

# Collection of Practical Guides of Wounds of the Servizo Galego de Saúde

Practical Guide for Moisture Associated Skin Damages. Guide No. 7





**COLLECTION OF PRACTICAL GUIDES OF  
WOUNDS OF THE SERVIZO GALEGO DE SAÚDE**

**PRACTICAL GUIDE FOR  
MOISTURE ASSOCIATED SKIN DAMAGES**  
Guide No. 7

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# COLLECTION OF PRACTICAL GUIDES OF WOUNDS OF THE SERVIZO GALEGO DE SAÚDE

- No. 1 Pressure Ulcers
- No. 2 Ulcers of the Lower Limb
- No. 3 Ulcers of the Diabetic Foot
- No. 4 Neoplastic Skin Lesions
- No. 5 Burn Injuries
- No. 6 Acute Surgical Wound
- **NO. 7 SKIN LESIONS ASSOCIATED WITH MOISTURE**
- No. 8 Traumatic Wounds





# PRESENTATION

Everyone knows that the approach to ulcers and wounds implies a health problem of great magnitude due to the extra financial cost it means for sustainability of the health system, due to the loss of quality of life in patients, due to the impact that it has on their families and carers, and also by the workload and clinical variability that their care represents for healthcare professionals.

From the Servizo Galego de Saúde, and more intensively from the General Sub-Directorate for Care Management and Organisational Innovation through the Health Care Integration Department, there is an awareness of the importance and impact of a proper management of the prevention and treatment of this type of lesions; so for several years we have been working to improve the structure, resources and conditions required, to try to normalise and systematise the care activity arising from this care process.

Through the **Úlceras Fóra Programme** the reference framework to develop and establish strategic lines in the approach of everything related to ulcers and wounds, one of the basic objectives proposed was to set common care criteria (to identify the risk, assess the lesions, establish preventive measures, establish treatments, use of products, monitoring, registration, etc.) which allow us to move towards the standardisation of criteria and a corresponding reduction in the clinical variability for this type of lesions.

That is why this **Collection of Practical Guides for Wounds from the Servizo Galego de Saúde**, describes the effort and enthusiasm of many professionals (doctors and nurses) to improve their clinical practice in the care and comprehensive approach to patients affected by ulcers and wounds, or at risk of suffering them, in order to incorporate the best available evidence to achieve an improvement in the patient's quality of care and safety.

**Jorge Aboal Viñas**  
General Director of the Health Assistance Department  
Servizo Galego de Saúde

# PREFACE

This Practice Guide was developed with the participation of health professionals in primary care and hospital care of the Servizo Galego de Saúde (Sergas) and reviewed by expert professionals and scientific institutions at national level, under the coordination of the General Sub-Directorate for Care Management and Organisational Innovation and Direction of Sanitary Assistance of Sergas.

The recommendations for clinical practice based on evidence that are included in this guide are of a general nature and therefore do not define a single course of conduct to be followed in a procedure or treatment for the integral care that is intended to be carried out. Any amendment or variation of the recommendations set forth herein, shall be based on clinical judgement (internal evidence) of the health care professional who applies them and the best clinical practices of the time; as well as the specific needs and preferences of each patient in particular; the resources available at the time of the sanitary attention and in the regulations established by the institution or health centre where they are intended to be applied.



# DISSEMINATION AND IMPLEMENTATION

The dissemination and implementation strategy of this practical guide; as well as, of the entire Collection of Practical Guides on Wounds of Sergas, shall be co-ordinated through the Technical Management of the Úlceras Fora Programme; that is to say, by the Health Care Integration Department, of the General Sub-Directorate General for Care Management and Organisational Innovation, of Sergas.

The diffusion process entails a ceremonial presentation at the Consellería de Sanidade of the Xunta de Galicia, the official presentation in all public institutions in the Sergas Healthcare Network, the dissemination of an official statement to the media, its disclosure in scientific events and dissemination on the Internet through the official website of Sergas.

# VALIDITY AND UPDATE

The guide should be reviewed after 3 years from the date of its publication. Its updating can be performed before the end of this period if any of the recommendations of evidence modify its categorisation which may lead to a clinical risk of safety for the patient and / or affect the quality of care.

# DECLARATION OF CONFLICTS OF INTEREST AND EDITORIAL INDEPENDENCE

The authors of this practical guide declare to have made an effort to ensure that the information contained herein is complete and up to date, and state that they have not been influenced by conflicts of interest that could change the results or contents during the preparation stage and its development. Likewise, the authors of the guide assume responsibility for the content expressed, which includes evidence and recommendations.

The editors of the Collection of Practical Guides for Wounds of the Serviço Galego de Saúde declare that there is editorial independence regarding the decisions taken by the technical management and the coordinators of the working group.

# ASSESSMENT AND CLASSIFICATION OF THE EVIDENCE

The scientific evidence and recommendations set forth in this Practical Guide were the result of the assessment and analysis of the sources of information consulted as bibliographic reference (clinical practice guides, guides based on the best evidence, other documents based on evidence, systematic reviews and original articles); the critical reading method and consensus by nominal group between authors and panel of experts was used to prepare it.

The classification of the level of evidence and grading of the recommendations has been maintained while respecting the original source consulted and the scale of evidence that has been used. The method that CENETEC (National Centre of Technological Excellence in Health) of Mexico in the development of their clinical practice guidelines (GPC) has been used for this:

- Classify with the symbol **[E]** that evidence which is published in any GPC, followed by its alphanumeric classification (quality of the study, if it is referenced) and bibliographic citation.
- Categorise with the symbol **[R]** those recommendations identified by any GPC, followed by their strength of recommendation (by A-B-C-D levels, in descending order according to clinical importance, or by their grading in high-moderate-low evidence).
- Identify with the symbol **[GP]** those actions and / or activities considered as good practices, which are not referenced or supported by any GPC, but that appear in other documents based on the evidence (guides to good clinical practice, clinical pathways, protocols based on evidence, etc. ) and whose evidence has been obtained through systematic reviews, meta-analyses, clinical trials, etc.

The scales on the level of evidence and degree of recommendations that are described in the contents of this practical guide can be consulted through the bibliographic sources referenced in the summary table of recommendations / evidence.

# PRACTICAL GUIDE FOR MOISTURE ASSOCIATED SKIN DAMAGES

## PRACTICAL GUIDE N°7

Collection of Practical Guides of Wounds  
of the Servizo Galego de Saúde





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# 01 | RELATIONSHIP OF AUTHORS, COORDINATORS AND REVIEWERS

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- **Sociedad Gallega de Heridas (SGH)**
- **Academia de Enfermería de Galicia**
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- **Colegio Oficial de Enfermería de Ourense**
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## HOW TO QUOTE THE DOCUMENT

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## 02 | INTRODUCTION

### 2.1. JUSTIFICATION

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The approach to chronic ulcers and wounds implies a health problem of great magnitude due to the extra financial cost it means for the health systems, due to the loss of quality of life in patients, due to the impact that it has on their families and carers (which in many cases have to take on the prevention and caring), and also by the workload that their care represents for healthcare professionals. Therefore, the decision-making regarding its approach requires taking into account several alternatives from a variety of information sources (clinical data, professional experience, preferences of the patient, scientific evidence, protocols, guides, etc.) which in turn causes a considerable variability of decisions based on the time, the information available and the person who decides. This gives rise to a great disparity in the performance of the professionals in techniques, tests, and diagnostic skills, clinical judgement and decision-making when facing the same problem or patient and even in a same professional in relation to patients with the same clinical and pathology.

