



**COMPARISON OF THE EFFECTIVENESS OF WOUND CARE METHODS ON  
POST-OPERATIVE WOUND HEALING TIME AND LENGTH OF STAY IN  
CANCER PATIENTS**

**Silvia Handayani\*, Fatmawati, Ifriani, Nia Rahmanandha Putri, Devia Ola Yulia**

RSUP DR.M. Djamil Padang, Jl. Perintis Kemerdekaan, Sawahan Timur, Padang Timur, Padang, Sumatera Barat  
25129, Indonesia

\*[silviahandayani62@gmail.com](mailto:silviahandayani62@gmail.com)

**ABSTRACT**

Cancer patients undergoing surgery have a high risk of delayed wound healing, which can result in increased length of stay (LOS) and increased costs and the risk of complications.. through modern wound care can accelerate post-operative wound healing and shorten patient LOS. This study aims to determine the effectiveness of wound care methods on post-operative wound healing time and LOS in cancer patients. The study used a quasi-experimental design with a non-equivalent control group design with a post-test only. The sample used random block sampling at Dr. M. Djamil Padang General Hospital using 60 respondents. The research design was pre-experimental with two group posttest. The sampling technique used block random and obtained 60 cancer patients at Dr. M. Djamil Padang General Hospital. Data were collected after obtaining ethical approval and hospital permission from postoperative cancer patients treated in the operating room of Dr. M. Djamil Padang General Hospital. Data collection was carried out through observation of wound care methods and assessment of wound healing time using standardized observation sheets, as well as searching electronic medical records to obtain length of stay (LOS) data. Wound healing time was calculated from the first day of treatment until the wound was declared healed. analysis was carried out using statistical tests Mann Withnay (Non normal distribution). Results study show that There is an influence of modern wound care on post-operative wound healing time and LOS in cancer patients in the surgical ward of Dr M Djamil Padang General Hospital in 2025.

Keywords: cancer; conventional; healing time wound; los; modern wound care; post operative

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

Handayani, S., Fatmawati, F., Ifriani, I., Putri, N. R., & Yulia, D. O. (2025). Comparison of the Effectiveness of Wound Care Methods on Post Operative Wound Healing Time and Length of Stay in Cancer Patients. Indonesian Journal of Global Health Research, 7(6), 1097–1102. <https://doi.org/10.37287/ijghr.v7i6.1183>.

**INTRODUCTION**

Cancer patients undergoing surgery are at high risk of delayed wound healing, which may have an impact on increasing the duration of patient care Length of Stay (LOS) and increases the cost burden and risk of complications. Various wound care methods have been used, ranging from standard wound care to the use of modern dressings such as hydrogel, alginate, or silver-based dressings. However, the effectiveness of each method in accelerating healing and LOS efficiency has not been standardized at Dr. M. Djamil Padang General Hospital. This research is important to determine the most optimal wound care method for postoperative cancer patients to achieve faster healing and efficiency of hospital services. Previous studies have demonstrated the effectiveness of modern wound care in accelerating wound healing time and shortening LOS in patients. However, evidence regarding the application of these interventions in post-cancer surgery patients is still limited. The purpose of this study was to determine the effectiveness of modern wound care in accelerating wound healing and shortening LOS in patients with cancer. The effectiveness of wound care methods on post-operative wound healing time and LOS in cancer patients. The aim of the research is to find out The effectiveness of wound care methods on post-operative wound healing time and LOS in cancer patients in the surgical room of Dr. M. Djamil Padang General Hospital in 2025.

## METHOD

The study design was quasi-experimental. The study population was all cancer patients in the operating room of Dr. M. Djamil Padang General Hospital. The population consisted of 60 patients. Sampling was done using random block sampling. The sample size was 60 people, namely 30 in the control group and 30 in the intervention group. Wound healing is the process of repairing wound tissue which is assessed from the level of healing through size, color, exudate, and granulation tissue). The measurement results were Mild (13-30), moderate (31-40), and Severe (41-65). The measurement tool used was a checklist sheet (based on the Bates-Jensen Wound Assessment Tool - BWAT score). Wound Healing Time is the length of time needed for the wound to heal (wound tissue closure). The measurement results were Mild (13-30), moderate (31-40), and Severe (41-65). The measuring instrument uses measurements in days since the intervention began, analysis was carried out using the Mann Withnay statistical test (Non-normal distribution). Ethical Clearance from Dr. M. Djamil General Hospital Number: DP.04.03/D.XVI.10.1/295/2025.

