controlled but can also be prevented by taking steps in accordance with applicable procedures and guidelines. Prevention and control of patient safety in providing nursing care during a pandemic can be developed through the management of nursing care, systems of nursing care based on patient safety, infection prevention and control and inclusive leadership.

### Nursing Care Management

To increase patient safety during a pandemic, proper clinical governance is needed in providing nursing care, one of the governance that can be done is by using a summarized checklist system (Huang et al., 2020) The check list can prevent and minimize medical errors because this method ensures the important steps in a sequential treatment process according to the right steps, so as to improve compliance behavior and preventive measures to increase personal protection to minimize risks. Research conducted from 2009 to 2016 shows the effectiveness of standardization, application and sustainability of the use of the checklist .(Mitchell et al., 2017)

A system that uses a checklist to monitor patient safety is a very important tool or facility in the implementation of patient safety or patient safety. Nurse compliance in the summarized checklist is influenced by the existence of policies and the existence of good standard operating procedures in the hospital. In addition, patient safety culture is also seen from the attitudes and perceptions of health workers in providing safe services for patients and staff (Sandrawati, Supriyanto, & Nurul, 2013). For this reason, it is necessary to have a standard operating procedure for using a summarized checklist to cultivate patient safety in hospitals.

Based on the results of the review showed that there is a method to minimize patient safety incidents by using a summarized checklist. Overall adherence increased from week 1 (72.4%) to week 4 (91.0%) ( $P < 0.01$ ). This will improve patient safety during treatment in the hospital. In line with research conducted by nurhayati 2019 shows that the checklist method has an effect on patient safety incidents with a significance value of  $p = 0.05$ . (Nurhayati & Suwandi, 2019)

### **Patient Safety-Based Nursing Care Service System**

Good service quality arises when the patient's expectations for service are met. WHO declares that COVID-19 is a public health emergency of international concern, raising public concerns about access to health care services. Health services during the pandemic described in research conducted by Harahap shows that the quality of care provided by health services is in the good category. (Harahap, 2021)

The development of improving the quality of service currently leads to patient safety and security so that patient safety is the main key in providing nursing care. (Ismaniat, 2015) Apart from preventing the virus, hospitals are also responsible for providing health services that could potentially expose medical staff to Covid-19. The risk of cross infection between medical staff and patients is higher. Patient safety and security with strict and effective infection control protocols are urgently needed. (Lipsitz, 2012)

### **Infection Prevention and Control during a Pandemic**

The high incidence of infection in hospitals is an indicator of the importance of an infection control effort by applying standard infection precautions (Standard precaution). Standard Precaution is basically a transformation of universal precaution, which is a form of the first precaution that aims to prevent nosocomial infections. (Nisa, 2020)

In addition to the use of the next patient safety development checklist, infection prevention and control (PPI) is a comprehensive effort and assessment of patient management. This aims to keep staff and patients safe and implement procedures to wisely use limited resources that affect the transmission of infections especially due to Covid-19. (Adams et al., 2020)

Infection prevention and control strategies are carried out to prevent and limit transmission in health care settings including carrying out standard preventive measures for all patients, ensuring triage is carried out, early identification and source control, implementing empirical preventive measures for Covid-19 cases, implementing administrative controls. implementing environmental and engineering controls. Basic infection control and prevention measures were used in all patients without exception. (Dewi & Semedi, 2020)

### **Inclusive Leadership**

The leadership model also greatly influences the stress level of nurses related to patient safety. Research on Acute Respiratory Syndrome (SARS) in 2003, the predecessors of COVID-19, (A.O.M & C.Y, 2004) reported that about 25% of nurses in particular, and 20% of health care workers suffered from post-trauma. stress disorder. Frontline health care workers during the SARS outbreak demonstrated chronic stress as well as high levels of depression and anxiety. (G.M et al., 2007) The most important strategy proven to be significant in reducing psychological stress is giving feedback by subordinates to get support from their managers and support from colleagues. (A.O.M & C.Y, 2004) Positive forms of leadership such as inclusive leadership help rebuild employee trust through interaction and trust (J.M & J, 2007) so that it will reduce nurses' work stress and improve patient safety.

Inclusive leadership is defined as words and deeds by a leader indicating an "invitation and appreciation for others' contributions. Inclusive leadership refers to "leaders who exhibit visibility, accessibility, and availability" while interacting with subordinates. Inclusive leadership focuses on practices that value employee diversity in decision-making processes. This makes employees comfortable with sharing opinions without being afraid of power distance or status differences. Available literature shows that its relationship has been studied

in the past with psychological safety. Innovative work behavior development of employee belongingness, change of management, and the improvement of subordinates' creativity. (Ahmed et al., 2020).

