



WOUND HEALING CURRICULUM

UNION EUROPÉENNE DES MÉDECINS SPÉCIALISTES EUROPEAN UNION OF MEDICAL SPECIALISTS

Association internationale sans but lucratif

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Training Requirements Wound Healing for all Medical Specialties, which include Wound Healing in their Curricula

European Standards of Postgraduate Medical Specialist Training

PREAMBLE

The UEMS is a non-governmental organization representing national associations of medical specialists at the European Level. With a current membership of 34 national associations and operating through 39 Specialist Sections and European Boards, the UEMS is committed to promote the free movement of medical specialists across Europe while ensuring the highest level of training which will pave the way to the improvement of quality of care for the benefit of all European citizens. The UEMS areas of expertise notably encompass Continuing Medical Education, Post Graduate Training and Quality Assurance.

It is the UEMS' conviction that the quality of medical care and expertise is directly linked to the quality of training provided to the medical professionals. Therefore, the UEMS committed itself to contribute to the improvement of medical training at the European level through the development of European Standards in the different medical disciplines. No matter where doctors are trained, they should have at least the same core competencies.

In 1994, the UEMS adopted its Charter on Post Graduate Training aiming at providing the recommendations at the European level for good medical training. Made up of six chapters, this Charter set the basis for the European approach in the field of Post Graduate Training. With five chapters being common to all specialties, this Charter provided a sixth chapter, known as "Chapter 6", that each Specialist Section was to complete according to the specific needs of their discipline.

More than a decade after the introduction of this Charter, the UEMS Specialist Sections and

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European Boards have continued working on developing these European Standards in Medical training that reflects modern medical practice and current scientific findings. In doing so, the UEMS Specialist Sections and European Boards did not aim to supersede the National Authorities' competence in defining the content of postgraduate training in their own State but rather to complement these and ensure that high quality training is provided across Europe.

At the European level, the legal mechanism ensuring the free movement of doctors through the recognition of their qualifications was established back in the 1970s by the European Union (EU). Sectorial Directives were adopted and one Directive addressed specifically the issue of medical Training at the European level. However, in 2005, the European Commission proposed to the European Parliament and Council to have a unique legal framework for the recognition of the Professional Qualifications to facilitate and improve the mobility of all workers throughout Europe. This Directive 2005/36/EC established the mechanism of automatic mutual recognition of qualifications for medical doctors according to training requirements within all Member States; this is based on the length of training in the Specialty and the title of qualification.

Given the long-standing experience of UEMS Specialist Sections and European Boards on the one hand and the European legal framework enabling Medical Specialists and Trainees to move from one country to another on the other hand, the UEMS is uniquely in position to provide specialty-based recommendations. The UEMS values professional competence as “*the habitual and judicious use of communication, knowledge, technical skills, clinical reasoning, emotions, values, and reflection in daily practice for the benefit of the individual and community being served*”¹. While professional activity is regulated by national law in EU Member States, it is the UEMS understanding that it has to comply with International treaties and UN declarations on Human Rights as well as the WMA International Code of Medical Ethics.

This document derives from the previous Chapter 6 of the Training Charter and provides definitions of specialist competencies and procedures as well as how to document and assess them. For the sake of transparency and coherence, it has been renamed as “Training Requirements for the Specialty of X”. This document aims to provide the basic Training Requirements for each specialty and should be regularly updated by UEMS Specialist Sections and European Boards to reflect scientific and medical progress. The three-part structure of this documents reflects the UEMS approach to have a coherent pragmatic document not only for medical specialists but also for decision-makers at the National and European level interested in knowing more about medical specialist training.

AIM AND DEFINITIONS

The medical field of wound healing deals with mainly chronic, but also acute wounds. In contrast to acute wounds, chronic wounds are defined as wounds which do not heal for at least 6 weeks. Despite the fact that patients with chronic hard-to-heal wounds are a typical, almost daily, part of medicine, they still constitute a specific challenge for the treating physician. Consequently, we believe that the essential aspects of this medical field should be familiar to all physicians, but in particular those, who deal with wounds regularly as a result of their specialisation.

Wound healing is inter-disciplinary and even inter-professional. Consequently, this field of medicine is defined by the present European Training requirements (ETR) as „**a competence or**

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sphere of activity belonging to several disciplines” and not as a specialty or discipline in itself. That is why, these ETR aim to be included in the common trunk of the curricula of all specialities of physicians, who deal with wounds on a regular basis.

In inter-disciplinary approaches we have persons with different areas of expertise collaborating to produce a ‘harmony’ (resulting in a superior sound). Although the general training of each should be different to ensure the inter-disciplinarity, they all must have a common understanding of Wound Healing, so that they are able to professionally talk to each other and finally find the best Wound Healing solution for the patient. Recognizing this important point, the ETR contents were selected to specifically list and target those fields of Wound Healing knowledge, which are usually not part of the involved physician’s standard curricula.

The present ETR will be most useful in that it will lead to higher standards of chronic and acute wound care and consequently patient safety. To optimise the actual management (i.e. diagnosis and treatment) of patients with acute and chronic wounds, physicians must be able to select therapy appropriate to the underlying aetiology as well as the correct local therapeutic measures. The ETR presented here aims to ensure that physicians involved in wound care have a sufficient level of expertise within the area to provide efficient and safe treatment of their patients.

The curriculum includes the fundamentals of the medical field of wound healing as well as information on the different pathogenetic causes of chronic wounds, clinical assessment, development of therapeutic concepts, wound prevention, and collaboration with other specialists, nurses, and health care providers dealing with this patient population. The curriculum should support the relevance and value of interdisciplinary team work with regards to optimising treatment for all patients with wounds.

I. Training Requirements for Trainees

Competencies required of the trainee

A medical trainee is a doctor who has completed their general professional training as a physician and is in an accredited training program to become a recognized medical specialist/consultant. Variably known in different countries as an intern, resident, fellow or registrar.

‘Learning Objectives and Outcomes’ herein listed means the following:

K: Knowledge/theoretical skills

P: Pragmatic skills/application of knowledge

A: Awareness/behaviour

Learning objectives listed as ‘**K:** Knowledge/theoretical skills’ as a theoretical, clinical skill.