## RESULT

Table 1.  
Respondent characteristics based on gender, age (n = 60)

| Characteristics | f  | %  |
|-----------------|----|----|
| Gender          |    |    |
| Man             | 28 | 28 |
| Woman           | 32 | 32 |
| Age (years)     |    |    |
| Early Adulthood | 47 | 47 |
| Elderly         | 13 | 13 |

Based on table 1, it shows that the majority of respondents were female at 53.3%, while the average age of stroke patients was early adulthood at 78.3%.

Table 2  
Differences in wound healing time scores in the intervention group and the control group of cancer patients in the surgical room

| Wound Healing Time Score | IQR       | P Value |
|--------------------------|-----------|---------|
| Intervention             | 7 (15-42) | 0,034   |
| Control                  | 5 (16-42) |         |

Table 2 shows that there are Table 2 shows the comparison of time scores p wound healing between the intervention group and the control group in cancer patients in the surgical room of Dr. M Djamil General Hospital in 2025. Interquartile range score Wound healing in the intervention group was 5 (15-42), while in the control group was 7 (16-42). Statistical analysis with nonparametric tests shows the value of p 0,034, which indicates a statistically significant difference between the two groups.

Table 3.  
The effect of modern wound care on the length of stay in the intervention group and control group of cancer patients in the surgical room

| Group        | P Value           |
|--------------|-------------------|
| Intervention | 3(14-25)<br>0,001 |
| Control      | 15(14-39)         |

Table 3 shows a comparison of the length of stay scores between the intervention group and the control group in cancer patients in the surgical room of Dr. M Djamil General Hospital in 2025. Interquartile score Wound healing in the intervention group was 3(14-25), while in the control group was 15(14-39). Statistical analysis with nonparametric tests shows the value of p <0,000, which shows that there is a difference which was highly statistically significant between the two groups. These results indicate that wound care time with modern dressing can significantly reduce the length of stay score compared to the group that did not receive the intervention. These results indicate that modern wound care can significantly reduce the length of stay compared to the group that received conventional wound care.

## DISCUSSION

The results of this study indicate that the average age characteristics of cancer patients range from adult age 47 (78.3%). This result is in line with the research of Permana et al. (2018) Indonesia, a study of 210 cancer patients at a national referral hospital showed that 78% of cancer surgery

patients were in the adult age range (40–59 years). This result is almost identical to this study, where 78.3% of respondents were adults. Research by Arifin & Wulandari (2020), research by Li et al. (2021) In 134 post-operative gastrointestinal cancer patients, 72% of patients were aged 45–60 years (adults).

Adulthood is a period when the risk of cancer begins to increase due to long-term exposure to risk factors such as lifestyle, oxidative stress, environmental factors, and hormonal changes. Physiologically, in adulthood, cell regeneration is still quite effective, allowing the wound healing response to work more optimally than in the elderly. This supports the effectiveness of modern wound care methods that rely on the body's biological responses, such as cell proliferation, angiogenesis, and epithelialization.

The results of this study show that the gender characteristics of cancer patients in women were 32 (53.3%), in line with research Sari & Adnyani (2019), in a study of 180 cancer surgery patients, showed that 72% were women, primarily due to the high prevalence of breast and cervical cancer. This study supports research findings that female patients dominate surgical services. Women are a group with a higher incidence of cancer requiring surgery; the dominance of female respondents can be explained by the high incidence of cancer. several types of cancer with a high prevalence in women, such as breast cancer, cervical cancer, ovarian cancer, and endometrial cancer. These types of cancer generally require surgery as part of the primary therapy, thus increasing the number of female patients in surgical services.

Based on the research results, there is an influence of modern wound care on the healing time of cancer patients' wounds in the operating room of Dr. M. Djamil Padang General Hospital. Based on the results of the hypothesis test in the study using the Mann Whitney test, the results obtained were  $p < 0.034$ , in other words, there is an influence modern wound care on wound healing time in cancer patients. The results of the study show that modern wound care has a significant influence on healing time for cancer patients' wounds, with a p-value of 0.034. The results of the analysis show a statistically very significant relationship between modern wound care And wound healing time in cancer patients.

