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PEDULI SC : AN INTEGRATED INNOVATION FOR CESAREAN SECTION WOUND RECORDING AND EDUCATING AS A STRENGTHENING EFFORT IN SURGICAL SITE INFECTION PREVENTION AT EKA CANDRARINI GENERAL HOSPITAL

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ABSTRACT

Patients undergoing cesarean section (CS) are at risk of developing wound complications, including infection, which directly affect patient safety, readmission rates, length of hospital stay, treatment costs, and patient's quality of life. This community service project aimed to strengthen healthcare workers' competence in recording, monitoring, and educating patients regarding cesarean section wound care through the PEDULI SC innovation, an integrated system combining a structured Google Form checklist and digital educational media. The program also promoted patient and family engagement in preventing Surgical Site Infection. Activities included counseling, dissemination, interactive discussions, and case simulations involving midwives at Eka Candrarini General Hospital, Surabaya. Evaluation through pre-post tests and satisfaction surveys showed a significant increase in knowledge (mean score 60.4 to 94.4) and positive feedback on usability. All participants successfully completed the form and identified SSI symptoms accurately. It demonstrates that simple, technology-based tools can enhance clinical documentation, empower healthcare staff, and foster patient participation.

Keywords: Cesarean Section, Patient Education, Surgical Site Infection, Wound

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INTRODUCTION

Postoperative wound complications, including *Surgical Site Infection* (SSI), remain a major challenge in maternal healthcare. Patients undergoing cesarean section (CS) are at risk of developing wound complications, including infection, which directly affect patient safety, readmission rates, length of hospital stay, treatment costs, and patient's quality of life. Eka Candrarini General Hospital is a newly established government hospital in Surabaya inaugurated in December 2024, focusing on maternal and child health. Based on data from the Obstetrics and Gynecology Department between January and June 2025, four postoperative CS wound complications were recorded, two of which were SSI cases requiring hospitalization and antibiotic therapy. One of the main barriers to SSI control is the absence of a standardized system for documenting and monitoring postoperative wound complications, as well as the lack of structured and consistent education for patients and their families regarding proper CS wound care.

This community service activity was conducted to enhance the awareness and competence of healthcare personnel at Eka Candrarini General Hospital in documenting, recording, monitoring, and educating cesarean section patients to prevent SSI. This program was designed to strengthen the healthcare workers' capability in monitoring, documenting, and educating patients using an integrated approach—PEDULI SC (Recording, Monitoring, and Education of Cesarean Section Wounds). The project also aimed to promote accountability and strengthen

collaboration between healthcare workers and patients. This program integrates a digital-based clinical recording system with structured patient and family education.

OBJECTIVES

General Purpose

The main purpose of this program is to improve healthcare workers' competence in recording, monitoring, and educating patients regarding postoperative CS wound care to prevent wound complication in Eka Candrarini General Hospital Surabaya.

Special Purpose

The specific purposes of this community service activity are:

1. To develop and implement the PEDULI SC link that integrating and combining wound recording and education.
2. To evaluate the effectiveness of the PEDULI SC program using pre and post-tests.
3. To assess healthcare workers' satisfaction and usability perception of the PEDULI SC form.
4. To promote patient and family involvement in postoperative wound care.

PLAN OF ACTION

Strategy Plan

This innovation was implemented through PEDULI SC (Recording, Monitoring, and Education for Cesarean Section Wounds), which integrates digital form-based clinical documentation of CS wound with structured digital education for patients and their families. The initial phase consisted of the following preparatory steps:

1. Developing a structured Google Form checklist for documenting postoperative cesarean wound conditions, adapted locally from the SSI checklists issued by WHO (2016), Onyekwelu (2017), and CDC (2025) to align with the hospital's condition.
2. Designing a digital educational material (leaflet and instructional video) to provide patients and families with proper guidance on cesarean wound care.
3. Integrating both the Google Form checklist and the digital educational media into a single unified accessible link named PEDULI SC.

