

Analysis of Drug Receiving Procedures in Hospital Pharmacy Services to Ensure Optimal Service Quality

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Drug receiving in hospital pharmacy installations is an initial stage of quality control that plays an important role in ensuring the availability, efficiency, and quality of pharmaceutical services, as it involves administrative and physical verification before medicines are stored and distributed. This study aims to analyze the pattern of drug receiving and identify common challenges in hospital pharmacy practice. This literature review included 10 studies published between 2020 and 2026, predominantly employing descriptive qualitative designs, with data collected through observation, in-depth interviews, checklists, and questionnaires, and compared with hospital pharmaceutical service standards. The results indicate that the drug receiving process generally complies with standard operating procedures, including verification of drug type and quantity, batch number, expiration date, packaging condition, distributor validation, as well as proper documentation for traceability. Some healthcare facilities achieved compliance levels of up to 100%. However, several challenges remain, such as discrepancies in delivered medicines, damaged packaging, short expiration dates, limited human resources, delays from suppliers, and suboptimal information systems. Therefore, improvements in quality control, accuracy, and information system integration are necessary to support optimal and sustainable pharmaceutical services.



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Drug Receiving in the hospital pharmacy department is a crucial stage of pharmaceutical logistics management, serving as the first step in ensuring the quality and safety of pharmaceutical services. This process forms part of the pharmaceutical supply chain, starting from planning to distribution, aiming to ensure the quality, safety, and therapeutic effectiveness for patients (1,2). At this stage, both administrative and physical

verification of received medicines are performed, including the conformity of type, quantity, quality, batch number, expiration date, and packaging condition before the medicines are stored and distributed(3).

Various studies have shown that the process of medicine receipt in hospitals is generally carried out in accordance with standard operating

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procedures and with some facilities achieving a very high level of compliance (4). Observational and qualitative approaches are widely used in evaluating this system because they are able to portray actual field conditions and levels of adherence to pharmaceutical service standards. Nevertheless, findings from various studies indicate that implementation in the field still varies. Several studies have reported various obstacles, such as discrepancies between received items and orders, damaged packaging, expiration dates that are too close, human resource limitations, delays from distributors, and suboptimal integration of information systems. (5–14).

This condition shows that even though standards have been applied, the effectiveness of the medicine receipt process still requires continual evaluation and improvement. This is supported by recent research emphasizing the importance of optimizing hospital drug management systems to improve the quality and efficiency of pharmaceutical services (15)). Based on these considerations, this review aims to analyze patterns of medicine receipt based on various research findings and to identify obstacles frequently encountered in field practice, so that effective recommendations can be formulated to improve drug availability, management efficiency, and the quality of pharmaceutical services in hospitals. In addition, ongoing improvement efforts need to be supported through enhanced human resource capacity, strengthened integrated information systems, and supply chain management optimization to support overall effectiveness and service quality (16)

Based on these considerations, although various studies have been conducted, there have been limited reviews that comprehensively integrate recent findings on drug receiving processes in hospital pharmacy installations. Although some primary studies may overlap with previous reviews, the present study focuses specifically on the drug receiving stage and synthesizes studies published between 2020 and 2026 to identify patterns of medicine receipt, compliance with pharmaceutical

service standards, and recurring operational barriers. Therefore, this study aims to provide an updated and focused synthesis of evidence on drug receiving practices in hospital pharmacy installations and to provide a basis for recommendations to improve the quality, efficiency, and sustainability of pharmaceutical services. (17).

Results and Discussion

Based on a review of 10 journals, the majority of studies indicate that the drug receiving process in hospital pharmacy installations generally complies with established pharmaceutical service standards, particularly in terms of administrative verification, physical inspection, documentation, and conformity between received medicines and purchase orders. Specifically, compliance levels varied across facilities, ranging from partial implementation in resource-limited settings to full compliance (up to 100%) in facilities with adequate staffing and integrated information systems. Obstacles were also found to differ by context: rural and lower-tier hospitals more frequently reported human resource limitations and delayed information system updates, while larger hospitals more often faced challenges related to high delivery volume and documentation backlog. However, several recurring obstacles remain, including discrepancies between received medicines and orders, damaged packaging, short expiration dates, delivery delays, limited human resources, and inadequate information systems. Several studies even reported a very high level of compliance, reaching 100% in drug administration and verification aspects, indicating that the drug receiving system has generally been implemented effectively.