Inclusive leadership has a significant negative relationship with psychological distress. Work engagement mediates this relationship, and nurses' self-sacrificial behavior moderates it. Findings indicate inclusive leadership style serves as a sustainable mechanism to reduce psychological distress during pandemics. It can operationalize the delivery of mental health support in real-time in work settings. Results provide empirical support for social exchange theory through high work engagement to help control psychological distress among nurses. (Ahmed et al., 2020) Other results show that it shows a significant direct and indirect effect of inclusive leadership on the psychological comfort of nurses who carry out nursing care, so as to improve patient safety. (Lee & Dahinten, 2021)

## CONCLUSIONS

Safety protection for patients and staff, and maintaining the normal hospital order during this pandemic can be carried out by developing several good methods of nursing care management using checklists, nursing services by applying patient safety, using infection prevention and control guidelines, and implementing an inclusive leadership style.

## REFERENCES

- A.O.M, C., & C.Y, H. (2004). Psychological impact of the 2003 severe acute respiratory syndrome outbreak on health care workers in a medium size regional general hospital in Singapore. *Med. Oxford*, 53(4). <https://doi.org/10.1093/occmed/kqh027>
- Adams, V., Song, J., Shang, J., Mc Donald, M., Dowding, D., Ojo, M., & Russell, D. (2020). Infection prevention and control practices in the home environment: Examining enablers and barriers to adherence among home health care nurses. *American Journal of Infection Control*, 48(11). <https://doi.org/https://doi.org/10.1016/j.ajic.2020.10.021>
- Ahmed, F., Zhao, F., & Faraz, N. A. (2020). How and When Does Inclusive Leadership Curb Psychological Distress During a Crisis? Evidence From the COVID-19 Outbreak. *PubMed*. <https://doi.org/10.3389/fpsyg.2020.01898>
- Departemen Kesehatan Republik Indonesia. (2008a). *Panduan Nasional Keselamatan Pasien Rumah Sakit (Patient Safety)*, 2 edn. Jakarta: Bhakti Husada.
- Departemen Kesehatan Republik Indonesia. (2008b). *Pedoman Pelaporan Insiden Keselamatan Pasien (IKP) (Patient Safety Incident Report)*, 2 edn. Jakarta: Bhakti Husada.
- Dewi, A., & Semedi, B. P. (2020). *Pencegahan Dan Pengendalian Infeksi Coronavirus Disease Di Ruang Icu*. Retrieved from [https://books.google.co.id/books?hl=en&lr=&id=X1jwDwAAQBAJ&oi=fnd&pg=PP1&dq=ppi+dalam+keselamatan+pasien+covid&ots=y5Kd8IWJrE&sig=IHLwfUBJUeXJI ozi33g8Xi5c0I4&redir\\_esc=y#v=onepage&q&f=false](https://books.google.co.id/books?hl=en&lr=&id=X1jwDwAAQBAJ&oi=fnd&pg=PP1&dq=ppi+dalam+keselamatan+pasien+covid&ots=y5Kd8IWJrE&sig=IHLwfUBJUeXJI ozi33g8Xi5c0I4&redir_esc=y#v=onepage&q&f=false)
- G.M, M., A.M, L., V, C., C, C., K.W.T, T., P.C, S., ... J, W. (2007). Immediate and sustained psychological impact of an emerging infectious disease outbreak on health care workers. *Psychiatry-Revue Canadienne De Psychiatrie*, 52(4). <https://doi.org/10.1177/070674370705200406>