Implementation

After the preparation phase, the implementation stage consisted of the following activities:

1. Initial program dissemination: The PEDULI SC link was introduced to representatives of healthcare personnel, including obstetricians and midwives that held on August 5, 2025.
2. Pre and post-test evaluations were conducted before and after the dissemination to assess participants' understanding, accompanied by a questionnaire survey to evaluate satisfaction and usability.
3. Following the initial dissemination, the PEDULI SC link was widely distributed via the hospital's official internal WhatsApp groups—used as the primary coordination channel among healthcare workers—to ensure accessibility and consistent implementation. In addition, direct field visits were conducted to inpatient wards and outpatient clinics to confirm that each healthcare worker could access the form, understood the completion process, and was able to use

it independently in daily clinical practice. This strategy aimed not only to expand the coverage and utilization of the PEDULI SC link but also to build commitment to implementation and ensure the program's sustainability within the targeted service units.

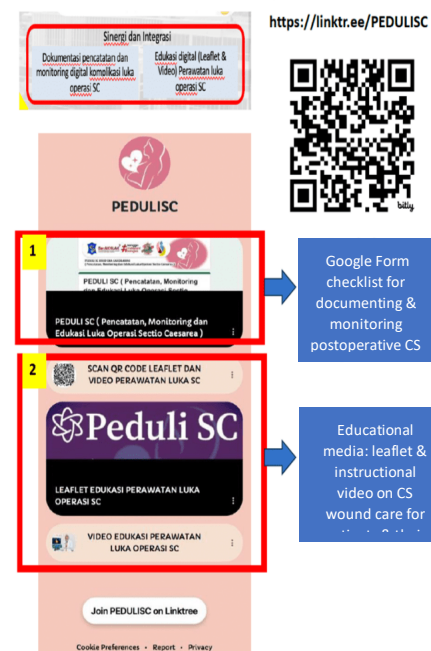


Figure 1. The PEDULI SC link interface, accessible via QR code and shared hyperlinks, was distributed to healthcare personnel.

4. A form-filling simulation based on case studies was conducted two weeks after the dissemination of the PEDULI SC link as a field implementation evaluation. The simulation was carried out randomly among representatives from each unit to assess the extent to which the PEDULI SC form had been distributed, understood, and independently applied in practice.
5. The effectiveness of the program was evaluated through the analysis of pre and post-test results, questionnaire feedback, and case simulation assessments. Data were analyzed using descriptive and comparative methods to determine the

level of healthcare workers' understanding and compliance.

Figure 2. The PEDULI SC - Google Form checklist interface, completed by healthcare personnel, was used for the documentation and monitoring of postoperative CS wound complications.

leaflet can be accessed digitally and downloaded directly by patients and their families (top); The video can be viewed directly through a linked YouTube channel (down).

Setting

This program was carried out at Eka Candrarini General Hospital Surabaya in July – Agustus 2025.

Target

The target participants of this activity were healthcare workers in the obstetrics-gynecology department including maternal emergency unit, maternal ward and outpatient clinic.

RESULTS AND DISCUSSION

The dissemination session of PEDULI SC link on August 5, 2025 was attended by 25 midwives representing various related units: 16 from the maternal emergency unit, two from the obstetrics and gynecology outpatient clinic, and seven from the maternal inpatient ward.

Table 1. Characteristics of Respondents in Dissemination Session of PEDULI SC link

Characteristic (total =25)	Variable	Frequency n (%)
Age (years)	< 25	1 (4)
	25-30	12 (48)
	31-34	7 (28)
	>=35	5 (20)
Work Unit	Maternal emergency	16 (64)
	Outpatient Clinic	2 (8)
	Maternal Inpatient Ward	7 (28)
Last Education	Diploma 3	14 (56)
	Diploma 4	6 (24)
	Undergraduate	5 (20)
Length of working as Midwife	< 5	8 (32)
	5 – 10	12 (48)
	11-15	4 (16)