Skills listed as ‘**P:** Pragmatic skills’ as a practical, clinical skill.

Skills listed as ‘**A:** Awareness’ as an integrated part of the skills related to practice.

It is expected that self-directed learning is handled as an integrated part of the learning process.

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A doctor with specialized knowledge and skills in Wound Healing is an individual who has undertaken successfully a recognised programme of postgraduate training in Wound Healing within his accredited training program to become a recognized medical specialist/consultant in

General Medicine

Dermatology and Venereology

Surgery (General Surgeons, Plastic and Reconstructive Surgeons, Vascular Surgeons, Orthopedic Surgeons)

Internal Medicine (Phlebologists/Angiologists, Endocrinologists, Gerontologists)

The appointment as a consultant in one of the medical specialities listed above with specific knowledge and skills in Wound Healing is made by a society or institution within the individual's country of training or one of the countries belonging to the EU and takes due note of the satisfactory completion of training as required within that country/EU as related to the domains of knowledge, clinical skills, experience and professional behaviours.

The trainee must have sufficient linguistic ability to communicate with patients to take a proper and correct case history and to explain diagnosis and treatment.

The underlying principle as regards this document is that it promotes high standards of care for patients with Wound Healing conditions throughout the European Union and sets the basic requirements in the domains listed above to enable specialists/consultants to move across European country borders for professional purposes.

1. Catalogue and content of training

The present content of training should lead to the following main general competences:

- To provide patient-centred care
- Ability to work in interdisciplinary teams
- Employ evidence-based practice
- Apply quality improvement
- Utilise information and other technologies

a. Theoretical knowledge and practical skills

UNIT 1: WOUNDS AND WOUND HEALING

Aim: This unit of study aims to increase the physician's knowledge and understanding of cellular and molecular mechanisms involved in normal wound healing.

On completion of the unit of study a trainee will be able to:

K: Explain the pathophysiology of normal wound healing;

K: Define chronic wounds based on their characteristics and causes;

K: Differentiate between different wound healing disorders;

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- K:** Discuss the process of coagulation and factors that may affect normal haemostasis;
- K:** Describe the phases of wound healing;
- K:** Summarise the process responsible for the formation of granulation tissue;
- K:** Define different types of healing;
- K:** Discuss the role of the major cells and cytokines involved in the process of normal wound healing;
- P:** Relate the stages of normal healing to the clinical presentation of a wound;
- P:** Relate wounds to the causes of chronic wounds.
- A:** Understand the wound healing pathophysiology as a starting point for treatment, recognition of type of wound bed etc.

Unit of study content:

- Pathophysiology of normal wound healing
- Blood coagulation (effect of anticoagulation substances on wound healing)
- Phases of wound healing, i.e., inflammation, proliferation, and remodelling
- Formation of extracellular matrix collagen and granulation tissue
- Cells with an important role in the healing wound (endothelial cells, macrophages, fibroblasts, mast cells, etc.)
- Primary wound healing
- Partial thickness healing (a regeneration process)
- Secondary wound healing (a repair process)
- Delayed primary closure
- Practical examples

UNIT 2: NUTRITION AND WOUND HEALING

Aim: This unit of study aims to increase the physician's knowledge and understanding of the influence of nutrition on wound healing.

On completion of the unit of study a trainee will be able to:

- K:** Describe the importance of adequate nutrition for a patient with a wound;
- K:** Discuss the function of nutrients in the normal wound healing process;
- K:** Outline common conditions that affect an individual's nutritional requirements;
- K:** Outline the use of nutritional screening tools in the assessment;
- K:** Explain the influence of malnutrition on wound healing;
- K:** Discuss the role of the dietician in the management of patients with wounds;
- P:** Conduct a nutrition assessment and prepare a nutrition plan for the patient;
- A:** Rate nutrition as an important component in wound therapy.

Unit of study content:

- Caloric needs of patients with an acute or a chronic wound
- Specific requirements of individuals with diabetes
- Hypermetabolic conditions that affect nutritional requirements, e.g., infection, stress, and trauma
- Optimal nutritional composition to promote wound healing
- Function of nutrients, including vitamins, proteins, and minerals

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- Parenteral and enteral forms of nutritional supplementation
- Nutritional assessment and nutritional screening tools
- Affects of malnutrition on wound healing
- Signs and symptoms of dehydration
- Anthropometric measurements
- Biochemical data and interpreting laboratory values
- Role of nutrition in the prevention of wounds
- Role of the dietician
- Practical examples

UNIT 3A: MICROBIOLOGY AND WOUNDS

Aim: This unit of study aims to increase the physician's understanding of the nature of infections in wounds.

On completion of the unit of study a trainee will be able to:

- K:** Understand the nature of infections in wounds;
- K:** Define the severity of the wound infection;
- P:** Identify wounds with high risk of infection and typical causes of infection;
- P:** Initiate hygienic and therapeutic measures for multidrug resistant germs;
- P:** Interpret microbiological test results and identify possible further requirements;
- A:** Understand the particular problems related to resistant germs in wound healing.

Unit of study content:

- Contamination, colonisation, and local or systemic infection
- The wound at risk of infection
- Problematic and non-problematic germs
- The nature of methicillin-resistant *Staphylococcus aureus* (MRSA) and other multidrug resistant bacteria
- Procedures for MRSA and other multidrug resistant bacteria
- Prophylaxis and epidemiology with regard to MRSA and other multidrug resistant bacteria
- Assessment and diagnosis of infection
- Surgical site infection
- Biofilms
- Role of microbiological culture techniques
- Practical examples

UNIT 3B: ANTIMICROBIAL AGENTS, HYGIENE, AND WOUNDS

Aim: This unit of study aims to increase the physician's understanding of the nature of antimicrobial therapy and prophylaxis.

