

# WOUND CENTRE DESCRIPTION

Draft version 1

## 1. DEFINITION OF A CHRONIC WOUND

Chronic wounds can be defined as skin lesions with little or no tendency to heal while the underlying cause of these wounds persists.

A wound only heals when the appropriate cellular and molecular mechanisms act to promote the healing process. In chronic wounds the healing process is partially or completely altered, because these wounds do not follow normal molecular and cellular tissue repair processes, being characterised by a prolongation of the inflammatory phase, increased production of metalloproteases, degradation of the extracellular matrix, delayed cellular migration and formation of connective tissue (Woo 2007, Falanga 2004). Thus, if the wounds are allowed to develop without proper care, the likelihood of healing is very small.

### 1.2. Classification

There are different types of skin ulcers, with different causative agents. Table 1 shows the different possible lesions and their main causes.

**Table 1: Main types of skin lesions and their causes**

Name	Causes
Pressure ulcer	Persistent ischemia caused by the forces of pressure, friction or shear, on their own or in combination.
Wet ulcer	Persistent wetness causing skin erythema, maceration and excoriation, which may be confused with the former.
Venous ulcer	Inadequate venous return causing venous failure resulting in venous hypertension and finally ulcer formation.
Arterial ulcer	Obstruction of arterial flow normally caused by arteriosclerosis or embolism
Diabetic foot ulcer	Neuropathic origin, causing reduced skin sensitivity and leading to ulceration Angiopathic origin, causing reduced blood flow to the foot Mixed origin (neuropathic and angiopathic) causing both, reduced skin sensitivity and decreased blood flow to the foot.
Neoplastic ulcer	Different types of tumors: melanomas, carcinomas or sarcomas may end up affecting the skin and produce skin lesions, which may be primary or metastatic lesions. Also, side-effects of exeresis of the tumor or the result of applied treatment.
Others	Other types of diseases may cause skin lesions such as chronic kidney failure, which may

	cause calciphylaxis, autoimmune diseases (Wegener, Crohn, Churg-Strauss, etc.), infectious diseases (amoebic dysentery, dracunculiasis, leishmania, Buruli's ulcer, tropical ulcer, etc.), epidermolysis bullosa.
--	---

Reference: Soldevilla Agreda, J.J; García Fernández, F.P.: Verdú Soriano, J. *Úlceras cutáneas*. Update in *Medicina de Familia*, 2008;4(7):370-381

## 2. THE EXTENT OF THE PROBLEM

For many years, chronic wounds have not been considered a sufficiently important health problem. This has led to a lacking focus on establishment of the most efficient treatment methods and care of the patients.

Given the obvious differences between the different types of skin ulcers, pressure ulcers and lower-limb ulcers (comprising mainly venous, arterial and neuropathic ulcers), they all represent a severe problem for individuals, society and the Health Systems throughout Europe.

### On the individual level:

- Effect on quality of life.
- Impairment of autonomy and self-esteem.
- High risk of direct and indirect complications in health status.
- Potential disabling leading to dependency and institutionalisation.
- Increased mortality

(Hurd, 2013)

### For the society:

- Inability to work
- Violation of citizens' rights to patient safety by permitting certain cases to occur (despite knowing how most of these situations could be avoided) or persist unnecessarily due to inadequate care. This is especially relevant for pressure ulcers which are avoidable in most cases, but also for other types of chronic wounds which remain unhealed longer than necessary due to inadequate treatment.

(WHO Europe. A brief synopsis on patient safety, 2010)

### For the Health Care System:

- High cost of care (human and material resources, care facilities, hospitalisation and intervention, rehabilitation, etc.)
- Possible public health problems deriving from the spread of multi-resistant germs.
- Legal Implications for institutions and professionals due to inadequate or non-existent prevention and treatment.

(Posnett, 2009)

### 3. OBJECTIVES: WHY ESTABLISH AN INTERDISCIPLINARY WOUND CENTRE?

- Provide comprehensive care to people with chronic wounds and their families, responding to their individual needs.
- Secure proper diagnostic examination of chronic wound patients.
- Secure best practice treatment and use of the best available treatment methods and products, thereby avoiding unnecessary slow healing rates or amputations (Diabetic foot).
- Develop preventional programmes for hospital and home care settings.
- Act as a benchmark team, providing support and guidance in the field of chronic wounds for primary care teams, inpatient units, social health care and residential centres, associations and users, with the ultimate aim of standardising the criteria and reducing clinical and diagnostic variability.
- Provide modern training facilities and develop a comprehensive plan for continued education and training of clinical staff.
- Provide a basis for research into the prevalence, epidemiology, pathology, diagnosis, prevention, management and cost of wounds of all aetiologies (development of protocols and clinical trials).
- Rationalise health care spendings on staff and materials.