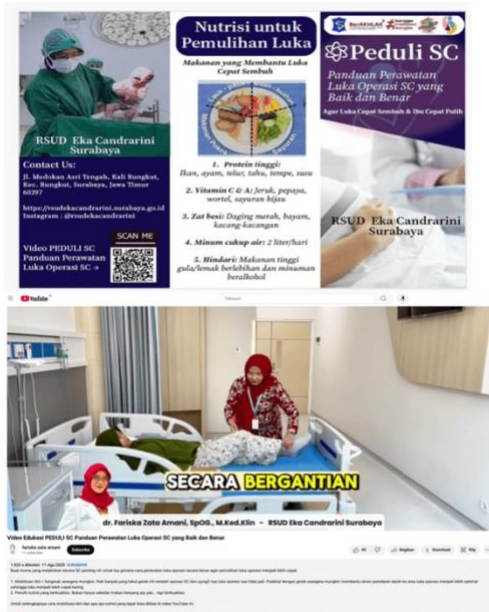


Figure 3. Display of the digital educational media (leaflet and video) embedded in the PEDULI SC link, illustrating proper postoperative wound care procedures. The

(years)	> 15	1 (4)
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Most participants were aged 25–30 years (48%), held a Diploma III (D3) qualification (56%), and had 5–10 years of professional experience as midwives (48%). These participants were selected to join the face-to-face session as part of the initial strategy for program dissemination. The session materials covered the definition and diagnosis of postoperative CS wound complications, including SSI classification, as well as guidelines for identifying and monitoring wounds using the Google Form checklist, and patient education methods as part of SSI prevention efforts. Pre and post-tests were conducted before and after the dissemination of the PEDULI SC link, accompanied by an evaluation questionnaire to assess the outcomes of the socialization activity.

This innovation program (PEDULI SC) significantly improved healthcare workers' understanding and practice of SSI prevention. The pre-test average score was 60.8, which increased to 94.4 post-intervention. This finding demonstrates that the socialization activity effectively improved the clinical literacy of healthcare personnel regarding the early identification of cesarean wound infections and the importance of structured documentation.

Table 2. Results of the Pre and Post-Test for the PEDULI SC Socialization

Score Category	Pre-Test	Post-Test
Excellent (≥ 90)	5 (20%)	20 (80%)
Good (80-89)	1 (4%)	5 (20%)
Fair (70-79)	4 (16%)	0
Poor (< 70)	15 (60%)	0
Total = 25 Respondents	Pre-Test	Post-Test
Average Score	60.8	94.4
Highest Score	90	100
Lowest Score	30	80

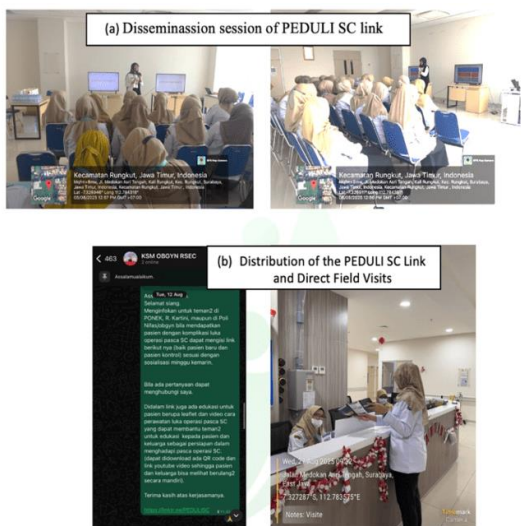


Figure 4. (a) Initial Stage of Program Dissemination of the PEDULI SC Link on August 5, 2025. (b) Distribution of the PEDULI SC Link through internal WhatsApp groups and direct field visits as an effort to ensure equitable access to the link among healthcare personnel

From Table 2, it is evident that the PEDULI SC link had a highly positive impact in improving participants' understanding of CS wound infection documentation and monitoring. The intervention not only enhanced general knowledge but also elevated participants' performance from the *poor* category to *good* and *excellent* levels. These findings are consistent with Putri et al. (2022), who stated that increased knowledge among medical personnel directly improves the quality of postoperative wound care services. According to Gagné's Theory of Instructional Design, improved post-intervention learning outcomes reflect the achievement of learning stages-attention, retention, and transfer to practice (Gagné et al., 2005). In this context, participants demonstrated readiness to transfer

knowledge into clinical practice, particularly in documenting and monitoring cesarean wound conditions to prevent SSI. Furthermore, Miller et al. (2015) reported that form or checklist-based surgical wound monitoring systems can reduce postoperative infection risk by 20–30%. In line with this, the World Health Organization (WHO) recommends a holistic, data-driven, and education-based approach as one of the most cost-effective strategies for infection control in healthcare facilities.