On completion of the unit of study a trainee will be able to:

- K:** Understand the nature of antimicrobial therapy and prophylaxis;
- K:** Understand the indications for local antiseptic and systemic antibiotic therapy;

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- K:** Outline the criteria for application of specific antimicrobial wound therapeutics;
- P:** Perform all hygienic measures related to wound care;
- P:** Follow the hygiene guidelines with regards to dressing changes and hand hygiene;
- P:** Analyse and meet the requirements related to antimicrobial therapy in practice;
- A:** Understand their key role and responsibility as physicians with regard to aspects of hygiene.

Unit of study content:

- Antiseptics
- Systemic antibiotics
- Local antibiotics
- Antimicrobial wound dressings
- Hygiene and dressing change
- Disinfection und sterilisation
- Practical examples

UNIT 4: DEBRIDEMENT AND WOUNDS

Aim: This unit of study aims to increase the physician's understanding of the role of debridement as an integrated part of wound management.

On completion of the unit of study a trainee will be able to:

- K:** Explain the reasons for use of debridement;
- K:** Describe, classify, and use the various debridement techniques;
- P:** Evaluate the different debridement methods and their effect and risk factors in practice;
- P:** Choose between different methods of debridement based on evaluation of the individual wound and patient situation in addition to cost effectiveness measures.
- P:** Relate the impact of the patient's health status and local wound factors that influence the most appropriate debridement method in clinical practice.

Unit of study content:

- Basic introduction to debridement: definition and indications
- Mechanical debridement
- Autolytic, enzymatic, and absorptive debridement, including honey
- Larvae therapy
- Technical solutions
- Sharp and surgical debridement
- Practical examples

UNIT 5: MOIST WOUND HEALING

Aim: This unit of study aims to increase the physician's understanding of the appropriate use of different wound dressings in relation to the phase of wound healing.

On completion of the unit of study a trainee will be able to:

- K:** Understand the principles of phase-appropriate wound treatment with respect to local therapy;

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- K:** Understand the correct use of different wound dressings;
- K:** Explain the criteria for the ideal use of wound care products and categorise these into different groups of products;
- K:** Define the product characteristic indications for wound therapy;
- P:** Apply the products correctly;
- P:** Evaluate and select products;
- P:** Select among the available therapeutics in practice, based on indications/contraindications and the preferences of the individual patient;

Unit of study content:

- Basics of moist wound therapy and phase-related therapy
- Ideal wound dressings
- The nature of wound gauze
- Water and wound cleansing solutions, e.g., wound irrigation solutions and antiseptics
- Basic product groups with different material properties: indications, contraindications, and application
 - Contact layer/wound gauze
 - Transparent polyurethane
 - Alginates
 - Foams (fine-pored polyurethane foam dressings)
 - Hydrogels (see debridement)
 - Hydroactive dressings
 - Hydrofibers
 - Hydrocolloids
 - Hydropolymers
 - Superabsorbent dressing
- Specialised active agents
 - Agents supporting initiation of granulation tissue
- Specific wound situations
 - Control of wound odour (activated carbon)
 - Exudate management
 - Bleeding
 - Contact dermatitis
- Practical examples

UNIT 6: NON-DRESSING BASED TREATMENTS OF WOUNDS

Aim: This unit of study aims to increase the physician's understanding of the potential and limitations of new or alternative treatment methods.

On completion of the unit of study a trainee will be able to:

- K:** Evaluate the potential and limitations of new alternative treatments for wound management;

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P: Select the appropriate measures for therapeutic intervention in line with the defined treatment goals;

K: Describe the different treatment methods and additives defined as new/alternative treatment options;

P: Apply indications for use of alternative treatment options;

P: Use alternative treatment options in practice;

A: Understand the limitations and benefits of alternative treatment options, also taking into consideration the legal and ethical aspects.

Unit of study content:

- Topical cream and spray treatment options
- Lasers
- O₂
- Ultrasound
- Physical measures
- Artificial skin
- Genetically modified wound healing factors
- Electrical stimulation
- Negative pressure wound therapy (NPWT)
- Practical examples

UNIT 7: PRESSURE ULCERS

Aim: This unit of study aims to increase the physician's understanding of the diagnosis, therapy, and prevention of pressure ulcers.

On completion of the unit of study a trainee will be able to:

K: Understand the pathophysiological mechanisms of pressure ulcer development;

K/P: Categorise pressure ulcers according to the levels defined by the European Pressure Ulcer Advisory Panel (EPUAP) in theory and clinical practice;

K: Explain the available therapeutic options for pressure ulcer treatment, depending on the ulcer category;

K/P: Examine factors that predispose an individual to pressure damage;

P: Define risk factors related to specific types of patients;

P: Identify different skin damage diagnoses;

P/A: Assess the needs of patients with respect to pressure relief and pressure distribution;

P/K: Explain the factors that need to be discussed with patients and their carers in relation to pressure ulcer prevention and management;

A: Identify who patients and carers may need to contact for further information and for further action.

Unit of study content:

- Epidemiology of pressure ulcers
- Pathophysiology of pressure ulcers
- Risk factors
- Prevention strategies for pressure ulcers

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- Classification of pressure damage
- Re-positioning strategies
- The adequate supportive position
- Prophylaxis
- Therapeutic principles
 - Conservative therapy
 - Debridement
 - Necrosectomy
 - Surgery
 - Dressings
- Practical examples

UNIT 8: DIABETIC FOOT SYNDROME

Aim: This unit of study aims to increase the physician's understanding of the diagnosis, therapy, and prevention of diabetic foot syndrome (DFS).

On completion of the unit of study a trainee will be able to:

- K:** Understand the relationship between pathophysiological processes and changes in the foot;
- K/P:** Identify the differences between vascular and neurological manifestations;
- P:** Categorise changes in the foot to aid selection of suitable assessment instruments;
- P:** Apply investigative methods and analyse the results of the investigation;
- P:** Select appropriate tools for reducing pressure on the foot;
- P:** Differentiate between various types of wounds related to DFS;
- K:** Outline the various possible surgical interventions;
- P:** Apply the principles of interdisciplinary and multifactorial treatment depending on type, site, cause of ulcer and comorbidities;
- A:** Recognise prevention of amputations as an important goal;
- A:** Understand the opportunities and limitations related to podiatric treatment;
- A:** Recognise the importance of a interdisciplinary and interprofessional team in wound healing.