This *Practical Guide for Moisture Associated Skin Damages* (Practical Guide No. 7) is integrated into the Collection of Practical Guides of Wounds of the Galician Health Service; in accordance with the strategies and lines of action promoted through the Úlceras Fora Programme coordinated by the General Sub-Directorate for Care Management and Organisational Innovation. In turn, such a Collection, is aligned in line with strategy No. 10 (Improving Clinical Practice), of the Quality Plan for the National Health System 2010, as well as, with SERGAS Strategy 2014: Public health at the service of patients.

This guide is therefore meant as a synthesis of the best interventions and preventive or therapeutic practices available for the care of adults with moisture associated skin damages or at risk of suffering from them; according to the clinical practice based on the most current evidence.

### 2.2. SCOPE AND OBJECTIVES

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The scope of the Guide is addressed to people affected, informal carers and all health professionals with direct or indirect responsibility for the integral approach of moisture associated skin damages, in any of the three health care levels in the Community of Galicia: Primary Health Care, Hospital Care and Socio-Health Care.

The aim of the Guide is to provide guidelines and/or standardised criteria to serve as a reference to identify risk factors, perform specific actions of prevention, detection, referral and treatment, which skin lesions associated to moisture pose as a health problem. The aim is to contribute to the welfare of people, reduce the variability of treatments and professional uncertainty, reduce the prevalence and incidence of this health problem in society, as well as achieve greater optimisation in the management of human and economic resources available from the Galician health and socio-health care system based on the recommendations of practice based on evidence and; to attain a few quality care indicators for the care and

safety of patients that shall allow for greater efficiency of the process between the different care levels.

## **2.3. QUESTIONS TO BE ANSWERED BY THIS PRACTICAL GUIDE**

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- What are moisture associated skin damages (MASD) and how are they defined?
- What is their epidemiology and etiopathogenesis, what type are they and how are they classified?
- What are the most frequent locations?
- How to diagnose and/or differentiate a MASD lesion?
- What treatments and/or therapeutic measures are most appropriate?
- What complications can occur?
- What prevention recommendations are the most indicated?
- What treatment recommendations are best?
- What therapeutic guidelines and health education should patients, informal carers and professionals follow to facilitate their care?

## 03 | DEFINITION

The term moisture associated skin damages (MASD)<sup>1</sup> is a general concept which includes in its definition the effect of moisture with other aggressive agents and their effect on the skin. Recently the term has been the subject of a discussion of consensus to redefine the concept, to identify sources of moisture and differentiate this type of lesion from others that are not.<sup>1-10</sup>

The Grupo Nacional para el Estudio y Asesoramiento en Úlceras Por Presión y Heridas Crónicas (National Group for the Study and Advice on Pressure Ulcers and Chronic Wounds)(GNEAUPP), in its document No. II; proposes as a MASD definition:<sup>3</sup> *“The lesion located on the skin (usually does not affect underlying tissues) that is presented as an inflammation (erythema) and/or erosion of it, caused by the prolonged exposure (continuous or almost continuous) to various sources of moisture with potential irritation to the skin (for example: urine, faeces, exudates from wounds, effluents of stomata or fistulas, sweat, saliva or mucus)”*.

In this way, we can understand MASD as: a deterioration of the integrity of the skin caused by prolonged exposure to various sources of moisture, with associated physical or chemical irritation, characterised by a type of dermatitis and/or eczema with inflammation and erythema, with or without excoriation of the epidermis and usually accompanied by maceration, which is located mainly at the level of the integumentary folds, in perilesional and/or periostomal tissue, and perianal or perigenital area (figure 1).



Figure 1. Moisture associated skin damage in the perianal and perigenital area

## 04 | EPIDEMIOLOGY

The epidemiology of MASD is conditioned by their aetiology (moisture), but traditionally only incontinence associated dermatitis (IAD) was recognised in this group, omitting an enormous amount of precipitating factors such as the presence of exudates, irritants, etc.

MASD related to IAD are the most frequent and painful (they affect the general state of health of the person, their quality of life and in a large number of cases are considered preventable injuries). In our environment, the epidemiological prevalence of MASD is still little studied but it is noted that they will increase when delving into specifically identifying this aetiology,<sup>1, 2, 6, 7</sup> especially because the coexistence of faecal and urinary incontinence is very frequent, particularly in elderly and those institutionalised in socio-sanitary centres; an incident that increases with age and with the presence of comorbid pathologies (as common in women as in men).<sup>11-14</sup>

The moisture associated with incontinence, either urinary type, faecal or a combination of the above, is considered a risk factor for the onset of pressure ulcers (PU),<sup>14-17</sup> which combined with non-relieved pressure or shearing, aggravates the effects of these because it decreases the body's natural defence.

In the 4<sup>th</sup> National Prevalence Study for PU in Spain,<sup>18</sup> according to the aetiology, moisture associated skin damages (MASD) represent 6.5 % of the total. In addition, the existence of 16 % of combined injuries was determined: pressure and/or a shearing + moisture. By levels of care, the prevalence of MASD in Primary Care was 3.7 %; in hospital centres 8.1 % and in socio-sanitary centres 5.25 %. Depending on the location, the gluteal areas and genitals (areas of the diaper) were the most affected, mainly by injuries due to dermatitis associated with incontinence.

## 05 | ETIOPATHOGENESIS. PREDISPOSING FACTORS<sup>13, 14, 19, 22</sup>

The MASD occur due to three major general factors that act by deteriorating the skin and reducing its barrier effect and that in turn interact and become more powerful amongst each other:

1. The effect of an excess of moisture on the skin (incontinence, sweating, exogenous solutions...) (**figure 2**).



**Figura 2. Incontinence associated dermatitis (IAD)**

2. Due to the action of irritating chemical agents (cosmetic products of topical application, exudates...) (**figure 3**).



**Figura 3. Dermatitis with topical product remains and faecal incontinence**

3. Due to the activity resulting from an excessive and repeated cleaning and hygiene (physical irritation) (**figure 4**).



**Figura 4. Dermatitis resulting from excessive and repeated cleaning and hygiene**

The consequences of this skin lesion are the initial appearance of dermatitis and / or eczema with inflammation and erythema (complete skin) which, if it is not detected and treated properly, can lead to chronic lesions associated to moisture (damaged skin) (figure 5). These lesions due to moisture in turn, need to be addressed early and satisfactorily, since, as we said above, if they are combined with pressure can result in deeper lesions (pressure ulcers).