The post-socialization evaluation questionnaire completed by healthcare staff demonstrated a high level of acceptance toward the PEDULI SC link. In the questionnaire, respondents rated eight assessment aspects, each using a five-point Likert scale (strongly disagree, disagree, neutral, agree, strongly agree). The assessed aspects included:

- a) The socialization material was easy to understand.
- b) Individual understanding of the purpose of using the PEDULI SC link.
- c) Individual ability to complete the Google Form according to the provided standards.
- d) Implementation of the PEDULI SC link in the respective work unit.
- e) Perception of the PEDULI SC link's usefulness in assisting staff to monitor CS wound conditions.
- f) Perception of the usefulness of the educational media within the PEDULI SC link for supporting staff in educating patients and families about proper CS wound care.
- g) Perception of the PEDULI SC link's contribution to improving patients' quality of life after cesarean section.
- h) Perception of supervisor or managerial support for the use of the PEDULI SC

link.

Across these eight aspects, the average score was 4.8 (on a 0–5 scale), with 88% (22 respondents) selecting strongly agree for all aspects and the remaining 12% (3 respondents) selecting agree. This indicates that respondents gave a very positive evaluation of the PEDULI SC socialization and its application in the Obstetrics and Gynecology services. The session was well-received and conducted enthusiastically. Most participants expressed readiness to implement the form in their respective units and acknowledged its benefits in supporting wound monitoring, patient education, and overall patient safety. They also emphasized that the form not only simplifies and assists their work but also has a positive impact on patients, particularly by enhancing postoperative quality of life.

The key factors contributing to this success were the simple and logical form design, which aligns with daily clinical workflows, and the integration of supplementary educational media (leaflet and video) that strengthened patient understanding. This finding supports Lestari & Sari (2021), who reported that the use of educational media such as leaflets and videos improves patients' knowledge and enhances healthcare workers' readiness to provide education.

The case simulation was conducted two weeks after the dissemination of the PEDULI SC link. Two approaches were employed in evaluating the form implementation:

1. Simulated (fictitious) cases:

Healthcare workers participating in the simulation were selected randomly, and not necessarily identical to those who attended the initial socialization session. This variation in participants was intentionally

designed as part of a broader dissemination and field validation strategy following the wider distribution of the PEDULI SC link to ensure accessibility beyond the initial training group. This approach aimed to assess the overall acceptance of the program and to ensure that the PEDULI SC link effectively reached relevant healthcare personnel in the field, not limited to those who attended the initial dissemination.

A total of 25 midwives participated (two from the outpatient clinic, fifteen from the maternal inpatient ward, and ten from the maternal emergency unit). The simulated scenario involved a post-cesarean patient presenting with wound redness, discharge, and mild fever. The objective of this simulation was to evaluate healthcare workers' ability and readiness to complete the form accurately according to the provided case scenario.

The analysis revealed that all respondents successfully completed the patient identity section, provided detailed and clear clinical information, reported the wound condition comprehensively following the given example, and included photographic documentation of the surgical wound as well as a treatment follow-up plan.

2. Real case:

A real case report was submitted by one healthcare worker regarding a patient who truly experienced a cesarean wound infection. The form was completed thoroughly, including patient identity, timing of the cesarean procedure, wound condition (redness, tenderness, discharge), subsequent management (referral to the outpatient clinic), and documentation of patient education. This case exemplified the successful implementation of standardized, real-time clinical documentation, which can also serve as a model for reporting to

the Infection Prevention and Control (IPC) Team.

The results of the simulation trials and the initial implementation of the PEDULI SC form indicated that healthcare personnel in the related units were able to understand and complete the form effectively, although minor technical adjustments were still needed. These findings are consistent with the study by Santoso & Mulyadi (2021), which demonstrated that the use of interactive and case-based media significantly enhances healthcare workers' understanding of clinical procedures. In this program, the simulation of PEDULI SC form completion based on real patient cases served as a key strategy in strengthening the clinical comprehension of healthcare providers.