Unit of study content:

- Epidemiology
 - Risk factors
 - Prevention
 - The causative chain - ulceration
 - The causative chain - amputation
 - Costs
- Pathophysiology
 - Neuropathy
 - Ischaemia
 - Osteoarthropathy
 - Infection
- Classification

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- Basic and more advanced diagnostics
- Interdisciplinary therapy
- Institutions that care for patients with DFS and their communication points
- Principles of therapy
 - Debridement
 - Pressure relief
 - Management of microbiology
 - Wound-phase adapted treatment
 - Re-vascularisation
 - Sharp and surgical debridement
 - Amputation
- Treatment goals and outcome parameters
- Prevention
- Identification and education of high-risk patients
- Monitoring
- Podology management
- Supportive care and medical devices
- Treatment team of professionals
- Practical examples

UNIT 9: LOWER LEG ULCERS

Aim: This unit of study aims to increase the physician's understanding of the important diabetological, phlebological, and angiological factors influencing the diagnosis and treatment of lower leg ulcers.

On completion of the unit of study a trainee will be able to:

K: Understand the most important aetiologic causes, such as diabetological, phlebological, and angiological factors, for diagnosis and treatment of lower leg ulcers;

K: Describe the typical development related to different clinical presentations;

K: Understand the indications and available options for compression therapy;

K: Investigate the regulations concerning use of compression systems, including supplementary materials;

K/P: Evaluate the purpose of various types of compression and the potential complications;

K/P: Investigate different manifestations of venous ulcers and differentiate between their genesis;

P: Select the appropriate diagnostic method for a specific individual and justify the value of this method in the specific situation;

P: Describe a wound and disease situation using appropriate classification systems;

P: Apply different types of compression systems based on the specific patient situation;

A: Understand the specific therapy of the underlying disease as a basic part of the treatment.

Unit of study content:

- Classification
- Diabetologic diagnostics
- Angiologic diagnostics

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- Varicosity
- Peripheral arterial occlusion disease
- Diabetic microangiopathy
- Venous oedema
- Lymphatic oedema
- Arteriosklerosis
- Vasculitis
- Skin cancer
- Pyoderma gangraenosum
- Mixed pathology
- Rare causes of lower leg ulcers ulcer
- The basics of compression therapy
- Different techniques for compression and practical learning
- Sclerosis of varicosity, mini stripping
- Venostatic pharmaceuticals
- Local therapeutic options
- Surgery
- Prophylaxis
- Practical examples

UNIT 10: DOCUMENTATION

Aim: This unit of study aims to increase the physician's ability to understand and meet the specific documentation requirements related to wound management.

On completion of the module a trainee will be able to:

K: Describe the requirements for documentation related to wound management;

A: Review the documentation as an important administrative task;

P: Document the wound situation in a particular case according to the specifications;

K: Evaluate different documentation systems for their usefulness and practicality.

K: Understand the need for wound related information in referral letter to other specialities.

K: Engage in wound related communication with other institutions with need for documentation, e.g. insurance companies and legal courts (witness statements).

Unit of study content:

- The relevant minimal data set
- Parameters of written documentation
- Non-digital measurement of the wound
- Photography
- Computer-assisted systems
- Exchange of documentation
- Practical examples

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UNIT 11: VARIOUS

Aim: This unit of study aims to provide knowledge about important topics in wound healing which do not apply to the other units

On completion of the module a trainee will be able to:

- K:** Identify the requirements for the pain management during dressing changes;
- K:** Recognise the VAS system to define pain;
- K:** Identify the various kinds of pain and their specific treatment;
- K:** Understand the basics of allergology and wound healing;
- K:** Outline the principles of pyoderma gangrenosum;
- K:** Explore the role of palliative wound care in the field of wound healing;
- K:** Understand the specifics of palliative wound care;
- K:** Evaluate the basics of health economy in the field of wound healing;
- K:** Identify where health economics play a role in clinical practice;
- P:** Identify specific cases applicable for the learning content.

Unit of study content:

- Pain and Pain management
- Allergology
- Pyoderma gangrenosum
- Palliative wounds
- Health economics
- Practical examples

UNIT 12: CLINICAL CASES

Aim: At the end of the theoretical and practical work, the aim is to develop the physician's ability to understand the holistic approach of wound healing by defining and documenting 5 clinical cases. This should document the ability to use the learning content of the other units in the clinical routine.

On completion of the module a trainee will be able to:

- K:** To treat 5 patients with chronic wounds in an appropriate way.
- K:** To understand how clinical work has to be documented in form of professional clinical cases.

Unit of study content:

- 5 manuscripts presenting 5 clinical cases in such a form that the manuscripts are eligible for publication in a peer-reviewed journal.

b. Professionalism

To be appointed as a specialist/consultant with specific knowledge and skills in Wound Healing

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an individual should show a level of competence sufficient to allow independent clinical practice and be able to care for wound patients both in acute and chronic situations. Such a level of performance may vary from country to country and from post to post but the above listed knowledge, skills and competencies describe the basic requirements one would expect of a European specialist/consultant with specific knowledge and skills in Wound Healing.

In addition to the knowledge and skills in practical wound-related procedures detailed above, an applicant for a recognised programme of postgraduate training in Wound Healing would be expected to show evidence of having been personally and continuously involved with the care of wound patients with as wide a range of common wound care problems as possible.

A European specialist/consultant with specific knowledge and skills in Wound Healing would be expected to demonstrate ethical behaviour, in keeping with the requirements of their country's medical registry/statutory body, provide evidence to this effect and showing a good standing with their relevant National Registration Body.

2. Organisation of training

a. Schedule of training

- Form of Theoretical Work

Theoretical work is organized in 3 blocks of teaching the content of the units. The blocks are defined as personal face to face presentations over 1.5 days (Friday afternoon to Saturday late afternoon) each. Depending on the amount of teaching the courses are worth 10 (first block), 14 (second block) and 13 (third block) CME points. Alternatively, the first block can also be offered as e-learning course. All three blocks should be performed within a year.