**Figura 5. Deterioration of the skin integrity due to excess moisture**

On the other hand, exposure to the various sources of moisture is not sufficient cause to produce a lesion on the skin (dermatitis), the probability of producing a lesion will also be determined by other contributing factors such as prolonged exposure (duration), volume, amount, content, type and the intensity of the irritant (substance that causes the moisture), duration of the irritant, volume and amount of the irritant, skin conditions (integrity of the skin), the mechanical factors like the forces of friction and shearing, the presence of potential pathogenic micro-organisms present in the skin, the patient's health status, age, etc. (figures 6 and 7).

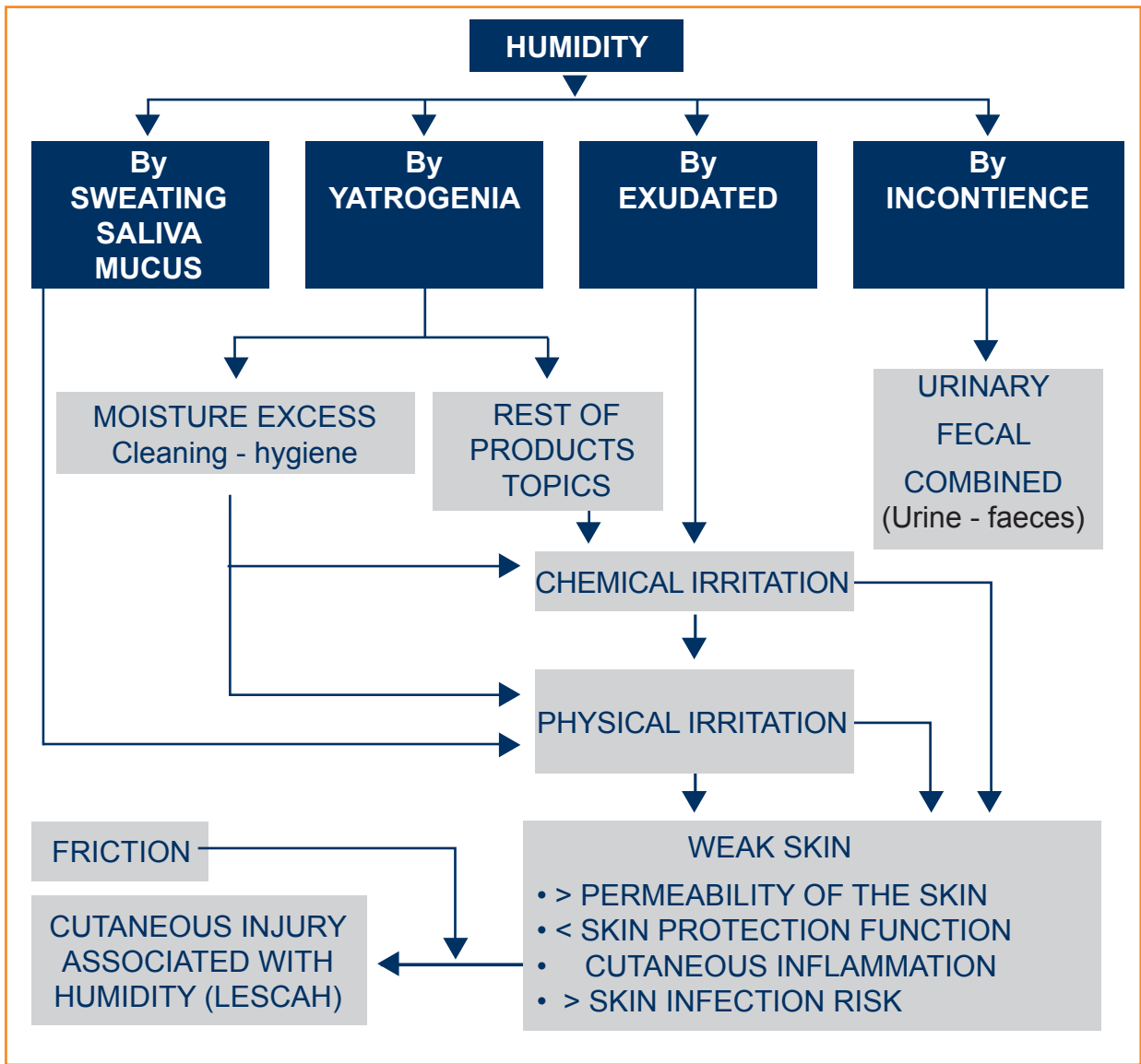


Figure 6. Classification of the MASD according to their etiopathogenesis



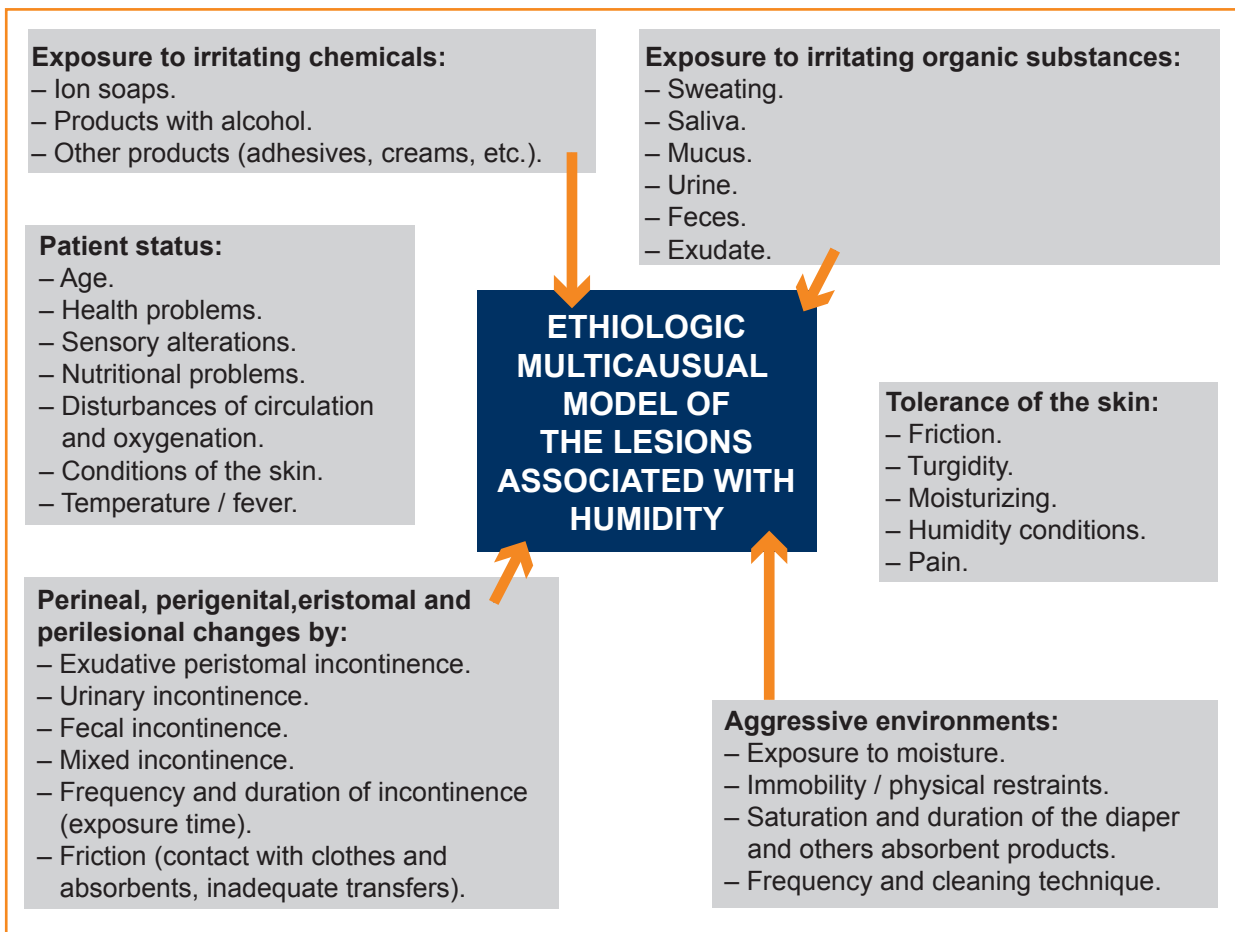


Figure 7. Multicausal aetiological model of MASD

In the following scale, regarding the different types of irritating substances, the intensity of affectation that a prolonged excessive contact can cause on the skin is reflected from lowest to highest.

TYPE OF IRRITATING SUBSTANCE	INTENSITY OF AFFECTATION
Water (hot / cold).	+
Sweat.	+
Saliva.	+
Mucus.	+
Urine.	++
Topical irritating products.	++
Exudate.	++
Formed faeces.	+++
Urine and faeces.	++++
Soft faeces with or without urine.	++++
Liquid faeces with or without .	+++++

## 06 PATHOPHYSIOLOGY CLINICAL MANIFESTATIONS<sup>13,14,19-22</sup>

Generally, the skin of the person affected by MASD becomes fragile due to excessive moisture and/or to the chemical irritation produced by the action of the urine, faeces or exudates, as well as by the physical irritation that could result from the repeated friction exerted during the activities of hygiene, toilet or mobilisations of the patient. This alteration of the protective barrier of the skin makes it more vulnerable, increasing the probability that it deteriorates; it is characterised because, due to the establishment of an inflammatory process (dermatitis), with skin alkalinisation, alteration of the dermolipid layer, and consequent deterioration of the skin integrity and tissue caused by the friction of external forces associated with excessive exposure of the skin to moisture.

The main physiopathological processes and clinical manifestations involved in MASD are:

PHYSIOPATHOLOGICAL PROCESSES	ELEMENTS INVOLVED	CLINICAL MANIFESTATIONS
<b>INFLAMMATORY PROCESS (Dermatitis)</b>	<ul style="list-style-type: none"> <li>– Excess moisture.</li> <li>– Continuous or repeated washing of the exposed area.</li> <li>– Presence of urine, faeces, exudates, sweat...</li> </ul>	<ul style="list-style-type: none"> <li>– Excessive humidity can injure the skin by macerating it (softening and breakage as a result of prolonged exposure to moisture).</li> <li>– Improper use of prolonged occlusion products (products for incontinence, dressings, etc.), which can be saturated and can favour that the skin is exposed to greater risk of injury.</li> <li>– Prolonged exposure to moisture, as well as improper drying can result in a softening of the skin that if maintained or increased can lead to dermatitis. The resulting skin eczema tends to become more chronic, with the consequent increase in the permeability of the skin to potentially produce oedema, erythema, maceration, tissue excoriation, exudation, scabs, itching and pain.</li> </ul>

