

Siaga Alkes: An Innovation For Medical Supply Inventory Control In An Inpatient Ward Of A Private Hospital In Padang

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ABSTRACT

Introduction: Poorly controlled medical supply inventory in inpatient wards may delay nursing interventions and reduce service quality. This case report describes the design and initial implementation of SIAGA ALKES (Medical Supply Surveillance and Control System), a ward-level innovation developed to improve medical supply inventory control. Method: This case report employed situational analysis using the 6M and SWOT frameworks, followed by innovation design and pilot implementation in an internal medicine and surgical inpatient ward at a private hospital in Padang. Preparation and implementation were conducted from 11 to 20 May 2026, and the shift-based monitoring checklist was piloted over 21 shifts. Result and Discussion: SIAGA ALKES was implemented through a list of nine priority medical supplies, spreadsheet-based minimum-maximum stock control cards, shift monitoring checklists, designated stock PICs, urgent-use buffer stock, and periodic evaluation. Of 21 monitored shifts, 18 (85.7%) were fully recorded. Several items were detected as approaching the minimum stock level before a stockout occurred. Conclusion: SIAGA ALKES is a simple, no-cost innovation that uses existing ward resources to improve the regularity of stock monitoring and support early detection of potential shortages.

INTRODUCTION

The availability of medical supplies in inpatient wards is an essential prerequisite for maintaining the quality and continuity of nursing care. Timely access to supplies enables nurses to conduct observations, administer therapy, perform procedures, and respond to patient needs efficiently. Conversely, weak stock control may contribute to delayed care, wasted working time, poor visibility of ward needs, and disruption of service continuity (1,2).

In healthcare services, inventory is not merely an economic asset but also a clinical support component. Inadequate stock control may lead to stockouts, inaccurate records, delayed replenishment, and inefficient nursing workflows (3). From a patient safety perspective, this issue should be viewed as a system problem because it may affect timeliness, continuity of care, and service reliability (4).

An internal medicine and surgical inpatient ward at a private hospital in Padang reported recurring shortages of medical supplies at certain times. The ward has 27 beds and manages cases such as pneumonia, head injury, diabetes mellitus, and hypertension. Although supplies were generally available, actual stock levels were not always accurately reflected because some nurses inconsistently recorded the supplies used. This situation became more critical because the pharmacy depot was located on the first floor, making urgent retrieval of supplies more time-consuming, especially in cito situations.

This case report describes the design and early implementation of SIAGA ALKES (Medical Supply Surveillance and Control System) as a practical ward-level innovation to optimize medical supply inventory control using existing resources.

RESEARCH METHODS

This article was prepared as a case report of a ward-level nursing management innovation. The pilot activity was conducted in an internal medicine and surgical inpatient ward at a private hospital in Padang from 11 to 20 May 2026. The report focused on a quality-improvement process rather than patient-level clinical outcomes, and all information was presented in aggregate without patient identifiers.

The initial assessment used situational analysis with the 6M framework (man, method, material, machine, money, and marketing) and SWOT analysis. Problems identified in the ward were prioritized based on urgency, impact on service, availability of supporting data, and feasibility of intervention at the ward level. The stock control problem obtained the highest priority score (19 of 20), compared with shortage of shift staff (15) and absence of a porter (14).

The innovation was designed as a process improvement rather than a new procurement program. SIAGA ALKES consisted of six components: a priority list of fast-moving supplies and items needed in urgent situations; a spreadsheet-based minimum-maximum stock control card; a shift-based monitoring checklist; designation of a stock PIC for each shift; a buffer stock mechanism for urgent needs; and weekly and monthly summary reports for evaluation. This design was selected because nursing innovation may also take the form of workflow simplification, role clarification, and more effective use of available resources (5).

Implementation outcomes were evaluated descriptively based on completion of the priority list, availability of instruments, assignment of stock PICs, shift checklist completion, identification of supplies approaching minimum stock, availability of urgent-use buffer stock, and staff feedback collected through brief discussions with five ward staff members.

RESULTS

The ward was staffed by 22 nurses using a team-based nursing model and was supported by four computers, three tablets, one mobile phone, the Avicenna electronic documentation system, and standard operating procedures accessible through hospital computers. The 6M analysis showed that the key problem was not the absence of supplies, but weak post-use monitoring and inconsistent recording. In the man element, non-compliance in recording medical supply use was identified, particularly during busy shifts. In the method element, existing procedures had not been consistently translated into daily supervision. In the material and machine elements, stock monitoring depended heavily on electronic systems and available devices, while the location of the pharmacy depot increased the consequences of late detection.

The SWOT analysis identified several strengths, including the availability of computers and tablets, digital documentation, a team-based nursing model, accessible procedures, periodic procedure updates, and head nurse audit mechanisms. Weaknesses included inconsistent recording, high workload during certain shifts, limited tablet availability when multiple activities occurred simultaneously, and dependence on electronic systems. Opportunities included periodic competency assessments, patient satisfaction surveys, and institutional support for service quality improvement. Threats included the distant pharmacy depot, fluctuating patient workload, and potential disruption of electronic systems.

SIAGA ALKES was implemented using nine priority medical supplies: IV catheter no. 22, IV catheter no. 20, 50 cc tip syringe, stomach tube no. 14, stomach tube no. 16, injection plug, alcohol swab, standard three-way connector, and insulin needle. The intervention used Word-based lists and recaps as well as spreadsheet-based stock control cards and shift monitoring checklists. No additional budget was required because all instruments used existing ward devices and storage arrangements.