Next to the learning courses the trainee must generate and document 5 clinical cases in a form that the caese are eligible for publication in a peer-revied journal. For each case the trainee gets 5 CME points, altogether 25.

In addition the physician students should also attend one international and one national Congress (Symposium) in the field of wound care. This activity counts for at least 18 CME points.

Taken together theoretical work should count for at least 80 CME points.

- Form of Practical Work

Workload is an indication of the time trainee typically need to complete all learning activities required to achieve the expected learning outcomes and will include: self-study and examinations in addition to the lectures and practical work already detailed above.

A trainee is expected to work in a wound healing unit or similar service for a minimum of 3 months to gain the relevant level of experience.

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Wound Healing Unit / Institution – this should be a recognised healthcare facility that is responsible for managing patients with wounds. This may include healthcare services in primary and secondary care.

Taken together practical work should count for at least 100 hours.

The table below assigns the respective CME points of theoretical work and hours of practical work to the different learning units.

| UNIT | EXPECTED MINIMUM WORKLOAD PER UNIT OF STUDY | |
|--|---|----------------|
| | Theoretical Work | Practical Work |
| UNIT 1 Wounds and Wound Healing | 5 | 4 |
| UNIT 2 Nutrition and Wound Healing | 4 | 2 |
| UNIT 3a Microbiology and Wounds | 6 | 4 |
| UNIT 3b Antimicrobial Agents, Hygiene and Wounds | 4 | 5 |
| UNIT 4 Debridement and Wounds | 5 | 13 |
| UNIT 5 Moist Wound Healing | 7 | 12 |
| UNIT 6 Non-dressing based treatments of Wounds | 3 | 5 |
| UNIT 7 Pressure Ulcers | 5 | 10 |
| UNIT 8 Diabetic Foot Syndrome | 4 | 10 |
| UNIT 9 Lower leg ulcers | 5 | 15 |
| UNIT 10 Documentation | 2 | 3 |
| UNIT 11 Various | 5 | 4 |
| UNIT 12 5 Clinical Cases | 25 | 13 |
| TOTAL | 80 | 100 |

Typically, the theoretical work is completed in parallel with the performance of the practical work.

The training period in Wound Healing will be in keeping with EU requirements and in any case sufficient to ensure that a trainee has met all the required educational and training needs. Specific arrangements for the overall training for any individual trainee would be decided locally and be influenced by relevant national requirements. The list of conditions shown above is a guide to the knowledge base required of a specialist/consultant with specific knowledge and skills in Wound Healing. The clinical experience should encompass all common clinical conditions in Wound Healing as shown in the list above.

Trainees should have enough time and support to attend local, regional, national and international CME accredited meetings. The ethical codex according to national or international regulations (EACCME) have to be considered. Consequently, such CME accredited meetings were made part of the required training programme.

In addition, the trainees should also be encouraged (not forced!) to involve themselves in original

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controlled clinical studies for drug development and medical devices which may lead to presentations and/or publications.

With regard to the practical training a logbook is necessary. The logbook should show the different learning units with the practical steps performed to finalize the respective unit. Each practical step should be signed by the supervisor. Appendix 1A shows an example of such a logbook.

For a trainee to be able to apply for a post in another EU country it would be necessary to present a published curriculum which has been followed by the trainees with details as to how it is known that the curriculum has been followed by both trainees and their trainers. The curriculum would contain details about the required nature and extent of clinical experiences, the methods by which a trainee is supported in their development and how judgements are made about their progress as regards the development of their knowledge and understanding, the progression of their clinical work and their development as a professional.

b. Support, assessment and evaluation

Trainees will be continuously supported during their practical programmes. Based on the interdisciplinary and interprofessional character of Wound Healing, a trainee's clinical work will be supervised by a group of interdisciplinary and interprofessional trainers. Depending on the kind of clinical work such trainers are consultants of various medical specialities, with specific knowledge and skills in Wound Healing, or nurse teachers with a specific training in Wound Healing. Such trainers already exist in all EU countries and they are known by a variety of titles. The trainers will be responsible for providing the trainees with instructions, and regular feedback regarding their performance in matters related to the practical learning unit, i.e. clinical care the trainees deliver. The whole theoretical and practical training programme for a trainee is personally headed by a chief of programme, typically the chairman/leader of the training institution in which the practical training programme happens. In the case of a group or network of allied institutions, one of the leaders defines his responsibility for the trainee. This responsibility should be in accordance with the experience of the trainee and the available facilities in the institution or group of institutions, thus covering the whole organisation of the practical training programme, the definition of trainers for the trainee and the supervision of the practical training work. When some facilities are not locally available it is in the responsibility of the chief of training to make appropriate arrangements (rotation to another training site). There should be sufficient teaching staff to allow adequate monitoring of each trainee and a regular communication of the trainers with the chief of training regarding the trainee. A trainee will meet with their chief of training program on a regular basis, which typically would be every month, to discuss their work and progress. Such discussions will take the format of an appraisal with the trainee providing information about how they are progressing, accompanied by documented evidence of clinical engagement and achievement of their learning and training outcomes. The purpose of the appraisal is to enable a constructive discussion about how the learning needs of the trainee should be met. Subsequent appraisals will revisit earlier appraisals to determine progress in achieving these needs. The appraisals are not part of any summative assessment process but are designed entirely to support the trainees.

Initially, countries, national institutions or societies will use assessment strategies appropriate to their needs. Progressively, there will be a move towards a common European approach determining whether an individual is suitable to be recognised as a European

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specialist/consultant with specific knowledge and skills in Wound Healing.

Assessment of skills in practical procedures are established within training programme. Such assessments may include, where appropriate, the use of simulation prior to an assessment in clinical practice using skills lab facilities.