<p><b>SKIN ALKALINISATION</b></p>	<ul style="list-style-type: none"> <li>– Excess moisture.</li> <li>– Continuous or repeated washing of the exposed area.</li> <li>– Presence of urine, faeces, exudates, sweat...</li> </ul>	<ul style="list-style-type: none"> <li>– The water penetrates the intracellular spaces of the corneal stratum fixing to the proteins. The corneal stratum can increase up to 5 times its size and the skin loses its barrier effect due to dehydration. This makes the enzymatic activity, the permeability of the skin and the microbial activity increase.</li> <li>– Normal skin pH varies between 4.8 - 5.6 which guarantees the existence of an acid mantle that prevents the existing balance with the normal flora breaking down. Repeated, prolonged exposure to moisture and irritating substances contained in urine and faecal enzymes can cause irritation and produce harmful effects which increase the risk of deterioration in the skin.</li> <li>– The presence of urine creates an alkaline environment (due to the decomposition of the urinary urea in ammonium hydroxide), which favours the proliferation of bacteria and in turn can degenerate into irritation, inflammation and infection of the skin.</li> </ul>
<p><b>DERMOLIPID ALTERATION</b></p>	<ul style="list-style-type: none"> <li>– Continuous or repeated washing of the exposed area.</li> <li>– Excess moisture.</li> </ul>	<ul style="list-style-type: none"> <li>– Frequent washing of the affected skin, can change the function of the protective barrier of the skin as the skin lipids are removed and the loss of epidermal water is accelerated with the consequent loss of cutaneous elasticity (skin xerosis). This can be increased by the use of certain products for washing/ hygiene with sensitising components that would release proinflammatory substances that result in contact dermatitis.</li> </ul>
<p><b>DETERIORATION OF THE SKIN AND TISSUE INTEGRITY</b></p>	<ul style="list-style-type: none"> <li>– Excess moisture.</li> <li>– Continuous or repeated washing of the exposed area.</li> </ul>	<ul style="list-style-type: none"> <li>– Excess moisture can increase the friction coefficient, causing the skin to crack or fissure. Repeated cleaning activities also involve carrying out friction in the drying and possible mechanical type lesions. An inadequate drying may result in an excess of moisture that if maintained or increased will favour dermatitis</li> <li>– The forces of friction and shearing, fundamentally in the intergluteal, perianal, perigenital area and integumentary folds, associated with a lower skin tolerance, may lead to the fact that pressures maintained, although not excessive, give rise to a local ischemic process with the consequent injury and/or necrosis (stage II ulcer).</li> </ul>

# 07 | DIAGNOSTIC ASSESSMENT. CLASSIFICATION AND CLINICAL DIFFERENTIATION

The proper assessment of the skin exposed to moisture and/or to skin irritants is essential, and therefore it has to be one of the priority objectives to achieve the early detection and treatment of this type of lesion and prevent its evolution to more complex clinical stages.