### 4. TARGET POPULATION

The wound centre must be open for chronic wound patients referred from hospitals, nursing homes, home care or a GP, and for any patient, caregiver or clinical staff member needing advice on prevention, diagnosis and treatment of chronic wounds.

The centre may be contacted for the following reasons:

- Impaired skin integrity. Professionals may seek alternative consultation due to:
  - Need for diagnostic confirmation;
  - Torpid evolution;
  - Inability to perform the procedure properly at home;
  - Suspected infection or critical colonisation;
  - Doubts regarding which therapeutic regime to follow;
  - Need for partial or complete sharp debridement of the wound;
  - Any other special situation requiring advanced practice or procedure.
- Open surgical wounds requiring closure by secondary intention.
- Pressure ulcers
- Venous ulcers
- Arterial ulcers

- Neuropathic ulcers (diabetic foot)
- Other low-prevalence chronic ulcers (calciphylaxis, epidermolysis bullosa, neoplastic lesions, etc.)
- Chronic surgical wounds
- Burns with chronic evolution

## 5. SETTING AND STRUCTURE OF THE WOUND CENTRE

In overall terms, consideration about setting and structure must be given to the legislation of the country/community with regards to authorisation, installation and operation of health facilities.

Benefits can be achieved by establishing the wound centre as an independent department within a hospital setting, or close to a hospital. This may allow the centre to take advantage of the hospital's resources to effectively treat more complex patients and save costs by sharing part time staff members and equipment with other hospital departments (Attinger 2008, Sholar 2007, Gottrup 2001 ).

If the centre is established within a hospital setting, it should include outpatient as well as inpatient services:

- With regards to inpatient services, patients referred to hospital wards receive diagnosis, treatment and follow up from wound centre staff and centre staff is responsible for implementing preventive procedures (may be different teams for outpatient clinic and inpatient services) (Attinger 2008, Sholar 2007). The centre may also include an inpatient ward (Gottrup 2001).
- With regards to outpatient services, these may include a close collaboration with nursing homes and home care units in the area. Consultancy may be established via a telemedicine system (Gottrup 2001), visits to nursing homes by members of the centre staff and educational activities arranged for the home care and nursing home staff.

## 6. CENTRE EQUIPMENT:

### Physical facilities

The physical structure of the centre should include the following:

- Reception/welcoming area
- Examination rooms, of adequate surface size (at least 25 squared meters), should include the following basic equipment:
  - Appropriate ventilation system
  - Table, chairs, hydraulic stretcher and sink
  - Electrically powered podiatric chairs
  - Lamp, mirror and magnifying glass
  - Ceiling-mounted surgical lighting
  - Wood Lamp

- Leg bathing/cleaning trays

Should include multiple examination rooms to secure patient flow, as each ptt in average take more than 45 minutes to treat incl. initial intake, physician/nurse practitioner visit, possible procedure, dressing changes and nurse-patient teaching and instruction). (Ref. Attinger et al, 2008)

- Ambulant surgical facility
- Duplex sonography
- Vascular ultrasound
- Lab for basic blood analyses
- Physical therapy possibilities
- Low pressure units
- Perdorthotic labs
- Optional: Hyperbaric chambers: HBO therapy (Hyperbaric oxygen therapy): 10-40 treatments for each ptt. Effective in 10-15 % of all wound patients.
- Remote care-consultation area
- Multi-purpose room (health education, meetings, etc.)
- Storage area with refrigerator
- WC (private or shared)
- Easy access for wheelchairs

#### **Treatment related materials/general centre equipment**

- Evidence based protocols
- Complete neuropathic exploration KIT (Monofilament, graduated Rider-Seiffer tuning fork, double -ended cylinder, etc.)
- Sphygmomanometer (various sizes to allow measurement of ABPI and toe/brachial index)
- Stethoscope
- Arterial Doppler devices (only portable if the centre cooperates with a Vascular lab, where duplex is available)
- Sterile equipment for clinic procedures (e.g. debridement, wound biopsy and/or simple procedures)
- Dressings/Curing material
- Surgical instruments
- Hydrosurgical debridement system
- Multilayer compression systems
- Single chamber and multi chamber pneumatic compression system for oedema treatment
- Portable sub-bandage pressure monitoring device

