

Specialized Nursing Interventions in the Management of Complex Wounds in an Emergency Department

Atuação Especializada da Enfermagem no Manejo de Ferida Complexa em Unidade de Pronto Atendimento
Intervención Especializada del Personal de Enfermería en el Tratamiento de Heridas Complejas en un Servicio de Urgencias

RESUMO

Objetivo: Relatar a experiência da enfermagem especializada no manejo de uma ferida complexa em uma Unidade de Pronto Atendimento, destacando as intervenções realizadas, as limitações assistenciais e as estratégias adotadas para assegurar a continuidade do cuidado. **Método:** Relato de experiência assistencial, descritivo e reflexivo, elaborado a partir da atuação de uma enfermeira especialista durante o acompanhamento de uma pessoa adulta com ferida cavitária associada à osteomielite. A experiência foi sistematizada com base na avaliação clínica, no preparo do leito da ferida, nos registros assistenciais, na articulação multiprofissional e no encaminhamento ao serviço de referência. Foram preservados o anonimato, a privacidade e a confidencialidade da pessoa atendida. **Resultado:** A atuação especializada favoreceu a avaliação sistematizada, o manejo local, o monitoramento clínico, a elaboração de parecer técnico e a articulação da continuidade assistencial. **Conclusão:** A enfermagem especializada ampliou a segurança e a qualidade do cuidado, embora limitações estruturais tenham restringido a resolutividade da unidade.

DESCRIPTORES: Cuidados de enfermagem; Ferimentos e lesões; Cicatrização de feridas; Enfermagem em emergência; Serviços médicos de emergência.

ABSTRACT

Objective: To report on the experience of a specialized nurse in managing a complex wound at an Emergency Care Unit, highlighting the interventions performed, the limitations in care, and the strategies adopted to ensure continuity of care. **Method:** A descriptive and reflective report on clinical experience, based on the work of a specialist nurse during the care of an adult with a cavitary wound associated with osteomyelitis. The experience was systematized based on clinical assessment, wound bed preparation, care records, multidisciplinary coordination, and referral to a referral service. The anonymity, privacy, and confidentiality of the patient were preserved. **Results:** Specialized nursing practice facilitated systematic assessment, local management, clinical monitoring, the preparation of a technical report, and the coordination of continuity of care. **Conclusion:** Specialized nursing enhanced the safety and quality of care, although structural limitations restricted the unit's ability to resolve the case.

DESCRIPTORS: Nursing care; Injuries and wounds; Wound healing; Emergency nursing; Emergency medical services.

RESUMEN

Objetivo: Describir la experiencia de la enfermería especializada en el tratamiento de una herida compleja en un servicio de urgencias, destacando las intervenciones realizadas, las limitaciones asistenciales y las estrategias adoptadas para garantizar la continuidad de la atención. **Método:** Relato de experiencia asistencial, descriptivo y reflexivo, elaborado a partir de la actuación de una enfermera especialista durante el seguimiento de un adulto con una herida cavitaria asociada a osteomielitis. La experiencia se sistematizó basándose en la evaluación clínica, la preparación del lecho de la herida, los registros asistenciales, la coordinación multiprofesional y la derivación al servicio de referencia. Se preservaron el anonimato, la privacidad y la confidencialidad de la persona atendida. **Resultado:** La intervención especializada favoreció la evaluación sistematizada, el tratamiento local, el seguimiento clínico, la elaboración de un dictamen técnico y la coordinación de la continuidad asistencial. **Conclusión:** La enfermería especializada mejoró la seguridad y la calidad de la atención, aunque las limitaciones estructurales restringieron la capacidad de resolución de la unidad.

DESCRIPTORES: Cuidados de enfermería; Heridas y lesiones; Cicatrización de heridas; Enfermería de urgencias; Servicios médicos de urgencias.

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INTRODUCTION

Complex wounds pose a significant challenge to health care services due to the interaction between local and systemic factors

that can compromise tissue repair, prolong treatment, and increase the risk of infection, hospitalization, functional disability, and reduced quality of life. The management of these wounds requires a comprehensive assessment of the patient, identification of the etiology, recognition of factors that interfere with healing, and planning of interventions consistent with clinical needs and available health-care resources.