## 7.1. SCALES OF ASSESSMENT OF THE RISK OF LESION DUE TO MOISTURE

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There are various scales or instruments to be able to make a correct assessment of the risk of moisture associated skin damages and consequently be able to adopt the necessary measures to plan and carry out the most appropriate treatment:

There are various scales or instruments to be able to make a correct assessment of the risk of moisture associated skin damages and consequently be able to adopt the necessary measures to plan and carry out the most appropriate treatment:

- a) **Visual Scale of the Erythema (EVE):** Designed by Fader<sup>23</sup> from the Quinn scale for contact dermatitis<sup>24</sup>. Consists of a numeric scale of 0 to 4, which determines up to five colorimetric degrees of erythema assessment (**annex 1**).
- b) **Iconographic scale of Diaper Rash caused by Moisture (DPH):** Designed by Palomar,<sup>25</sup> from the EVE scale. Consists of a visual scale that assesses the erythema colour and the degree of skin affectation. This scale classifies the severity of the lesion by moisture in 6 types (**annex 2**).
- c) **PAT, Perineal Assessment Tool:** Originally developed by Nix,<sup>26</sup> and adapted by GNEAUPP.<sup>1</sup> It is a scale that consists of 4 items or factors that assess the risk of skin lesion due to incontinence in the perineal area (**annex 3**).
- d) **Perineal Dermatitis Grading Scale:** Created by Brown and Sears.<sup>27</sup> It is a scale of 4 items that assess the scope and severity of the incontinence associated dermatitis (IAD), and the changes in these factors as a result of nursing intervention (**annex 4**).
- e) **IAD, Incontinence Associated Dermatitis Skin Condition Assessment Tool:** Developed by Kennedy and Lutz<sup>28</sup> consists of three items that assess the degree of skin impairment due to incontinence associated dermatitis (**annex 5**).
- f) **Severity scale of skin lesions due to incontinence (ESLCI):** Developed by Rueda J. et al.<sup>29</sup> It is a scale of 0 to 12 points (0 = intact healthy skin, 12 = severely damaged skin), obtaining the sum of the scores through the assessment of four sub-sections with values between 0 and 3 points (**annex 6**).

- g) **Moisture Sub-scale of the Braden Scale:** The Braden Scale<sup>30</sup> is a validated scale that is used to predict the risk of pressure ulcers; it includes six sub-scales, of which one refers to moisture as a risk factor.<sup>31</sup> This sub-scale consists of 4 items that assess the exposure level of the skin to moisture (annex 7).

## 7.2. CLASSIFICATION OF MASD

Based on the study by Torra i Bou et al.<sup>1</sup> and using the latest diagnostic classifications<sup>2-5</sup>, MASD are classified into 6 types (table No.1).

Additionally, the GNEAUPP proposes classifying MASD into two categories, depending on the lesion suffered by the skin tissue associated with moisture:<sup>2, 3</sup>

### Category I: Erythema without loss of skin integrity

There would be integral skin with redness (blanchable or not) of a localised area, usually subjected to moisture. At the same time, and depending on the erythema, there are two subclasses:


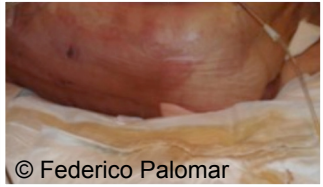

- **Category 1 A:** Mild-to-moderate erythema (pink skin).
- **Category 1 B:** Intense erythema (dark pink or red skin).

### Category II: Erythema with loss of skin integrity

There would be loss of thickness of the dermis in the form of surface lesion of reddish-pink bed, usually with yellowish-white macerated perilesional edges. At the same time, and depending on the degree of erosion and/or excoriation this can be classified into two subcategories:

- **Category 2 A:** Mild-to-moderate (erosion < 50 % of the total erythema).
- **Category 2 B:** Intense (erosion of  $\geq$  50 % of the size of the erythema).

Table No. 1. Classification of the MASD<sup>1</sup>

TYPE OF MASD	DESCRIPTION	FACTORS IMPLIED	IMAGES
<b>Dermatitis associated with incontinence (DAI)</b>	Skin affection related to the prolonged contact with irritant substances by urinary, fecal or mixed incontinence and absorbent products.	<ul style="list-style-type: none"> <li>- Urine and / or faeces.</li> <li>- Absorbent products.</li> <li>- Hygiene and cleaning products.</li> </ul>	 © Teresa Segovia
<b>Intertriginous dermatitis or dermatitis by perspiration</b>	Skin affection related to the prolonged contact with sweat on cutaneous folds.	<ul style="list-style-type: none"> <li>- Sweat.</li> <li>- Pressure and friction by folds.</li> <li>- Occlusion by folds.</li> <li>- Superinfection by flora.</li> </ul>	 © Federico Palomar
<b>Perilesional dermatitis associated with exudation</b>	Skin affection related to the prolonged contact with exudation from the perilesional skin lesion.	<ul style="list-style-type: none"> <li>- Exudation from injuries.</li> <li>- Type of dressings.</li> <li>- Adhesives for dressings.</li> </ul>	 © Federico Palomar

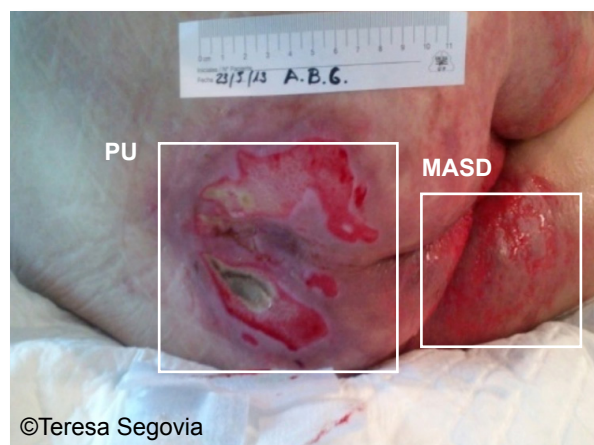
<p><b>Cutaneous dermatitis associated with exudation</b></p>	<p>Skin affection related to prolonged contact with exudation of some extremity with the skin.</p>	<ul style="list-style-type: none"> <li>- Exudation not coming from injuries.</li> <li>- Base pathologies: lymphedema, etc.</li> </ul>	 <p>© Teresa Segovia</p>
<p><b>Peristomal dermatitis</b></p>	<p>Skin affection related to prolonged contact of fluids from the stoma.</p>	<ul style="list-style-type: none"> <li>- Fluids proceeding from ostomy.</li> <li>- Type of collecting device.</li> <li>- Adhesive of the device.</li> </ul>	 <p>© Pedro Pita</p>
<p><b>Dermatitis by salivation or mucus</b></p>	<p>Skin affection related with the prolonged contact with saliva or mucus from the oropharyngeal cavity or nostrils.</p>	<ul style="list-style-type: none"> <li>- Saliva.</li> <li>- Mucosity.</li> <li>- Rubbing or friction.</li> <li>- Pressure.</li> <li>- Related pathological processes (neurological, psychiatric disorders, etc.)</li> </ul>	 <p>©JM Rumbo Prieto</p>

### 7.3. CHARACTERISTICS OF DIFFERENTIATION BETWEEN MASD AND PU

Currently, several studies show the need to aetiologically separate pressure ulcers of the skin lesions associated to the humidity caused by incontinence (**table No. 2**), in order to adequately deal with the causal relationships that favour them and take preventive and specific actions for their therapeutic approach.<sup>1-3, 8, 10, 19, 20, 32-34</sup>