- Advanced curing systems (vacuum therapy, etc.)
- Discharge systems
- IT equipment:
  - Appropriate computer equipment connected to the Internet (internal and external) with webcam and microphone
  - Printer
  - Fixed telephone line with outside connections
  - Corporate mobile telephone
  - Digital camera: Digital photography of every wound should be standard for each visit.
  - Mobile tablet PC
  - Medical record/telemedicine system to access or enter patient data, follow the patients history, lab results, imaging and all communications.

## 7. STRUCTURE FOR REFERRALS AND VISITS

Depending on the characteristics of each unit, the centres must establish referral and care circuits to meet the demands of both professionals and patients. This must cover at least the following:

- Internal referral
- External referral
- First visit
- Successive visits

For each patient, a treatment plan must be developed, including diagnostics and treatment plan with discription of the needed products.

Further details of the referral structure must be developed for the specific structure of each center.

## 8. USE OF TELEMEDICINE

At present, telemedicine systems are used and tested for wound management patients in several countries.

The wound centres should have an established collaboration with all relevant treatment settings throughout the country/region/community (depending on size of country and health care system structure). This may be achieved via establishment of telemedicin systems.

Telemedicine systems will most often be used for exchange of information on diagnosis and treatment between professionals in the wound centre and professionals/care givers in local treatment settings/home care.

However, it is important that professionals as well as patients can access the system, thereby ensuring that the patient is fully informed about the course of treatment.

Using telemedicine within wound care has shown to be beneficial for the following reasons:

- Patients are often old and fragile, thus difficult to move to a wound centre or hospital.
- Patients living far away from the hospital may receive better care when local clinical staff or other care givers can upload photos and questions and receive proper instructions from specialists via the telemedicine system.
- Cost-effectiveness: Collaboration with nursing home and home care staff via telemedicine system may reduce the number of hospital admissions, transportation of patients to wound centres/clinics,
- Education: Telemedical consultations with wound specialists may support continuous education of clinical staff and care givers in nursing homes and home care.
- Data collection: A common system used by all professionals involved in wound care may support general data collection on all wound care patients in a specific country (or internationally, if systems/dataset are integrated)

In more complex cases, the patient should always receive direct treatment in the wound clinic.

## 9. CLINICAL STAFF:

The team effect on chronic wound care is supported by an increasing amount of evidence (*EWMA doc, managing wounds as a team*), describing positive effects from care delivered by teams in dedicated wound centres. The outcome measures for all wound types are generally related to wound healing and amputation rates with some additional qualitative, quantitative and patient centred endpoints.

As described in (*EWMA doc, managing wounds as a team*), a 'one model fits all' approach to building a team for the provision of wound care is unrealistic. Available resources, access to relevant expertise, remuneration provisions and patient populations will always be context specific. Inclusion of key elements within wound care services will, however, foster collaborations between different health care professionals and keep the needs of the patient in the forefront (*EWMA doc, managing wounds as a team*). Essential to the successful provision of wound care is a model that begins with the needs of the patient and involves the relevant professionals in each step of the treatment process.

However, to provide an indication of relevant resources, a comprehensive list of staff members, relevant for meeting the needs of the majority of chronic wounds patients, is given below. These staff members may be available within the wound centre or related units (within a hospital setting or collaboration partners), on full time, part time staff or consultancy basis:

- Director/coordinator/supervisor: Must have advanced training in chronic wound management (Relevant background will vary according to types of education available within Europe) and will be responsible for coordinating patients, making referrals to specialists etc.
  - The director/coordinator/supervisor must have the following qualifications:
    - MD with specialisation in wound care, or extensive experience from working with wound care.
    - Must be able to apply evidence based wound care, involve the needed expertise and coordinate wound healing treatments in the everyday setting of the wound care centre.
- Medical staff: Specialist in internal medicine/endocrinology, dermato-venerology, orthopaedic surgery, vascular surgery, plastic and reconstructive surgery, general surgery and traumatology