The contemporary approach to complex wounds is based on systematic assessment and wound bed preparation. This process involves the identification and management of nonviable tissue, infection or inflammation, moisture imbalance, and edge abnormalities, along with an investigation of the patient's clinical, nutritional, vascular, functional, and psychosocial conditions. The application of these principles facilitates the definition of therapeutic goals, monitoring of progress, and decision-making grounded in scientific evidence.

In the field of nursing, care for individuals with skin lesions encompasses health promotion, prevention of complications, clinical assessment, treatment, rehabilitation, health education, and monitoring of progress. A trained nurse plays a strategic role in developing the care plan, recommending interventions, performing procedures consistent with their professional qualifications, maintaining clinical records, and coordinating with the multidisciplinary team and the various components of the health-care network.

In Emergency Care Units, the management of complex wounds presents unique challenges, since these services are primarily organized to address acute conditions, provide clinical stabilization, and determine appropriate care referrals. However, people with wounds that are difficult to heal may seek care at these units

due to infection, pain, wound deterioration, difficulty accessing specialized care, or discontinuity of treatment. In this context, high demand, the unavailability of certain supplies and technologies, and difficulties with patient transfer can limit the effectiveness of care and compromise its continuity.

Despite these limitations, specialized nursing practice can enhance clinical assessment, facilitate early recognition of severity, guide local care, produce consistent records, support technical opinions, and coordinate referrals to referral services. The systematization of this experience is relevant because it demonstrates that the management of in the emergency setting goes beyond simply applying dressings and involves clinical reasoning, care management, and integration across different levels of care.

Given this context, the following question arises: What are the contributions, possibilities, and limitations of specialized nursing practice in the management of a complex wound in an Emergency Care Unit? Thus, the objective of this study was to report on the experience of specialized nursing in the management of a complex wound in an Emergency Care Unit, highlighting the interventions performed, the limitations in care, and the strategies adopted to ensure continuity of care.

METHOD

This is a descriptive and reflective report on clinical experience, based on the work of a nurse specializing in dermatological nursing in the management of a complex wound at an Emergency Care Unit.

The experience took place at a public urgent care and emergency unit located in Cuiabá, Mato Grosso, Brazil, during the month of January 2026. The case involved an adult male

with paraplegia and reduced mobility, admitted with a cavitary wound in the gluteal region associated with osteomyelitis.

The information used to document this case was obtained through serial clinical assessments of the wound, nursing records, imaging test results, a technical report prepared during care, and monitoring of the interventions performed by the multidisciplinary team.

The nursing assessment included anatomical location, dimensions, depth, presence and extent of overhang, bed characteristics, condition of the wound edges and perilesional skin, amount and appearance of exudate, odor, clinical signs of infection, and systemic factors capable of interfering with the healing process. Progress was monitored through serial measurements, clinical records, and photographic documentation.

The study was organized around three areas of analysis: specialized wound assessment and management; structural and therapeutic limitations of the Emergency Care Unit; and strategies employed to promote access to and continuity of care at referral facilities. The reflective analysis was grounded in current scientific literature and professional standards related to nursing practice in the care of individuals with skin lesions.

The anonymity, privacy, and confidentiality of the patient were preserved by omitting the name, initials, medical record number, and other information that could lead to identification. The use of clinical information and photographic records for scientific purposes was authorized through the signing of an Informed Consent Form.

EXPERIENCE REPORT

The case occurred at a public emergency care unit while treating an adult with paraplegia who was wheel-

chair-bound and had a complex cavity wound located in the lower left gluteal region, over the ischial tuberosity. The wound was associated with osteomyelitis and presented clinical characteristics consistent with deep tissue involvement and a local infectious process.

In the initial assessment conducted by the specialist nurse, the wound was seven centimeters deep and had a five-centimeter undercut at the 12, 15, 18, and 21 o'clock positions, according to the clock method. Macerated edges, moderate exudate, a foul odor, and the presence of significant dead space were identified. The perilesional skin was intact but at risk of maceration due to moisture and exudate.