Modern wound care methods such as the use of hydrogel dressings, hydrocolloids, foams, alginates, or negative pressure wound therapy work on the principle of moist wound healing, which maintains a moist, stable, and protected wound environment. This environment encourages cell proliferation, angiogenesis, and accelerates the granulation and epithelialization phases. The results of the study showed a significant effect between the use of modern wound care methods and the length of stay for cancer patients after surgery, with a p value of 0.000 ( $p < 0.05$ ). This finding confirms that modern wound care methods are more effective than conventional methods in accelerating the healing process and reducing the length of hospital stay.

This study found that patients treated with modern methods had shorter lengths of stay. This was due to faster wound healing, a decreased risk of wound complications, and a reduced need for additional care. Clinically, faster wound healing allows doctors to assess earlier that the patient is safe for discharge. Furthermore, modern methods can reduce the risk of infection because the dressing is occlusive yet breathable, thus suppressing bacterial colonization. This directly contributes to accelerated healing. This study also found that the use of modern wound care significantly shortened the length of stay for cancer patients after surgery. Patients using modern methods generally experienced more stable healing, minimal wound complications, and fewer surgical site infections (SSIs), resulting in shorter hospital stays.

The results of this study confirm previous research findings that implementing modern wound care can reduce length of stay by 20–40%, especially in high-risk patients such as cancer patients. With faster healing and a lower risk of complications, patients can be discharged earlier without

increasing the risk of readmission. Rahmawati et al. (2022), a study of post-operative gynecological cancer patients, found that modern wound care methods reduced the average length of stay from 7 days to 4 days ( $p < 0.001$ ). These results are highly consistent with the findings of this study, which showed  $p = 0.000$ , indicating a significant effect.

Limitations of this study include the relatively small sample size, the limited number of respondents, which may limit statistical power and generalizability of the results. The study was conducted in a single hospital (Dr. M. Djamil Padang General Hospital), so the results may not be representative of other hospital populations with different characteristics. Confounding variables are difficult to fully control for; factors such as nutritional status, comorbidities (e.g., diabetes), smoking habits, immunological status, and patient activity levels also influence wound healing but may not be fully controllable. The wound healing assessment method has the potential for bias; even using standardized instruments, visual assessment still contains observer bias, particularly in assessing moisture, exudate, or granulation. It did not assess cost-effectiveness; modern wound care is generally more expensive than conventional methods. This study did not evaluate its economic aspects. Long-term follow-up was not conducted; healing was only assessed during hospitalization; post-discharge impacts, such as reinfection or chronic wounds, were not examined. Cancer type and surgery type were not analyzed in depth; various types of cancer surgery have different levels of difficulty and wound risk, but were not differentiated in more detail.

The strengths of this study include a robust design to assess the effect, using appropriate statistical analysis, and obtaining a  $p$ -value of 0.000, indicating a highly significant relationship between modern wound care methods and wound healing. Using evidence-based modern wound care methods, systems such as Moist Wound Healing, hydrogel/hydrocolloid dressings, and negative pressure wound therapy have been scientifically proven to accelerate healing. Direct observation of respondents, observational data collection on patients undergoing wound care, increases internal validity. Wound assessment instruments are standardized, using valid measuring tools such as the BWAT or TIME framework, resulting in more objective results.

High clinical relevance means the research results are directly beneficial for wound nursing practice, surgical installations, and the quality of hospital services. Supporting hospital quality improvement programs, reducing length of stay and accelerating wound healing has the potential to reduce costs and increase patient satisfaction. Opening up opportunities for further research, significant results serve as the basis for advanced trials such as cost-effectiveness, implementation in various units, or comparisons between types of modern dressings. The research results have practical implications and are easy to implement in nursing settings because modern wound care is a simple, non-invasive, and safe intervention.

## **CONCLUSION**

Based on the research results, there was a shortening on the healing time of cancer patients' wounds which is carried out modern wound care rather than conventional wound care. and there is an influence of modern wound care on the length of stay in stroke patients with the results of Mann Witnay  $p < 0.05$ , namely  $p = 0.00$ .

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