- Nursing staff: Nurse specialised in wound management, ostomy care or tissue viability (Types of specialisation vary within Europe), and assistant nurse who may have a general nurse background
- Ostomy and wound nurse, nurse specialised in wound management ostomy care an tissue viability.
- Podiatrists: foot care/surgery: The Podiatrist title/education is not used in all countries, and is furthermore used in different ways in difference countries:
  - US: Doctors of Podiatric Medicine (DPM) are physicians and surgeons who practice on the lower extremities, primarily on feet and ankles.
  - UK: Podiatric Surgery: Similar to US, but differences in educational background. Surgeons who practice on the lower extremities, primarily on feet and ankles.
  - Other countries in Europe:
    - E.g. Italy: specialists in the diagnosis and treatment of foot pathology but not through surgical means.
    - In many countries the title/type of speciality is not used. The area is covered by other specialities, typically orthopaedic surgeons.
- Supporting staff (may be contacted on need basis, but should be available for consultancy): Pain Unit, Microbiologists, rehabilitation workers, nutrition experts, social workers.
- Administration staff

Weekly meetings to discuss clinical problems are important: e.g. preoperative planning conference, complications conference, problem case conference, multidisciplinary conference or teaching conference.

Members of the team may be employed in existing departments, if this simplifies the establishment of the centre.

**Table 2: Chronic wound healing centre's specialised multidisciplinary team**

<b>Surgical specialty</b>	<b>Focus</b>
Vascular surgeon	Arterial revascularization (angiographic and bypass techniques) and venous interventions
Podiatrist and podiatry surgeon (US and UK)	Diabetic foot ulcer management and surgical correction of foot and ankle
Orthopedic surgeon	Foot and ankle surgery
Plastic surgeon	Wound coverage techniques
<b>Medical specialty</b>	
Dermato-venerologist	Skin and Healing management in all kind of wounds
Endocrinologist	Aggressive management of glucose levels, diabetic foot
Angiologist	Vasculopathic ulcers
Hematologist	Coagulopathic ulcers
Infectious disease specialist	Systemic infections
Psychiatrist	Behavior modification and dealing with grief from loss of body part; address ulcers with psychological etiology

Optional: Hyperbarist	Treating wounds with hyperbaric oxygen
<b>Rehabilitation</b>	
Physical therapist	Wound treatment and rehabilitation
Pedorthist	Orthotics, molded shoes and AFO's to prevent/eliminate pressure
Prosthetist	Prosthetics
Amputee support group	Support group for amputees
<b>Nursing</b>	
Nurse practitioners	Pre- and perioperative care, wound care, discharge planning and patient teaching
Wound nurses	Wound care and patient teaching
Medical assistants	Casting and application of dressings
<b>Director</b>	
Any specialty	Interest in wound care; team builder with specialists, hospital and community

Reference: Attinger et al., 2008

## 10. QUALITY INDICATORS

Quality indicators / additional lists of competencies are provided by two national wound organisations, which have contributed substantially to the development of this common description for EWMA.

- Documento no. 10, Unidades Multidisciplinares de Gneapp: Heridas Crónicas: clínicas de Heridas, Noviembre de 2012 [GNEAUPP Position Papers. Document No. 10: Multidisciplinary chronic wound units: clinical wounds, November 2012]
- Indicatorenset Wond Expertise Centra Nederland, Terneuzen, V&VN Wondconsulenten, 1 september 2012 [Indicators – Wound Expertise Centre, The Netherlands]

These may in time be used as a basis for developing a certification programme for use by EWMA and/or the Cooperating Organisations of EWMA.

### *Wound patient's bill of rights in the chronic wound programme*

- You have the right to participate in the care of your wounds if you are able and willing.
- You have the right to have your wound assessed and monitored by trained professional healthcare personnel when your wounds are being treated.
- You have the right to receive clear and complete answers to your questions about treatment.
- You have the right to know what wound treatment options are available to you.
- You have the right to know the benefits, risks and side-effects of your wound care treatments.
- You have the right to participate in the development of your treatment plan with your wound care team.

- You have the right to receive timely and cost effective wound treatment.
- You have the right to have your wound treated appropriately with safe and effective products with the best available scientific evidence.
- You have the right to have your pain adequately controlled.
- You have the right to seek other opinions about your wound treatment plan if you so desire and consult a specialist as necessary.
- You have the right to consult skilled healthcare professionals for advice about diet, exercise, therapy or products used in your treatment.