The nursing assessment included anatomical location, depth, extent of overhang, wound bed characteristics, condition of the wound margins and perilesional skin, amount and appearance of exudate, odor, and clinical signs of infection. Factors related to reduced mobility, prolonged pressure on the ischial region, and musculoskeletal impairment were also considered. Previous imaging studies demonstrated findings consistent with active osteomyelitis in the left ischial region and involvement of the adjacent soft tissues. Magnetic resonance imaging (MRI) revealed cutaneous and subcutaneous ulceration, bone marrow edema, erosion of the bone surface, and extension of the inflammatory process into deep tissues. Triphasic bone scintigraphy confirmed the presence of an active bone infection.

Based on the clinical findings, nursing interventions were implemented to prepare the wound bed and control local factors that could hinder healing. Therapeutic cleansing was performed using a solution containing polyhexamethylene biguanide and ethylenediaminetetraacetic acid. Conservative instrumental debride-

ment was also performed, along with filling the cavity with a gel containing an antimicrobial agent, the use of a non-adherent dressing impregnated with silver, and protection of the perilesional skin.

Assessments were conducted serially, monitoring wound depth, undermining, exudate, odor, wound bed conditions, and the condition of the adjacent skin. The patient and their caregiver received guidance on wound care, dressing maintenance, the need for pressure relief, repositioning, and recognizing signs of worsening.

Despite local interventions and continuous follow-up, the clinical response remained limited due to the depth of the lesion, the presence of dead space, and associated osteomyelitis. The patient's stay in an Emergency Care Unit also represented a limitation in care, as the facility lacked specialized infrastructure and specific technologies for the definitive treatment of deep wounds involving bone involvement.

Given this scenario, the specialist nurse prepared a technical report based on clinical findings, imaging results, and the wound's progression. The document recommended a specialized evaluation for the possible use of negative pressure therapy and hyperbaric oxygen therapy as adjunctive interventions to the multidisciplinary treatment.

Negative pressure therapy was considered due to the presence of dead space, undermining, wound depth, and the need to control exudate and prepare the wound bed. Hyperbaric oxygen therapy was requested for specialized evaluation in light of osteomyelitis confirmed by imaging studies and the need for a complementary approach to controlling the infectious process and promoting tissue repair.

The unavailability of these therapies at the facility required coordi-

nation among the nursing staff, the multidisciplinary team, healthcare management, case management, and referral services. Given the difficulties in accessing the recommended resources, administrative and legal mechanisms were employed to ensure the continuity of specialized treatment.

After the therapies were authorized and a bed became available, the patient was transferred to a tertiary referral facility, where specialized care was initiated. The nursing team's involvement contributed to identifying the complexity of the wound, systematizing the clinical findings, preparing the technical justification, and coordinating among the different points in the healthcare network.

FIGURE 1 – Sequence of photos illustrating the management process



DISCUSSION

This experience demonstrated that the management of complex wounds in emergency departments requires a comprehensive clinical approach that goes beyond topical treatment of the

lesion. The presence of deep cavities, undermining, exudate, odor, and bone involvement indicated an interaction between local and systemic factors capable of hindering tissue repair. In this context, a comprehensive assessment of the patient and the wound

is a fundamental step for identifying factors that impede healing, recognizing clinical severity, and defining therapeutic goals compatible with the patient's needs and the department's care capacity.

Preparation of the wound bed

guided the nursing interventions carried out during follow-up. This approach involves assessment of non-viable tissue, control of infection or inflammation, moisture balance, and analysis of the wound edges, combined with an investigation of the etiology, comorbidities, and functional status of the patient. Debridement, exudate management, protection of the perilesional skin, and reduction of the microbial load are important measures for promoting local control and enabling a more accurate assessment of the extent of the lesion.

In the reported case, the enlargement of the skin opening following conservative instrumental debridement did not, on its own, result in clinical worsening. The intervention allowed for better access to the cavity, visualization of the wound bed, and assessment of the extent of the dead space. However, debridement must be part of a more comprehensive care plan, combined with pressure relief, repositioning, moisture management, infection monitoring, and multidisciplinary evaluation. Paraplegia, wheelchair dependence, and prolonged pressure on the ischial region constituted additional risk factors for the persistence and worsening of the lesion.

The confirmation of osteomyelitis through imaging studies increased the complexity of the case and made it clear that local treatment alone would not be sufficient. The management of bone involvement requires a multidisciplinary approach, which may include systemic antibiotic therapy, microbiological testing, surgical evaluation, and control of factors related to the persistence of the infection. In this scenario, the role of nursing was not limited to dressing changes but included assessing the severity of the condition, clinical monitoring, documentation, communication with the team, and referral to a service with

greater capacity to resolve the issue.