Nevertheless, the findings indicate that the implementation of drug receiving procedures is not yet fully optimal, despite the general compliance with established pharmaceutical service standards. This finding is consistent with previous studies, which similarly emphasized that formal compliance with standard operating procedures does not necessarily reflect optimal operational performance. Unlike earlier reviews that primarily described compliance levels descriptively, the present synthesis suggests

that recurring obstacles—particularly human resource limitations and suboptimal information systems—function as structural barriers rather than isolated incidents, indicating a need for systemic rather than facility-level interventions (4,15).

Several studies reported recurring operational problems, including discrepancies between received medicines and purchase orders or invoices, damaged packaging, short expiration dates, delays in drug delivery, limited human resources, and inadequate information systems. These findings suggest that compliance with standard operating procedures does not necessarily guarantee the effectiveness of the drug receiving process in daily practice. Discrepancies between delivered medicines and supporting documents may indicate weaknesses in the verification process and coordination between pharmacy personnel and suppliers, while short expiration dates and delayed deliveries may reflect limitations in procurement and supply chain management. Similar findings have been reported, particularly regarding discrepancies between delivered items and invoices, short expiration dates, and delays in updating hospital information systems (6). Limited human resources and large-volume deliveries have also been reported to hinder the inspection and verification process (5). Furthermore, inefficiencies in the drug receiving process have been associated with waiting time, transportation delays, and documentation problems (12). Taken together, these findings indicate that improving drug receiving services requires not only adherence to standard operating procedures but also stronger verification mechanisms, better coordination with suppliers, adequate human resources, and integrated information systems. Therefore, continuous evaluation of the drug receiving process is necessary to identify operational gaps and minimize receiving errors that may affect drug availability, inventory management, and the quality and safety of pharmaceutical services.

In terms of strengths, most of the research employs qualitative and observational approaches that are able to provide a real picture of field conditions as well as the level of compliance with pharmaceutical service standards (18). This method allows researchers to identify problems directly and in-depth based on actual conditions at healthcare facilities. However, the drawback is that some studies are still descriptive in nature, so they have not yet been able to analyze causal relationships in depth, in addition to limitations in sample size and research locations that may affect the generalizability of the results.

The implications of these research findings indicate that drug receipt is a crucial stage in ensuring quality and patient safety. Therefore, increased accuracy of staff during the verification process, strengthening of quality control systems, and improvement of human resource competency are needed. In addition, integration of hospital management information systems also needs to be enhanced to support traceability and accuracy of drug data, as well as to improve the overall efficiency of pharmaceutical services (19). These findings further highlight the importance of strengthening quality control, improving staff competency, and optimizing inventory management and information systems to support effective and sustainable hospital pharmacy practice.

Future studies should further investigate the factors influencing the effectiveness of drug receiving processes in hospital pharmacy installations, particularly those related to human resources, supplier coordination, verification procedures, and information system integration. Further research using quantitative approaches and larger sample sizes across multiple hospitals is also recommended to examine the relationship between these factors and the effectiveness of drug receiving processes and to improve the generalizability of the findings.

Table 1. Synthesis of reviewed studies on drug receiving in hospital pharmacy services