A comprehensive time-scheduled assessment plan should be established with different types of assessments to be performed at various times and at different levels throughout the training in Wound Healing. Such a plan might be timely based on the finalisation of the different log book chapters with clear assessments of the theoretical and practical knowledge of the respective chapter. The methods have to promote learning and have to be compatible with the general objectives of the learning outcomes and the content of training. They have to be adapted to the different skill levels of the trainees. The assessment plan should consider a balance between formative and summative assessment and different types of examinations, the use of a portfolio and should make use of specified types of medical examination formats (e.g. DOPS – direct observation of procedural skills, MiniCex – mini clinical examination, OSCE – Objective Structured Clinical Examinations, GRS – Global Rating Scales, OSATS – Objective Structured Assessment of Technical Skills).

Clinical experience will also be assessed especially by the report of clinical cases, a review of the patients seen by a trainee and for whom the trainee has had a personal responsibility as regards care. Evidence of such engagement will be maintained in a clinical logbook or equivalent. The logbook will be signed by the trainee's trainer and reviewed by the chief of programme together with the trainee in a formative manner. This will enable the trainee to see and be involved with the care of an appropriate number and range of patients. The logbook will be reviewed separately in a summative manner, by the local chief of training together with relevant trainers with whom the trainee has worked.

Professional behaviour would be part of the assessment strategy too and typically a 360-degree multi-source feedback (MSF) would occur during and at the end of training. The chief of training program would be central to the discussion and reflection undertaken after each MSF and provide guidance and support in response to comments made by those providing the MSF to a trainee. Additional MSFs would occur if the initial MSF demonstrated a less than adequate performance by the trainee. Local national standards as regards an individual's suitability for clinical practice would determine whether or not a trainee is employable as a specialist/consultant with specific knowledge and skills in Wound Healing.

In order to be eligible to apply for a post in a country other than the country in which one has trained or to be recognised as a European specialist/consultant with specific knowledge and skills in Wound Healing, all aspects of the above assessment approaches will need to be completed satisfactorily.

Doctors, who have finalized the recognised programme of postgraduate training in Wound Healing within their accredited training program to become a recognized medical specialist/consultant in
General Medicine
Dermatology and Venereology

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Surgery (General Surgeons, Plastic and Reconstructive Surgeons, Vascular Surgeons and Orthopedic Surgeons)
Internal Medicine (Phlebologists/Angiologists, Endocrinologists, Gerontologists)
become eligible to take the nationally implemented board exams of their speciality, which also assesses the acquired theoretical knowledge in Wound Healing. In the future, on a supranational level, this might be a written and oral examination specifically for Wound Healing issues organized by the UEMS European Board of Wound Healing.

c. Governance

The governance for the theoretical work of the training programme lies in the hands of national or European organisations, institutions and/or societies, which deliver the theoretical work to the trainee. After completing the different parts of the theoretical work, the trainee gets for each part a written confirmation.

The governance of an individual's practical training programme will be the responsibility of the chief of training and the institution(s) in which the training programme is being delivered. A trainer will be responsible to the chief of training program for delivering the required training in their area of practice. Governance of training competencies and the Wound Healing content for now remains a core competency of the different in this medical field active national specialty boards. However, UEMS strongly encourages the common implementation of the herein presented ETR structures on a national level in all EU countries, which would allow a standardized delivery and continued assessment of all Wound Healing training programs in close cooperation with all participants.

II. Training Requirements for Trainers

1. Process for recognition as trainer

a. Requested qualification and experience

Based on the interprofessional nature of Wound Healing, two kinds of trainers are needed for the training programme:

Trainer with a university degree in nursing, who also graduated from a nationally approved education programme in Wound Healing and an at least 3 years practical experience in this field. Ideally, the nurse trainers are also accredited as teachers, or academic professors.

Medical trainer nationally registered as specialist/consultant in
General Medicine

Dermatology and Venereology

Surgery (General Surgeons, Plastic and Reconstructive Surgeons, Vascular Surgeons, Orthopedic Surgeons)

Internal Medicine (Phlebologists/Angiologists, Endocrinologists, Gerontologists)

with special knowledge and skills in Wound Healing. In order to promote harmonization of

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European training standards, it is also strongly recommended that trainers and trainees should demonstrate additional accreditation on a European level such as provided by examinations offered by the respective UEMS European Board of their speciality. In addition, a specific European course and/or examination in Wound Healing would be favourable. As, to date, the UEMS European Board Wound Healing is in construction, the participation in one of the existing European programmes, e.g. 'European Fellows in Wound Healing' is suggested.

They will have satisfied any relevant national requirements as regards accreditation / appraisal / training to be a trainer. A chief of training program would be someone who has been/is a trainer and who has considerable knowledge and experience of training doctors and who has been practicing the specialty for at least 5 years after specialist certification. There must be additional experienced personal in the training staff for training of practical skills.

Trainers and chiefs of training programs must be in active clinical practise and engaged in training in the training centre or network. Their appointments would be for five years in the first instance. In some countries their work would be reviewed within the training centre or network on a regular basis at staff appraisals (or equivalent).

Recognition across the EU as regards competence to be a trainer despite practitioners coming from different countries and having different routes and extents of training is covered by Directive 2005/36/ EC (Paragraph C2/20).

b. Core competencies

A trainer will be:

- Familiar with all aspects of the overall Wound Healing curriculum as it relates to practice within their country
- Experienced in teaching and in supporting learners
- Skilled in identifying the learning needs of their trainees and in guiding the trainees to achieve their educational and clinical goals
- Able to recognize trainees whose professional behaviour is unsatisfactory and initiate supportive measures as needed
- Trained in the principles and practice of medical education

Trainers should also act as lecturers to a peer-audience on a regular basis, attend national meetings and be able to demonstrate appropriate participation in continuing professional development.

2. Quality management for trainers

Quality management for trainers remains a core competency of respective national medical specialty boards. Trainers and chiefs of training programs should have their job description agreed with their employer, which gives them sufficient time each week for support of trainees and in the case of chiefs of training programs, sufficient time for their work with trainers.

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It is recommended that a single trainer should have no more than three trainees. The number of trainees would determine the amount of time each week that would be allocated to their support. Trainers will collaborate with trainees, the chief of training program and their Institution to ensure that the delivery of training is optimal. Feedback from trainees will assist in this regard.