**Table No. 2. Clinical-morphological differences between MASD and PU**

CHARACTERISTICS OF THE LESION	MOISTURE ASSOCIATED SKIN DAMAGES (MASD)	PRESSURE ULCERS (PU)
CAUSES	Presence of moisture.	– Presence of pressure and / or shearing.
LOCATION	In skin folds, soft and extensive parts of the skin. In perineal and perigenital area. In bone prominences, without pressure / shearing.	– On bony prominences. – On soft parts subjected to pressure and / or shearing.
SHAPE	Irregular. Tend to be “mirrored” or in the form of “butterfly wings”. Diffuse and dispersed in more than one place. Linear in furrows or folds.	– Circular and regular. – Well confined. – Limited to a single place.
DEPTH	Superficial and very extensive.	– Superficial or deep (according to stages).
NECROSIS	There is usually no necrosis.	– It may be present (eschar or necrotic plaque).
EDGES	Irregular and diffuse.	– Clearly distinguishable. – Sometimes, raised and thickened edges.
COLOUR	Non-uniform redness (diffuse erythema). Pink or white (maceration due to moisture).	– From red to purple, according to category.
OTHER POSSIBLE APPEARANCES	Fever, leukocytosis, candidiasis, (clinical signs of skin infection). Pain or itching.	– Induration or fluctuation. – Chronic /acute pain. – Itching, burning. – Fetid smell.
<b>Pressure + moisture = mixed or combined lesions (MASD + PU) (figure 8).</b>		



**Figure 8. Pressure + moisture (MASD + PU)**

## 08 | GENERAL GUIDELINES ON PREVENTION AND TREATMENT

The integral approach of the MASD include that their prevention and treatment is made taking into account the following proposed activities:

### 8.1. DETERMINE THE CAUSE OF THE LESION

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An anamnesis is recommended, together with a visual examination of the skin and a physical examination, in order to determine the cause which gave rise to the lesion and to be able to carry out a differential diagnosis of the lesions **[GP]**.<sup>14</sup>

### 8.2. RISK ASSESSMENT

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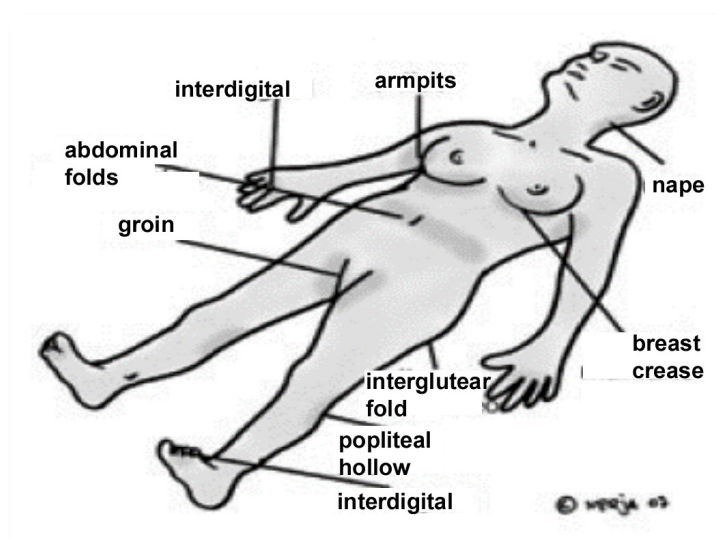
The use of a validated instrument that allows the condition of the skin to be checked and its evolution monitored is advisable. Preferably, the EVE, PAT scale and moisture sub-scale of the Braden scale are recommended **[R = High]**.<sup>16, 17</sup>

Assess all of the processes that can cause an excess of moisture in the skin: incontinence, profuse sweating, drains, wound exudate, fever **[R = Low]**.<sup>16</sup>

### 8.3. SKIN CARE

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To have a structured skin care plan based on adequate cleaning / hygiene of the skin areas exposed to moisture **(figure No. 8)**.



**Figure 8. Body areas at risk of excessive moisture**

(Source of the image: GPC Valencia. 2008)<sup>15</sup>



The thorough cleaning of the areas exposed to prolonged moisture, as well as a proper drying of the skin, constitute the first step to keep skin integrity, especially in the case of incontinent patients or those with fragile or vulnerable skins **[R = Low]**.<sup>16</sup>

Traditionally soap and water have been used to clean the skin. It is not possible to speak of evidence on what would be the best frequency, washing technique and the most appropriate type of drying to maintain hydration of the skin and its protective function; however, the frequent and repeated use of conventional soaps is considered a technique that is too aggressive for skins exposed to moisture and for fragile skins **[E]**.<sup>35-37</sup>

During washing the water produces a mechanical action (drag) which helps to remove the organic residues present in the skin and a chemical action that facilitates the dissolution of the soluble chemicals. If the water used for washing is too hot, this could also lead to heat lesions, excessive and unnecessary drying of the skin **[E]**.<sup>14, 35-37</sup>

As soapy solutions contain fatty acids or triglycerides and ionic surfactants such as sodium lauryl sulphate, they can produce, due to frequent and repetitive use, or when coming into contact with the faeces and urine, that the skin's pH can be further increased causing its alkalinisation, reducing the thickness of the corneal stratum and even damaging or removing the hydrolipidic skin mantle, as well as, disturbing the balance of saprophytic flora with the consequent increase in the risk of colonisation by pathogenic micro-organisms and encouraging contact dermatitis,<sup>13, 37</sup> or worsening the existing one. It is estimated that the skin takes, in normal conditions, about 45 minutes to restore its normal pH (between 4.8-5.6), but in cases of prolonged exposure to moisture or incontinence, this process can take up to 24 h.<sup>13</sup>

The subsequent drying after washing with soap and water requires an adequate technique, especially in incontinent patients, since it is one of the procedures that best prevents the risk of skin lesions due to moisture and prevents excessive body cooling (dryness of the skin). The skin must be dried softly, very carefully, using small "little touches", avoiding that the skin be rubbed as this can lead to friction and generate discomfort, paying special attention to the areas of the folds, perianal and perigenital areas **[R = Low]**.<sup>16, 17</sup>

In cases of cutaneous eczema (dermatitis), macerated skin or that skin lesions are presented (cracks, fissures or small excoriations), it is recommended to use cleaning products with a single step action (apply and remove without rinsing); these products (aerosols or disposable wipes) by not using water for rinsing, provide more benefits (lower cost, less time of care and greater deodorant effect), in addition they do not leave the skin excessively dry or excessively moist and therefore do not alter the protective function of the skin as by washing with soap and water **[GP]**.<sup>13, 35-39</sup>

A number of studies have concluded that a better knowledge by professionals and users themselves, on the different hygiene products available and their benefits, would help to maintain the skin care **[GP]**<sup>14</sup>. Hence the need to develop a structured health education plan that is understandable for all levels to which it is addressed and that integrates both the professionals as well as the network of informal carers.<sup>1, 7, 13, 14, 25</sup>