Author (Year)	Study Setting	Sample	Study Design	Drug Receiving Indicators	Compliance Level	Main Barriers	Implications
Ulfa Maulidi Arkan, Marian Tonis, Abdul Zaky (2023)	Pharmacy Warehouse, Hospital X, Indonesia	4 informants (Head of Pharmacy Installation, Head of Pharmacy Warehouse, and 2 pharmacy staff)	Qualitative descriptive study using observation, in-depth interviews, and document review	Drug receiving was conducted by licensed pharmacists and pharmacy technicians (TTK). Incoming medicines were checked for physical condition, quantity, expiry date, and invoice conformity before being recorded in SIMRS.	Partially compliant with national pharmaceutical service standards.	Short expiry dates, discrepancies between delivered items and invoices, deliveries outside working hours, distributor payment issues, limited storage space, absence of dedicated expired-drug storage, and delays in SIMRS updates.	Improve inventory planning using combined consumption and epidemiological methods, provide dedicated expired-drug storage, strengthen staff training, improve warehouse infrastructure, and optimize inventory management systems.
Gracewati Rambu Ladu Day, Muntasir, Rina Waty Sirait (2020)	Pharmacy Installation of Waibakul Regional Hospital, Central Sumba Regency, Indonesia	4 key informants (Head of Logistics and Diagnostics Section, Head of Supporting Services, Head of Pharmacy Installation, and Head of Planning and Evaluation Subdivision)	Qualitative descriptive study using in-depth interviews and observation	Medicines were received and inspected by the Receiving Committee (PPHP), Logistics Section, and Pharmacy Installation Head. Verification included quantity, drug type, batch number, expiry date, physical condition, and conformity with purchase orders and invoices before storage.	Generally compliant with the Hospital Pharmaceutical Service Standards (MoH Regulation No. 72/2016), but implementation was not fully effective.	Limited human resources in the pharmacy warehouse, large-volume deliveries, and medicine arrivals outside working hours, resulting in workload challenges during inspection and verification	Additional pharmacy personnel, improved receiving schedules, and strengthened receiving procedures are needed to enhance the efficiency and accuracy of drug receiving activities.
Yoga Dwi Saputra, Fitra Hataya Lisi, Adnanto Wiweko, Kismawati Mulyaningsih (2024)	Department of Pharmacy, Patut Patuh Patju Regional General Hospital, West Lombok, Indonesia.	3 informants (Head of the Pharmacy Department, Warehouse Staff, and Pharmacists working in the Pharmacy Department of Patut Patuh Patju Regional General Hospital)	This study was an observational study employing a qualitative descriptive-analytic method. Data were collected through direct observation using a checklist and through interviews. The data collection process was conducted retrospectively using a cross sectional approach.	The receiving aspect includes compliance with administrative requirements, drug quality inspection, receiving personnel, and regulations governing drug receipt.	Based on the findings of the study conducted at Patut Patuh Patju Regional General Hospital, the drug quality inspection process has generally complied with the standards established by the Indonesian Ministry of Health in 2019, achieving a compliance rate of 100%.	Delayed drug deliveries due to expedition and supplier-related issues, stock limitations at pharmaceutical distributors, e-purchasing procedures, and invoice revision processes	The drug receiving system was implemented according to national standards, ensuring accuracy of documentation, quality verification, and proper handling of received medicines, thereby supporting effective pharmaceutical inventory management.

Author (Year)	Study Setting	Sample	Study Design	Drug Receiving Indicators	Compliance Level	Main Barriers	Implications
Julia Ananda Eka Putri, Yoga Dwi Saputra, Rohadi Muhammad Rosyidi, Raisya Hasina (2025)	Pharmacy Installation of Mataram City Regional General Hospital, Indonesia	Drug receiving records, including purchase orders, invoices, stock cards, receiving logs, as well as interviews with the Head of Pharmacy Installation and Warehouse Manager	Descriptive observational study using a mixed-methods approach, incorporating direct observation, checklist-based assessment, and interviews	Administrative verification, drug quality inspection, receiving personnel qualifications, and compliance with drug receiving procedures and regulations	100% compliance with the 2019 Hospital Pharmaceutical Service Standards	Discrepancies between physical products and supporting documents, mismatched quantities between ordered and received items, and receipt of medicines with shorter expiration periods due to supplier stock	The drug receiving system was fully aligned with national standards, ensuring the accuracy of documentation, verification of drug quality and specifications, and supporting effective and safe pharmaceutical inventory management within the hospital.
Luthfi Himawan, Marchaban, Satibi (2020)	Pharmacy Installation, Gadjah Mada University Hospital, Indonesia	Employees of Gadjah Mada University Hospital involved in drug procurement, receiving, and storage processes, excluding staff who had worked in medication management for less than one month.	Qualitative descriptive study using direct observation, interviews, document review, SOP evaluation, Big Picture Mapping, and Fishbone Diagram analysis	Verification of delivery destination, inspection of received medicines, temperature checking for specific products, and documentation of receipt processes	Based on lean process analysis, the drug receiving process comprised 20.5% value-added activities, 59% necessary but non-value-added activities, and 20.5% non-value-added activities.	Courier errors in identifying delivery destinations, similarity between hospital and pharmacy names, inadequate hospital information systems, waiting time, transportation delays, and documentation inefficiencies	Lean management analysis identified several sources of waste in the receiving process. Process redesign and information system improvements could reduce receiving time by 75.6%, thereby improving efficiency and minimizing the risk of medication shortages.
Hashifah Faizah, Nur Laili Farhiyah, Budi Hartono, Alfani Ghutsa Daud (2026)	Hospital pharmacy installations in Indonesia, focusing on medicine receiving and storage practices through a literature-based review.	Peer-reviewed journal articles, conference proceedings, and other relevant scientific publications discussing medicine receiving and storage systems in hospital pharmacy services.	A systematic literature review using a descriptive qualitative approach.	Administrative verification, physical inspection of medicines, documentation accuracy, batch number and expiry date verification, cold chain control, SOP implementation, environmental monitoring, FIFO and FEFO application, segregation of LASA and high-alert medicines, and inventory recording practices.	The overall implementation of medicine receiving and storage procedures generally follows pharmaceutical service standards; however, several critical components are not consistently applied.	The review identified several factors that hinder the effective implementation of medicine receiving and storage systems in hospital pharmacies. Common challenges include incomplete documentation, inconsistent monitoring of temperature-sensitive products, limited storage facilities, and the irregular application of FIFO and FEFO principles. In	Continuous monitoring, regular staff development programs, stronger adherence to standard operating procedures, improved inventory management systems, and better pharmacy infrastructure are essential to enhance service quality and patient safety.