Educational approaches such as lectures, discussions, and simulations have been proven effective in improving healthcare workers' understanding of clinical workflows and service delivery (Gagné et al., 2005). However, the sustainability of such innovations requires structural and peer support, as highlighted by Handayani & Rachmawati (2022), who found that organizational support positively correlates with the successful implementation of service innovations in healthcare facilities.

The outcomes of this community service activity provide significant theoretical and practical implications for improving the quality of maternal health services, particularly in the prevention of Surgical Site Infections (SSI) following cesarean section. From a theoretical perspective, the PEDULI SC innovation demonstrates that an integrative approach combining structured documentation, clinical monitoring, and media-based education (leaflet and video) can

effectively enhance healthcare workers' literacy and clinical capacity in preventing postoperative wound complications. This finding reinforces previous theories emphasizing the importance of clinical empowerment through integrated educational systems within healthcare services. Moreover, this innovation may serve as a reference model for developing new concepts in research related to nursing management and nosocomial infection prevention utilizing simple yet effective technological tools.

reporting of postoperative wound conditions. With its user-friendly interface, inclusion of documentation space for wound care outcomes, and simple yet communicative educational media, healthcare personnel reported increased confidence in providing patient education and greater accountability in clinical documentation. This directly contributes to improved service quality, operational efficiency, and faster detection and management of SSI. The innovation can be replicated and integrated into hospital information management systems (HIMS) in other healthcare facilities, and further developed into a mobile-based application for patients and families.

Furthermore, the active involvement of patients and their families in self-monitoring of postoperative cesarean wounds represents a participatory approach that aligns with the principles of patient safety and patient-centered care, emphasizing comprehensive and continuous healthcare engagement

CONCLUSION

The PEDULI SC innovation (Recording, Monitoring, and Education for Post-Cesarean Section Wound Care), implemented at Eka Candrarini General Hospital Surabaya, has proven to have a significant impact on improving the quality of postoperative care for cesarean section patients. It improved healthcare workers' competence, standardized wound documentation, and strengthened patient education. The program demonstrates that low-cost, technology-based interventions can effectively improve hospital service quality and patient safety. Further integration into the Hospital Information Management System (HIMS) and

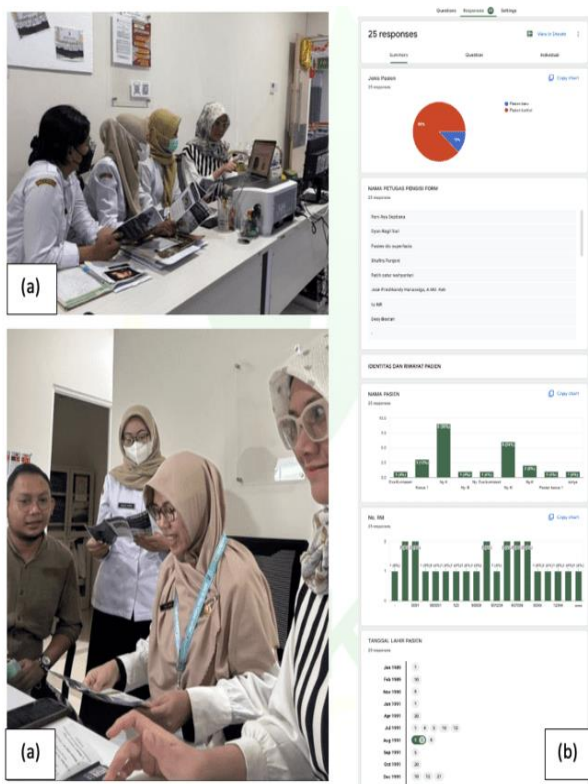


Figure 4. (a) Case simulation conducted by representatives from each unit. (b) Completed PEDULI SC Google Form checklist showing the results of data entry from the case simulation

From a practical standpoint, the findings confirm that the digital PEDULI SC form, completed independently by healthcare workers, is effective in facilitating real-time recording and

adaptation for other types of nosocomial infections are highly recommended.

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