Within their Departments/Institutions the educational work of trainers and chiefs of training programs will be typically appraised on an annual basis following the regulations of the local Board of Quality Management.

Educational support of trainers and chiefs of training programs will be provided either by their Departments and Institutions and by the national education authorities.

III. Training Requirements for Training Institutions

1. Process for recognition as training centre

a. Requirement on clinical activities

A Training Centre is a place or number of places where trainees are able to develop their practical competences in Wound Healing.

Wound Healing training may take place in a single institution or in a network of institutions working together to provide training in the full spectrum of clinical conditions and skills detailed in the curriculum. Each participating institution in a network must be individually recognised as a provider of a defined section of the curriculum.

It is not a requirement that a training centre or a network of institutions is also academically approved (e.g. university, federal academic teaching institution) for Wound Healing but it is desirable that a training centre would have strong academic links and potentially contribute to research.

The size of the training institution or group of institutions should be as such that it has an adequate and high enough number and variety of wound disorder patients, which cover the whole range of the curriculum's diseases.

It is not important whether the institution has only out-patient facilities, or additional in-patient beds and/ or day care centre beds. To build up his/her experience the trainee should be involved in the diagnostic procedures and treatment (medical and surgical) of a sufficient number of patients and should perform a sufficient number of practical procedures of sufficient diversity to fully cover the curriculum of Wound Healing.

The training centre, or the group of training centres where the trainee fulfils the practical training must work in an interdisciplinary way, in that they harbour departments of the medical specialities, which are typically involved in Wound Healing (Dermatology and Venereology, Surgery, Internal Medicine) or at least one specialist/consultant each with that expertise (General Practitioner, Dermatovenereologist, General Surgeons, Plastic and Reconstructive Surgeons, Vascular

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Surgeons, Orthopedic Surgeons, Phlebologists/Angiologists, Endocrinologists) together with nurses specifically educated in Wound Healing and physical therapists as well as podologists. In the best case, the institution has a centralized Wound ambulance, or, alternatively, is a wound centre where all the experts works together.

It is essential that as part of their training trainees will be responsible for caring for patients on both an emergency and routine basis. This may need the involvement of multiple training sites that offer different 'opening hours'. The trainee should be involved in the management of new patients and follow up of patients.

The institution should be such as to allow the trainee to carry out his/her training as outlined in the program of Wound Healing, as well as to allow appropriate access to other relevant specialties to provide appropriate interdisciplinary interactions and learning objectives. There will be regular multi-disciplinary meetings to determine optimal care for patients and such meetings will involve both medical and other healthcare staff. There will be clinical engagement outside of the centre with clinical groups of other related specialties.

Within a Wound Healing training centre there should be a wide range of clinical services available so that a trainee will be able to see and contribute to the care of all common Wound Healing problems. In addition, the patient numbers and specialist numbers should be sufficient so that trainees will be able to be instructed and then supervised in the clinical procedures required of a specialist/ consultant in Wound Healing.

Specialist staff appointed to a training centre will have completed all training requirements themselves and will have been trained also in teaching and mentoring trainee staff. Specialists already in post will undertake training, if they have not already completed this, to enable them to support trainees optimally. Such training and maintenance of skills and knowledge in this area will be part of their job-plan and subject to appraisal (see above).

It would be unacceptable for a trainee to have only one trainer during their entire training period. It would be more usual for a trainee to have a number of named trainers with whom they work on a day-to-day basis. Each trainer would cover different aspects of a trainee's clinical training but this individual will not be the only person who will provide educational support for a trainee. (See above for comments about the chief of training program and his/her role). It would be expected that the specialists in a training centre(s) represent a wide range of Wound Healing expertise and that such individuals demonstrate that they remain up to date with their clinical practice, knowledge and educational skills.

There is no specific trainee/trainer ratio that is required but at least 2 trainers in the institution with no more than 3 trainees is suggested. If a trainee moves between a number of centres for their training although their trainers may change, their chief of training program should remain the same. Chief of training program may also be trainer.

b. Requirement on equipment, accommodation, salary

A training centre would have sufficient equipment and support to enable the clinical practice that would be expected of a training centre and thus provide the necessary educational opportunities

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for trainees.

In detail, an exemplary list of essential equipment:

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, ambulant surgical facility, Duplex sonography, Vascular ultrasound, lab for basic blood analyses, Physical therapy possibilities, low pressure units, 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, 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, digital camera.

In addition, computing and Information technology including library resources must be available for the trainee.

Suitable accommodation should be provided for the trainee, or, at least the institution should help the trainee to find such an accommodation

The salary for their work should be according to the national regulations. Yet, at least at such a level that the trainee can live a human life and does not have the necessity to work in a second paid job.

2. Quality Management within Training institutions

a. Accreditation

Every EU country has a national i.e. governmental accreditation system for health care centres. It goes without saying that a clinical centre or a network of institutions offering a training programme in Wound Healing must have such a positive national accreditation. Usually, the institution has to renew the accreditation every 5-10 years. In addition, in some EU countries part of such a national accreditation is also a strict quality assessment system defining (i) kind and minimal amount of infrastructure and medical equipment in the centre, as well as analysing (ii) the quality of the delivered work to ensure a continuous high standard of care. Usually centres are assessed in this way every 5 years. We strongly recommend for the teaching centres to regularly undergo such a quality assessment. In those EU countries, which do not offer such a national quality assessment, centres should choose industrial/medical certification organisations from the market (e.g. TÜV, ISO) for such a quality-based additional approval process.

In addition, every clinical centre or a network of institutions offering a training programme in Wound Healing must have an interdisciplinary and interprofessional, institutional Quality Board of Wound Healing, which should meet at least every quarter of the year. This Board is mainly involved in defining local standards of wound care for the centre, testing and selecting treatment

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devices and performing the local continuous education for the health care professionals.