Author (Year)	Study Setting	Sample	Study Design	Drug Receiving Indicators	Compliance Level	Main Barriers	Implications
						addition, inadequate staff competency, high workload, and the lack of fully integrated inventory management systems may reduce the accuracy and consistency of pharmaceutical operations, potentially affecting medicine quality and patient safety.	
Syahlis Irwandi & Zaim Anshari (2024)	Pharmacy Installation of South Tapanuli Regional Hospital, Indonesia	Pharmaceutical management staff at South Tapanuli Regional Hospital	Descriptive study through observation, interviews, and document review	Receipt of drugs is carried out in accordance with hospital accreditation standards by checking the suitability of the drugs to the order	Most of them comply with pharmaceutical service standards and hospital accreditation regulations	Goods not according to order, late delivery, and arrival of drugs outside working hours	There is a need for improved drug planning and procurement to prevent stock shortages and improvements to the drug receiving and storage system
Fendi Sipayung, Ismail Efendy, Asriwati (2023)	Hospital Pharmacy Installation in Medan City, Indonesia	9 informants (head of hospital, head of pharmacy installation, pharmacist, administrative staff, doctor, procurement officer)	Qualitative research with direct observation, in-depth interviews, and document review	Receipt includes physical inspection of drugs, shipping documents, conformity of quantity and type of drugs, and stock recording	Pharmaceutical inventory management is progressing well but not optimally; the receipt aspect has been implemented according to procedures, but operational constraints remain	Mismatch of goods with delivery documents, limited warehouse operating hours, delays in procurement, and distributor stock shortages	Improved coordination with distributors, optimization of procurement systems, improvement of warehouse facilities, and routine monitoring and evaluation are required
Jarot Hernawan, Prita Swandari, Aglita Janis Rupita, Dewi Wulan Hapsari (2021)	Health services are located on Jl. Godean km 4, 5 Patran, Banyuraden, Gamping, Sleman	Pharmaceutical Supplies in Health Services	Descriptive research with qualitative methods is concurrent in nature.	The admission process carried out at Health Services is the responsibility of all employees who are on duty at that time.	The process of receiving and storing pharmaceutical supplies in Health Services has been carried out in accordance with the SOP (Standard	Human resource constraints hampering the receiving process are due to inaccuracy, lack of awareness of carrying out tasks according to SOPs, and poor communication between employees. In addition to inaccuracy, the	The process of receiving pharmaceutical supplies already has standard operating procedures (SOPs) and is generally carried out according to procedure, including checking the conformity between goods and purchase orders and

Author (Year)	Study Setting	Sample	Study Design	Drug Receiving Indicators	Compliance Level	Main Barriers	Implications
					Operating Procedure) for Receipt and SOP for Storage.	storage process is also hampered by new employees who are unfamiliar with the location of pharmaceutical inventory.	invoices (drug name, quantity, batch number, dosage form, and expiration date), checking the physical condition of the items, verifying the pharmaceutical distributor (PBF), and recording and entering data into the computer system.
Naela Afiya, Yulian Wahyu Permadi, St. Rahmatullah, Wulan Agustin Ningrum (2022)	Drug Logistics At The Pharmacy Installation Of QIM Batang Hospital	33 informants (Head of the hospital pharmacy unit, head of the warehouse at QIM Batang Hospital, and pharmacist at the QIM Batang Hospital pharmacy unit)	Data was collected by means of interviews and questionnaires. In this study, 33 respondents distributed questionnaires.	Recording and reporting of pharmaceutical and medical device receipts is done manually, and the systems for psychotropic drugs and narcotics are daily and monthly.	Comply with national pharmaceutical service standards.	This review identified no factors hindering the implementation of the medication receipt system. This is because the implemented medication receipt system can ensure that medication specifications, type, quality, quantity, and price are met, and that medication receipt documents are properly and correctly stored.	The drug receiving process at the Pharmacy Installation of RS QIM Batang achieved a "very good" category (100%), indicating that checks for conformity in type, quantity, quality, and expiration date have been carried out according to procedure. In addition, receiving documents are well maintained, supporting drug traceability. This process is also supported by staff compliance in verifying the drugs received.