Negative pressure therapy was considered given the depth of the wound, the undermining, the presence of dead space, and the difficulty in controlling exudate with the available resources. This technology can help remove excess exudate, reduce dead space, stimulate granulation tissue formation, and prepare the wound bed for subsequent interventions. However, it should be indicated only after careful evaluation and as part of an integrated approach; it should not be considered a standalone treatment for osteomyelitis.

Hyperbaric oxygen therapy was requested as an adjunctive intervention in light of the identified bone involvement. Its use may promote tissue oxygenation and support mechanisms related to infection control and tissue repair. However, this therapy should complement, not replace, the clinical and surgical treatment indicated for osteomyelitis. For this reason, its indication requires specialized evaluation and consideration of clinical conditions, potential benefits, and therapeutic limitations.

Another significant finding was the prolonged stay of a patient with a deep wound and osteomyelitis in an Emergency Care Unit. These services are primarily intended for initial care, stabilization of acute conditions, and referral within the healthcare system. Thus, the absence of advanced technologies and specialties geared toward long-term treatment does not necessarily represent a failure in care, but rather highlights a mismatch between the complexity of the patient's condition and the facility's capacity. Delays in transfer, however, can lead to clinical deterioration, prolong the length of stay, and increase the burden on the service.

In this context, the preparation of the technical report served as an important tool for care management. The

systematization of clinical findings, test results, interventions performed, and therapeutic needs supported communication with management, regulatory bodies, and the referral service. Well-documented records also promote patient safety, continuity of care, and the rationale behind decisions made by the multidisciplinary team.

The work carried out is supported by current professional regulations, which recognize the competencies of nurses in the assessment, planning, treatment, monitoring, and documentation of care for people with skin lesions, while respecting the limits of professional qualifications and competence.

The use of administrative and legal mechanisms to facilitate access to therapies and patient transfers has highlighted the need to ensure continuity of care. However, legal action should be viewed as an exceptional measure in the face of access difficulties, rather than as a routine strategy for organizing the healthcare network. This experience reinforces the need for institutional protocols, referral and counter-referral pathways, and effective communication among emergency services, specialized care, and the hospital network.

As a contribution to clinical practice, this report highlights that the presence of specialized nursing staff can facilitate early recognition of complexity, the selection of appropriate local interventions, the production of consistent clinical documentation, and the coordination of continuity of care. It also demonstrates that effective outcomes do not depend exclusively on professional competence, but on the availability of supplies, technologies, multidisciplinary support, and integration across different levels of care.

Among the limitations of this study are the fact that follow-up occurred in

a single care setting, the lack of comparison with other therapeutic strategies, and the unavailability of objective measures of the final healing outcome after transfer. Therefore, it is not possible to attribute the resolution of the infection or healing to the interventions performed at the Emergency Care Unit. Future studies may investigate the impact of specialized nursing protocols on transfer time, complications, continuity of care, length of stay in emergency services, and healthcare costs.

CONCLUSION

This experience demonstrated that specialized nursing care in the management of a complex wound in an Emergency Department facilitated

systematic clinical assessment, recognition of severity, determination of local interventions, the production of accurate records, and the coordination of continuity of care.

Follow-up revealed that cavitary wounds associated with osteomyelitis may exceed the capacity of emergency departments to resolve them, requiring a multidisciplinary approach, access to specialized technologies, and timely referral to referral centers. In this context, the preparation of a technical report and communication with management, regulatory bodies, and other professionals contributed to expanding therapeutic options.

It is concluded that nursing care for complex wounds is not limited to dressing changes, as it involves clinical reasoning, decision-making, pa-

tient and caregiver education, care management, and advocating for continuity of treatment. However, structural limitations, a lack of resources, and difficulties in integrating the healthcare network can compromise treatment outcomes and prolong the patient's stay in services not intended for the definitive treatment of these conditions.

This experience underscores the need for institutional protocols, referral pathways, professional training, and the strengthening of the care network for people with complex wounds. Future studies could evaluate clinical outcomes, transfer times, healthcare costs, and the impact of specialized nursing practice on the safety and continuity of care.

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