On a European scale, a clinical centre, which wishes to be certified on a European level can ask one of the UEMS Boards of those medical specialities involved in Wound Healing, or the Thematic Federation of Wound Healing for a site visit. Such an official training inspection should follow the UEMS Charter of Visitations. This will ensure and finally demonstrate that all the necessary educational and training provisions are available in a sustained manner. Subsequently, on a biennial basis, a training centre will provide a brief report on its activities to the respective Board.

b. Clinical Governance

Training centres will, almost certainly, undertake internal audits of their performance as part of the requirements for continuing national recognition/accreditation. It is anticipated that any national evaluation of a training centre's performance will also include the demonstration that it is:

- Providing care for patients with a wide range of Wound Healing conditions
- Providing educational and training support for trainees and others
- Part of a healthcare system that provides immediate access to relevant laboratory and other investigations as well as providing when necessary immediate access to other clinical specialities that may be required by their patients.

The outcomes of such national evaluations will be made available to the UEMS Thematic Federation of Wound Healing by the National Representative(s).

Training centres should keep records of the progress of their trainees, including any matters relating to Fitness to Practise or other aspects that might affect a trainee's registration with the relevant national body. The chief of training program has specific responsibilities in this regard (see above).

c. Transparency of training programs

It would be expected that a training centre would publish details of the training provision available with details of the clinical service it provides and the specialist and other staff. Such information would include the training program, the nature of the clinical experiences with which a trainee would be engaged and the support and interaction with the trainer and chief of training program. There would be a named individual whom a prospective trainee might contact and discuss the program.

d. Structure for coordination of training

There should be a national (or equivalent) program for training leading to recognition as a specialist/consultant with specific knowledge and skills in Wound Healing within that country.

The trainee's job plan should allow sufficient time for developmental activities separate from their involvement with clinical service provision.

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The job plans of trainers and of chiefs of training programs should include sufficient time for them to fulfil their educational and training responsibilities.

Training centres will be recognised and approved by the relevant national authority.

To assist a specialist/consultant with specific knowledge and skills in Wound Healing moving from one EU country to another, it would be expected that they have satisfactorily completed the European training program in Wound Healing thus demonstrating that he/she has the required knowledge, clinical skills and competences as well as having demonstrated appropriate professional behaviours and has been engaged with sufficient amount of clinical work for employment in the post they are seeking. Such accomplishments (Appendix A) would be verified both by the certifications for the theoretical work and the signatures in the logbook (Appendix 1A).

APPENDIX 1

Basic requirements to move across European country borders for professional purposes

Certificates for the completion of the theoretical work

After successful completion of the different parts of theoretical work, the trainee should get a certificate for the respective part. All in all, these certificates allow the trainee to document the

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complete conclusion of the theoretical work.

Records(logbook) of practical clinical work and clinical skills

Many trainees already keep a record or have a record kept automatically of patients for whom they have provided care. It is not proposed as a requirement of becoming a European specialist/consultant with specific knowledge and skills in Wound Healing. However, when doctors seek to gain employment in an EU country other than their own (or the one in which they have been trained) they might be required additional documentation, in that they provide access to appropriate records (logbook) demonstrating the extent and nature of their practical clinical experience and skills to a future potential employer and any other relevant body (for example a statutory medical body that grants employment rights within a country). An example for a logbook is listed in Appendix 1A

Additional information as a confirmation of progress of a trainee

Doctors seeking to gain employment in a country other than their own or the country in which they have been trained will be required to provide additional references that provide details about:

1. The curriculum that the trainee has followed
2. The nature of assessments completed by the trainee and the outcomes of any assessments undertaken by him/her
3. The outcomes of assessments of a trainee's professional behaviours
4. The good-standing of the trainee
5. The nature of the quality assurance processes by which it is known locally that the quality of the curriculum and its delivery are satisfactory

APPENDIX 1A

The structure of the logbook for the practical clinical work of the European Training Requirements in Wound Healing

UNIT 1: WOUNDS AND WOUND HEALING

4 hours

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| Fill out the kind of practical work performed | Signature |
| e.g. definition of various healing phases | |
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UNIT 2: NUTRITION AND WOUND HEALING

2 hours

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| Fill out the kind of practical work performed | Signature |
| e.g. development of a specific diet plan for a given patient | |
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UNIT 3A: MICROBIOLOGY AND WOUNDS

4 hours

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| Fill out the kind of practical work performed | Signature |
| e.g. reading of swab and antibiogramme results | |
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UNIT 3B: ANTIMICROBIAL AGENTS, HYGIENE, AND WOUNDS

5 hours

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| Fill out the kind of practical work performed | Signature |
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| e.g. selection and application of a specific silver dressing for a given patient | |
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UNIT 4: DEBRIDEMENT AND WOUNDS

13 hours

| Fill out the kind of practical work performed | Signature |
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| e.g. performance of a mechanical debridement | |
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| e.g. appropriate selection and treatment of a wound with an cream-based enzymogel alginate | |
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UNIT 7: PRESSURE ULCERS

10 hours

| Fill out the kind of practical work performed | Signature |
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| e.g. development of a treatment plan for a pressure ulcer | |
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UNIT 8: DIABETIC FOOT SYNDROME

10 hours

| Fill out the kind of practical work performed | Signature |
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| e.g. decision for the appropriate supportive care in a diabetic foot ulcer | |
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UNIT 9: LOWER LEG ULCERS

15 hours

| Fill out the kind of practical work performed | Signature |
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| e.g. performance of the diagnostic procedures to define a venous leg ulcer | |
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ENTRUSTABLE PROFESSIONAL ACTIVITIES (EPA) REACHED DURING THE EDUCATION

An EPA is ‘a critical part of professional work that can be identified as a unit to be entrusted to a trainee once sufficient competence has been reached’. This indicates whether one could trust the individual to perform the job and not whether he/she is just competent to do it. This level goes beyond simple competence and would constitute the highest critical level of competence in a formative and summative assessment.

| EPA | EPA reached (date) | Signature |
|--|--------------------|-----------|
| To provide patient-centered care | | |
| Ability to work in interdisciplinary teams | | |
| Employ evidence-based practice | | |
| Apply quality improvement | | |
| Utilise information and other technologies | | |