Although one of the studies included in this review has also been discussed in a related review, the present analysis differs in scope by specifically focusing on the drug receiving stage rather than the broader medicine receipt and storage process. This narrower focus allows for a more in-depth synthesis of findings specifically related to administrative and physical verification at the point of drug receipt.

Conclusion

This systematic review concludes that drug receiving processes in hospital pharmacy installations are generally implemented in accordance with established pharmaceutical service standards. However, the implementation is not yet fully optimal due to recurring barriers, including discrepancies between delivered medicines and supporting documents, short expiration dates, delivery delays, limited human resources, inadequate storage capacity, and suboptimal information systems. Therefore, strengthening verification and quality control, improving human resource competency, enhancing coordination with suppliers, and optimizing information systems are necessary to ensure consistent drug receiving practices and support the quality, safety, availability, and efficiency of pharmaceutical services.

Materials and Methods

This study employed a Systematic Literature Review (SLR) method guided by the Preferred Reporting Items for systematic Reviews and Meta-Analyses (PRISMA) 2020 guidelines. The method was used to identify, evaluate, and synthesize research findings related to drug receipt processes in hospital pharmacy installations. Through a systematic approach, the study aimed to provide a comprehensive overview of the implementation of drug receipt procedures and their conformity with pharmaceutical service standards in hospitals.

The literature search was conducted through electronic databases, namely Google Scholar and Garuda (Garba Rujukan Digital). The search strategy utilized combinations of keywords including “drug

receipt”, “hospital pharmacy installation”, “drug logistics management”, and “pharmaceutical services” with Boolean operators (AND/OR). The search was limited to articles published between 2020 and 2026 to ensure the relevance and currency of the reviewed evidence (20)

The inclusion criteria consisted of articles discussing drug receipt processes in hospital pharmacy installations, published between 2020 and 2026, employing qualitative, descriptive, observational, or cross-sectional study designs, and available in full-text form. The exclusion criteria included articles unrelated to the research topic, articles with inaccessible full text, and studies using inappropriate research methods. These criteria were established to ensure that only relevant and scientifically appropriate studies were included in the review process (20)

The study selection process followed the PRISMA 2020 guidelines. A total of 16 articles were identified through database searching, consisting of 10 articles from Google Scholar and 6 articles from Garuda. All identified articles underwent title and abstract screening, followed by full-text eligibility assessment. Six articles were excluded due to irrelevance to the research topic ($n = 2$), unavailable full text ($n = 3$), and inappropriate research methods ($n = 1$). Consequently, 10 articles met the inclusion criteria and were included in the final review and qualitative synthesis (20).

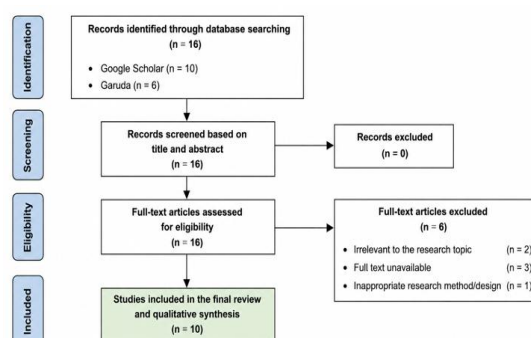


Figure 1. PRISMA 2020 Flow Diagram of Article Selection Process.

A total of 16 articles were identified through database searching from Google Scholar and Garuda. After screening based on title and abstract, full-text eligibility assessment was conducted. Six articles were excluded due to irrelevance to the topic, unavailable full text, or inappropriate research methods. Finally, 10 articles met the inclusion criteria and were included in the review.

Note: n = number of articles.

Figure 1. PRISMA 2020 flow diagram of the study selection process for articles related to drug receipt processes in hospital pharmacy installations.

Data extraction was performed on the selected articles by recording information related to the authors, year of publication, study location, research design, and key findings concerning drug receipt processes in hospital pharmacy installations. The selected articles were critically appraised using the CASP Qualitative Research Checklist to assess their credibility and methodological quality. The appraisal considered the relevance of each study to the research topic, appropriateness of the study design, clarity of the research objectives, data collection methods, ethical considerations, rigor of data analysis, and consistency of the reported findings with the objectives of the review. The collected data were then analyzed descriptively using a comparative approach to identify patterns of implementation, compliance with pharmaceutical service standards, and common obstacles encountered during the drug receipt process. The findings were synthesized and presented in both tabular and narrative forms.

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