## 8.4. SKIN PROTECTION

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To carry out a programme for skin protection by keeping it hydrated and protected from the effects of moisture and incontinence **[R = Low]**.<sup>16, 17</sup>

The use of moisture barrier products, also called skin protectors (moisturising substances, emollients, moisturising and barrier products), provide and promote the topical protection when faced with an excess of external moisture, incontinence and other body fluids, as well as causes of iatrogenic complications. The most usual are the following:

- **Hyper-oxygenated fatty acids (AHHO):**

Hyper-oxygenated glycerides are essential fatty acids (linolenic and linoleic), palmitic and stearic, of phytosterols and tocopherol (vit. E) in a 99 %.<sup>15</sup> Their formulation is in oil and emulsion, there are also those mixed with silicone and aloe, among other substances. They stand out due to their properties to improve the hydration of the skin and prevent cutaneous dryness, increasing frictional resistance and also reducing erythema and eczema, and easing the sensation of pruritus.<sup>39,40</sup> Therefore they constitute an important prevention option to improve the skin hydration and resistance against the friction, pressure and excess moisture in adult patients. **[R = High]**.<sup>15-17</sup>

- **Barrier products that incorporate zinc oxide:**

Zinc is an essential trace element that is to be found in virtually all cells. Zinc oxide ( $O_2Zn$ ), formulated as a cream, paste, ointment, cream or oil, is one of the most widely known compounds due to its action as a skin protector and repairer, and is commonly used for treatment of erythema associated with use of absorbent products (diaper) and to the continuous exposure of urine and faeces. There is evidence of an adequate skin protection for excess moisture with barrier creams based on zinc oxide **[R = Low]**;<sup>16-17</sup> being recommended for use in integral skin and with a concentration of not less than 10 % of zinc oxide.<sup>13</sup> On the other hand, its mixing with other products (especially with perfumes) can generate irritation; in addition, in the case of the paste or cream as they are more viscous and have a concentration >20 % zinc they are difficult to remove so it is advisable to use oil-based substances **[R = Very Low]**<sup>16, 17</sup> and should not be used in cases of very irritated skin, due to the high possibility of friction (fragile skin).<sup>6</sup> Nor must zinc oxide be used as product barrier if there is suspicion of signs of infection in the skin as it can cause a bacterial contamination in situ **[R = Low]**.<sup>14</sup>

- **Barrier products that incorporate silicones:**

There are basically three types of silicone barrier products: those which contains Polyphenylmethylsiloxane (plasticizer with silicone base) that allows the formation of a flexible film;<sup>41</sup> Hexamethyldisiloxane (silicone based solvent) which is non irritating and is rapidly evaporated;<sup>17, 41</sup> and the siloxanes (group of silicone-based oils, like dimethicone), mixed as a barrier cream in skin care.<sup>35, 36</sup> They are often used because they help skin protection, are transparent substances that act by reducing the resistance of friction forces and repelling external moisture, while protecting the skin from excessive drying **[GP]**.<sup>14, 35, 36</sup> As a warning, care should be taken not to abuse silicone creams that already have the disadvantage of interfering with the absorbent products by saturating them, due to the excessive time needed to be absorbed in their entirety by normal skin.<sup>41</sup>

- **Barrier products with petroleum jelly:**

Petroleum jelly is an emollient substance that is mixed with other compounds. It is characterised by having a protecting and hydrating function for the skin; being an alternative to other barrier products. It is commonly used mixed as an excipient (stringy or in paraffin oil). The normal concentration for use tends to be between 48 % and 98%<sup>42</sup> This is indicated for the treatment and protection of erythema associated to continuous exposure of faeces and urine **[GP]**.<sup>16</sup> The excessive use of products mixed with petroleum jelly (or pure 100% petroleum jelly) cause clogging reactions, and may interfere with the absorption of the urine and liquid faeces by the absorbent product (diaper, alginates, etc.), they can also cause abrasions and irritative maceration in the area of the lesion.<sup>41</sup>

- **Barrier products with karaya:**

Karaya is a vegetable gum (polysaccharide) that is used in combination with other compounds in the form of an excipient (karaya powder). It can usually be found in water-based paste and ointment formulations. It is characterised by having the capacity to absorb excess moisture and improve the adhesion of the barrier product to the moist and/or macerated skin surface. The use of karaya based products are recommended for severe cases of recurrent diarrhoea (faecal incontinence) **[GP]**<sup>3</sup> and incontinence of ostomies, due to its beneficial protection action of the skin against the maceration. Among its disadvantages is that it does not allow the lesion to be viewed, often irritates and / or macerates the skin in long-term treatment; in the case of the ointment, it must be removed with oil-based oil (paraffin).<sup>41</sup>

- **Polymer barrier film:**

Generally, they are composed of an acrylic copolymer and plasticizer, which is non-irritating and alcohol-free (e.g., acrylate terpolymer). They are characterised by their protective effect on the skin as they form a waterproof barrier that do not allow moisture or fluids to pass, but are permeable to the exchange of water vapour and gases. Once the film (or the cream) has been applied, is necessary to let it dry 30-60 seconds before covering the affected area, its protective effect is stable for 72 hours; being advisable to repeat the application every 24 hours in cases of severe incontinence.<sup>37</sup> The film becomes inactive in contact with oily based products or by the friction in the contact zone.<sup>14, 16</sup> Barrier films are used in the prevention and treatment of the dermatitis in the perilesional area of any type of wound, stoma or drain **[R = Moderate]**.<sup>16, 42</sup> Its use is also recommended in those areas exposed to incontinence, folds and soft parts to prevent bodily fluids irritating the skin due to excessive moisture **[R = Low]**.<sup>16</sup>

- **Non-polymer barrier film:**

These are films that are associated with alcoholic solutions or volatile products to encourage rapid drying of the excess moisture from the skin.<sup>14</sup> In the basic skin hygiene, solutions with alcohol are not recommended **[R = Moderate]**,<sup>16</sup> as they may cause toxicity in the tissues, in addition to greater pain and irritation of the macerated or eczematous skin.