Table 1 presents the implementation results based on the predefined success indicators.

Table 1. Implementation Results Based on SIAGA ALKES Success Indicators

Indicator	Target	Result	Interpretation
Priority medical supply list	100% available	Nine priority items listed	Achieved; became the basis for monitored items
Instruments available	100% available	Word-based list/recap and spreadsheet-based stock control/checklist prepared	Achieved using existing ward devices
Stock PIC assigned per shift	PIC per shift	Implemented across monitored shifts	Clarified responsibility for stock checking and reporting
Shift monitoring checklist completed	At least 80% of shifts	18 of 21 shifts (85.7%) fully completed	Achieved; three shifts were partially completed during periods of high workload
Items approaching minimum stock detected	Detected before stockout occurred	Several items approached the minimum stock level	IV catheter no. 22, stomach tube no. 16, injection plug, and three-way connector

Indicator	Target	Result	Interpretation
Urgent-use buffer stock established	Available without procuring a new tray	Initially available	Requires periodic adjustment of item types and quantities
Initial evaluation conducted	Recap and feedback available	Conducted on 18-20 May 2026	Feedback was used to refine the format and PIC mechanism

Source: Primary implementation data, 2026

During the 21-shift pilot period (7 days x 3 shifts), 18 shifts (85.7%) were fully recorded, while three shifts were partially completed because of high clinical workload. Of 189 potential stock status entries (21 shifts x 9 items), 165 entries (87.3%) were categorized as safe stock, 10 entries (5.3%) as low stock, and 5 entries (2.6%) as stock available at the pharmacy. Nine entries (4.8%) were incomplete due to high workload.

Staff responses were evaluated through brief discussions with five ward staff members. The results are presented in Table 2.

Table 2. Staff Responses to SIAGA ALKES

Evaluation aspect	Staff response	Follow-up
Clarity of the program objective	5/5 staff members stated that the objective was sufficiently clear	Program was understood as priority supply monitoring
Ease of using the spreadsheet	4/5 considered it easy; 1/5 required further familiarization	The spreadsheet was practical but required consistent data entry
Usefulness of priority supply list	5/5 considered it helpful for focused monitoring	The list clarified items that needed routine monitoring
Main barrier	Busy clinical service and limited familiarity with routine recording	Strengthen the stock PIC role and head nurse supervision
Improvement suggestion	Shorten the format, clarify the shift PIC, and conduct weekly evaluations	Suggestions were used to improve the format and program mechanism

Source: Primary implementation data, 2026

DISCUSSION

The early implementation results indicate that SIAGA ALKES can be implemented as a simple innovation to strengthen ward-level medical supply inventory control. Consistent logistics recording is essential because it supports stock visibility, early detection, and decision-making in health supply chains (7). In this case, the intervention helped the ward move from informal monitoring toward a more structured shift-based stock control mechanism.

From the personnel aspect, staff compliance was a key determinant of program success. Even simple instruments will not function optimally without clear task allocation, staff commitment, and ongoing supervision. Assignment of a stock PIC on each shift clarified responsibility for checking and reporting stock status, which is consistent with the principle of accountability in nursing management (6). The checklist completion rate of 85.7% suggests good feasibility for early implementation, although further familiarization is still needed.

From the method aspect, SIAGA ALKES clarified the stock control workflow, from supply use and recording to final stock checking by the shift PIC, reporting when stock approached the minimum level, and follow-up replenishment. This clarity was important because the main problem was not the absence of procedures, but weak monitoring of daily practice.

From the material aspect, the list of nine priority supplies enabled more focused monitoring. Not all supplies require the same monitoring intensity; fast-moving items and supplies needed for urgent procedures should receive greater attention. This approach is consistent with the concept of buffer stock, which aims to anticipate demand fluctuations or delayed distribution from the depot (8,9). From the equipment aspect, spreadsheet use allowed the program to run without additional cost by using the ward's existing computers, tablets, and mobile phone. Similar digital logistics tools may improve stock visibility and process efficiency in health facilities (3,7). However, dependence on electronic devices also requires a simple manual backup procedure when devices or systems are unavailable.

The main limitations of this case report are the short pilot period and the absence of quantitative baseline data on stockout frequency before implementation. Therefore, the early success of SIAGA ALKES should be interpreted primarily from feasibility indicators, including instrument availability, staff involvement, checklist completion, and early detection of supplies approaching minimum stock. Further studies using quasi-experimental or mixed-methods designs are recommended to evaluate its effects on service quality, nursing efficiency, and stockout incidence more objectively.

CONCLUSIONS AND RECOMMENDATIONS

SIAGA ALKES is a ward-level medical supply inventory control innovation based on simple workflow improvement, role clarification, and use of existing resources. The early implementation showed good feasibility, with 18 of 21 monitored shifts (85.7%) fully recorded. The program helped improve regular stock monitoring and supported early detection of potential medical supply shortages through a priority supply list, spreadsheet-based stock control card, shift monitoring checklist, designated stock PICs, urgent-use buffer stock, and periodic evaluation.

For sustainability, the ward should maintain clear PIC assignment for each shift, integrate stock checking into shift handover routines, provide brief refresher orientation for staff, keep a manual backup form for system interruptions, and review the priority supply list periodically. Future research should use stronger quantitative or mixed-methods designs to assess the impact of SIAGA ALKES on stockout frequency, response time, nursing workload, and service quality indicators.

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