Reference: The Association for the Advancement of Wound Care (AAWC), [http://aawconline.org/wp-content/uploads/2011/04/BillofRights07\\_06.pdf](http://aawconline.org/wp-content/uploads/2011/04/BillofRights07_06.pdf)

## 11. LITERATURE

1. Woo K, Ayello EA, Sibbald RG. The edge effect: current therapeutic options to advance the wound edge. *Adv Skin Wound Care* 2007; 20(2):99-117; quiz 118-9.
2. Falanga V. The chronic wound: impaired healing and solutions in the context of wound bed preparation. *Blood Cells Mol Dis* 2004; 32(1):88-94.
3. Soldevilla Agreda, J.J; García Fernández, F.P.: Verdú Soriano, J. Úlceras cutáneas. *Update in Medicina de Familia*, 2008;4(7):370-381
4. Documento no. 10, Unidades Multidisciplinares de Gneaupp: Heridas Crónicas: clínicas de Heridas, Noviembre de 2012 [GNEAUPP Position Papers. Document No. 10: Multidisciplinary chronic wound units: clinical wounds, November 2012]
5. Indicatorenset Wond Expertise Centra Nederland, Terneuzen, V&VN Wondconsulenten, 1 september 2012 [Indicators – Wound Expertise Centre, The Netherlands]
6. Guia Unidad Clínica de manejo de heridas, Fundacion Instituto nacional de heridas, Santiago, Chile, 2013 [In Spanish only].
7. Gottrup F. A specialized wound-healing centre concept: importance of a multidisciplinary department structure and surgical treatment facilities in the treatment of chronic wounds. *Am J Surg*. 2004 May;187(5A):38S-43S.
8. Gottrup F, Holstein P, Jørgensen B, Lohmann M, Karlsmark T . A new concept of a multidisciplinary wound healing centre and a national expert function of wound healing. *Arch Surg*. 2001 Jul;136(7):765-72.
9. Coerper S, Schäffer M, Enderle M, Schott U, Köveker G, Becker HD. The wound care centre in surgery: an interdisciplinary concept for diagnostic and treatment of chronic wounds. *Chirurg*. 1999 Apr;70(4):480-4. [Article in German]
10. Martini J. Care of the diabetic foot. The concept of the "wound healing centre". *Soins*. 2004 Oct;(689):VI-VII. Service de diabétologie, CHU Rangueil, Toulouse. [Article in French only: le concept de "centre de cicatrisation"]

11. IWGDF International Consensus on the Diabetic Foot & Practical Guidelines on the Management and Prevention of the Diabetic Foot (2011). <http://iwgdf.org/guidelines/management-prevention>
12. Attinger CE, Hoang H, Steinberg J, Couch K, Hubley K, Winger L, Kugler M. How to make a hospital-based wound centre financially viable: the Georgetown University Hospital model. *Gynecol Oncol.* 2008 Nov;111(2 Suppl):S92-7. doi: 10.1016/j.ygyno.2008.07.044. Epub 2008 Sep 16.
13. Sholar AD, Wong LK, Culpepper JW, Sargent LA. The specialized wound care centre: a 7-year experience at a tertiary care hospital. *Ann Plast Surg.* 2007 Mar;58(3):279-84.
14. Hurd T. Understanding the financial benefits of optimising wellbeing in patients living with a wound, *Wounds International* , Vol 4, Issue 2, 2013
15. WHO Europe. A brief synopsis on patient safety, 2010
16. Posnett J. The resource impact of wounds on health-care providers in Europe, *journal of wound care*, vol 18, no 4 , April 2009
17. The Association for the Advancement of Wound Care (AAWC), [http://aawconline.org/wp-content/uploads/2011/04/BillofRights07\\_06.pdf](http://aawconline.org/wp-content/uploads/2011/04/BillofRights07_06.pdf)

#### **Additional literature: In process**

- EWMA Document, managing wounds as a team – download: <http://ewma.org/english/publications/ewma-documents-and-articles/managing-wounds-as-a-team.html>



UNION EUROPÉENNE DES MÉDECINS SPÉCIALISTES  
EUROPEAN UNION OF MEDICAL SPECIALISTS

*Multidisciplinary Joint Committee Wound Healing*