- Harahap, D. R. (2021). Persepsi Masyarakat Terhadap Kualitas Pelayanan Kesehatan pada Masa Pandemi COVID-19 di Kota Binjai. *Jurnal Penelitian Kesehatan Suara Forikes*, 12(2). <https://doi.org/http://dx.doi.org/10.33846/sf12211>
- Huang, J., Liu, X., Wu, Z., Zhang, L., & Yang, X. (2020). Improving staff safety with checklists during novel coronavirus disease (COVID-19) pandemic. <https://doi.org/10.1097/MD.00000000000021548>.
- Isbania, F., Sitompu, P. A., Kusumowardhani, D., Susilo, A., & Wihastuti, R. (2020). *Pedoman Pencegahan dan Pengendalian Coronavirus Disease (COVID-19). Kementerian Kesehatan RI Direktorat Jenderal Pencegahan dan Pengendalian Penyakit (P2P)*.
- Ismaniat, H. (2015). *Keselamatan pasien di rumah sakit*. Yogyakarta: CV Budi Utama.
- J.M, G., & J, Z. (2007). Dual tuning in a supportive context: Joint contributions of positive mood, negative mood, and supervisory behaviors to employee creativity. *Acad. Manag. J*, 50(3). <https://doi.org/10.5465/amj.2007.25525934>.
- Kementrian Kesehatan Republik Indonesia. (2020). *Petunjuk Teknis Alat Pelindung Diri (APD) Dalam Menghadapi Wabah COVID-19 versi April 2020*. Jakarta.
- Lee, S. E., & Dahinten, S. (2021). Psychological Safety as a Mediator of the Relationship Between Inclusive Leadership and Nurse Voice Behaviors and Error Reporting. *Journal Of Nursing Scholarship*, (1). <https://doi.org/https://doi.org/10.1111/jnu.12689>
- Lipsitz, L. A. (2012). Understanding Health Care as a Complex System The Foundation for Unintended Consequences. *JAMA*, 308(3). <https://doi.org/10.1001/jama.2012.7551>
- Lubis, A. (2020). Meningkatkan Keselamatan pasien di Rumah Sakit, terkait dengan masa pandemi COVID-19. *OSFReprint*. <https://doi.org/https://doi.org/10.31219/osf.io/y4nxx>
- Mitchell, B., Cristancho, S., Nyhof, B. B., Lingard, L. A., Mitchell, B., Cristancho, S., ... Lingard, L. A. (2017). Mobilising or standing still? A narrative review of Surgical Safety Checklist knowledge as developed in 25 highly cited papers from 2009 to 2016. *BMJ*, 26(10). <https://doi.org/Mobilising or standing still? A narrative review of Surgical Safety Checklist knowledge as developed in 25 highly cited papers from 2009 to 2016>
- Nisa, K. (2020). “Kebijakan Rumah Sakit dalam Upaya Pencegahan Penyakit Infeksi Bagi Pasien dan Tenaga Kesehatan di Lingkungan Rumah Sakit.” *OSF Preprints*. <https://doi.org/doi:10.31219/osf.io/gwrbb>.
- Nurhayati, & Suwandi, S. (2019). Kepatuhan Perawat dalam Implementasi Surgical Safety Checklist Terhadap Insiden Keselamatan Pasien Ponek di Rumah Sakit Semarang. *Jurnal SMART Keperawatan*, 6(1). <https://doi.org/10.34310/jskp.v6i1.215>
- Pujianto, T. I., Dedi, B., Syaifudin, A., & Nurhayati, S. Peningkatan Mutu Asuhan Keperawatan Berbasis Patient Safety; Perspective Experience Pandemi COVID-19, Sekolah tinggi ilmu kesehatan karya husada semarang (2020).
- Putri, A. F. (2020). *Triage dan Penilaian Awal Pada Masa COVID-19 di Instalasi Gawat Darurat. Tim Gugus Tugas COVID-19*. Jakarta. Retrieved from

<http://www.hipgabi.org/p/pusat-informasi.html>

- Sagita, N. S. (2020, December 31). Update Corona di Indonesia 31 Desember 2020: Tambah 8.074, Total Positif 743.198. *Detikhealt*. Retrieved from <https://health.detik.com/berita-detikhealth/d-5316472/update-corona-di-indonesia-31-desember-2020-tambah-8074-total-positif-743198>
- Sandrawati, J., Supriyanto, S., & Nurul, T. (2013). *Rekomendasi untuk meningkatkan kepatuhan penerapan surgical safety checklist di Kamar Bedah. Buletin Penelitian Sistem Kesehatan*. UNAIR.
- Tadavarthy, S. N., Finnegan, K. A., Bernatowicz, G., Coffin, S. E., Lowe, E., & Lou, M. M. (2020). Developing and implementing an infection prevention and control program for a COVID-19 alternative care site in Philadelphia. *American Nursing Journal*, 9(1). <https://doi.org/https://doi.org/10.1016/j.ajic.2020.07.006>.
- Verdiana, B. M. T. . (2020, December 31). Update COVID-19 Dunia 31 Desember 2020 Tembus 83 Juta, Kasus Tertinggi Asia di India. *Liputan 6*. Retrieved from <https://www.liputan6.com/global/read/4446063/update-covid-19-dunia-31-desember-2020-tembus-83-juta-kasus-tertinggi-asia-di-india>
- Zhao, F., Ahmed, F., & Faraz, N. A. (2020). Caring for the caregiver during COVID-19 outbreak: Does inclusive leadership improve psychological safety and curb psychological distress? A cross-sectional study. *PubMed*. <https://doi.org/10.1016/j.ijnurstu.2020.103725>