- **Adhesive dressings:**

Under this group are included polyurethane films and extra-fine hydrocolloid dressings. The polyurethane film should not be used on areas with moderate exudate or very exudative **[R = Very Low]**.<sup>16</sup> The use of polyurethane film is also not advisable as barrier products for its ease to retain the exudate and moisture, which can encourage bacterial proliferation and lead to macerating the healthy skin **[BP]**.<sup>17</sup>

In addition to the use of barrier products, there is also a need to assess the possibility of using control devices, for each case in particular:

• **Incontinence:**

Collectors, bladder probes and absorbent diapers [R = Low].<sup>28</sup>

• **Drains:**

Use of appropriate devices and monitor drain leaks [R = Low].<sup>28</sup>

• **Profuse sweating:**

Control de temperatura y cambio de ropa cuando sea necesario [R = Low].<sup>28</sup>

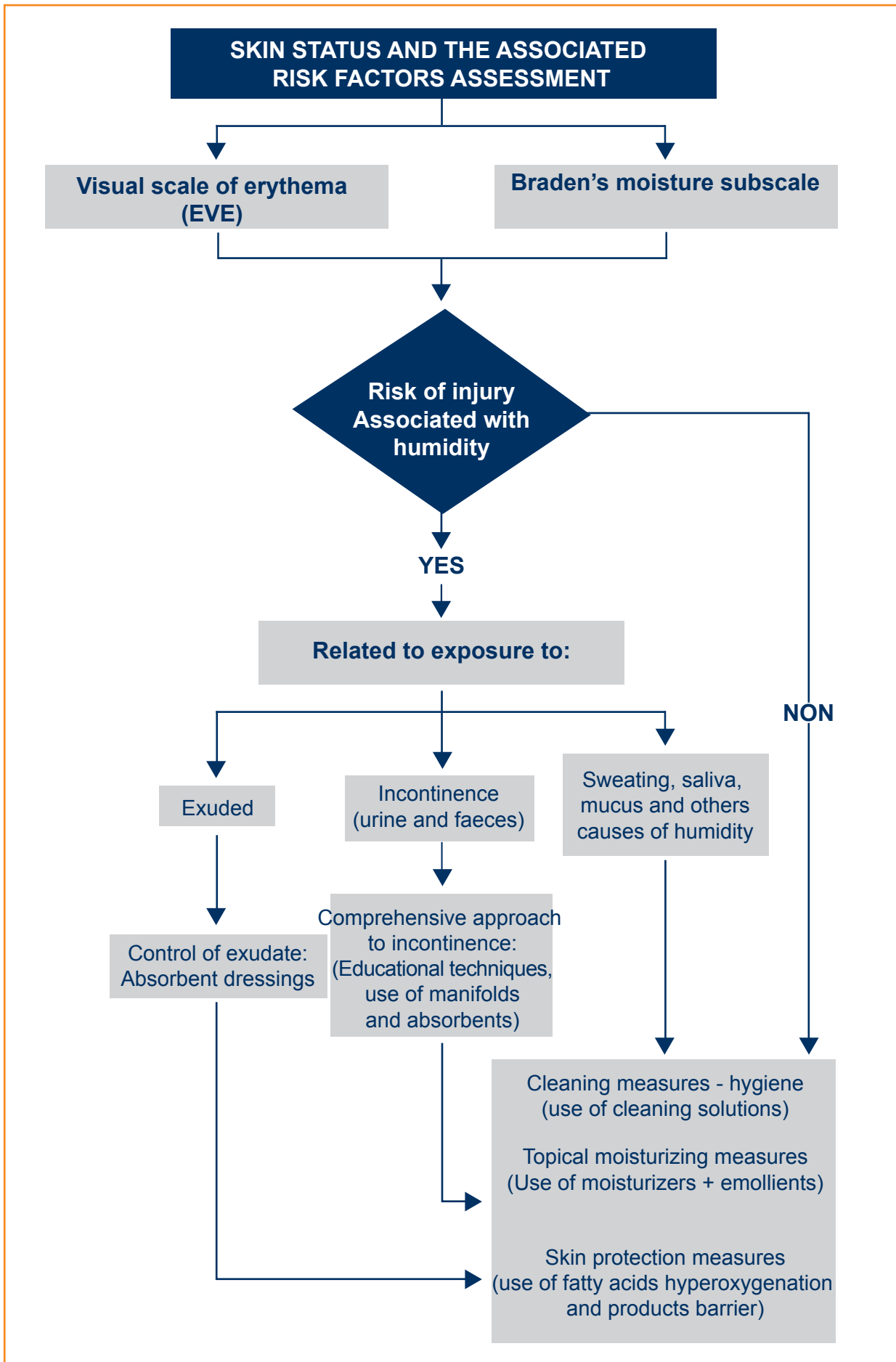
• **Exudate from wounds:**

Use absorbent dressings depending on the amount of exudates from wounds and the frequency of scheduled dressing (those of the hydrocellular and hydropolymeric foam family, hydrocolloid hydrofibres and alginates are highly absorbent and can also treat exogenous microbacterial contamination if they are combined with silver derivatives to treat local infection [R = Low].<sup>28</sup>

## 8.5. GENERAL CLEANING AND HYGIENE MEASURES

CLEANING AND HYGIENE MEASURES	CARE
SKIN EXPOSED TO MOISTURE:	<ul style="list-style-type: none"> <li>• Observation of areas exposed to moisture.</li> <li>• Use non-irritant products (pH 5.5, hypoallergenic).</li> <li>• Use of potable water at room temperature.</li> <li>• Proper drying of the skin, gently without rubbing.</li> <li>• Daily moisturising.</li> <li>• Repetitive use of soaps with fatty acids and / or triglycerides = risk of skin alkalinisation.</li> <li>• Irritants: Sodium laureth sulphate, methyl.</li> <li>• Non-irritating agents: (propylene glycol, cocamidopropil betaine, polysorbate-20).</li> </ul>
SKIN WITH ERYTHEMA OR ECZEMA:	<ul style="list-style-type: none"> <li>• Cleaning products with a single step action (apply and remove without rinsing).</li> <li>• Hydration with AGHO (hyper-oxygenated fatty acids) in non-oily emulsion.</li> <li>• Protection with barrier creams with zinc oxide (10 % - 30 %). Lassar paste.</li> <li>• Protection with barrier creams with: silicone, karaya, petroleum jelly, polymeric-acrylic, etc.</li> </ul>

## 8.6. DECISION ALGORITHM FOR THE PREVENTION OF MASD



## 8.7. HEALTH EDUCATION<sup>13-17</sup>

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The objective of health education (ED) is that the patients affected with MASD, or at risk of allergies; as well as their families and carers, are active subjects in the prevention and treatment of this type of lesion to achieve greater independence in the maintenance and/or improvement of their own quality of life. A correct ED favours the prevention and treatment of lesions **[R = C]**.<sup>17</sup> It is also important that professionals learn to differentiate this type of lesions from others so that, early on, they are able to identify the risk and properly implement prevention and treatment measures.

It is demonstrated that the ED favours the involvement of the patient and the main carers in prevention and treatment; since they act as support to improve the decision-making of the health professionals who treat MASD. This being the most effective preventive, cheap and effective measure.

ED programmes should be structured and adapted to the individual characteristics of each patient (prior evaluation of their capacities). All health fields should have a health education programme to prevent the appearance of these lesions (workshops, brochures...), which include: Basic knowledge on the aetiology, physiopathology, risk factors, care to prevent their occurrence, impact that their emergence entails, early detection of lesions and action before their appearance. It is therefore a priority, to develop clinical practice guidelines that include recommendations for the care that involve the views, preferences and expectations of the patient and the main carer.

Health professionals have various educational interventions that make the design of preventive strategies possible to reduce and/or eliminate the risk of moisture lesions, as well as promote ED to facilitate the self-care of the patient. Some of the most effective educational techniques, according to the scientific evidence would be:

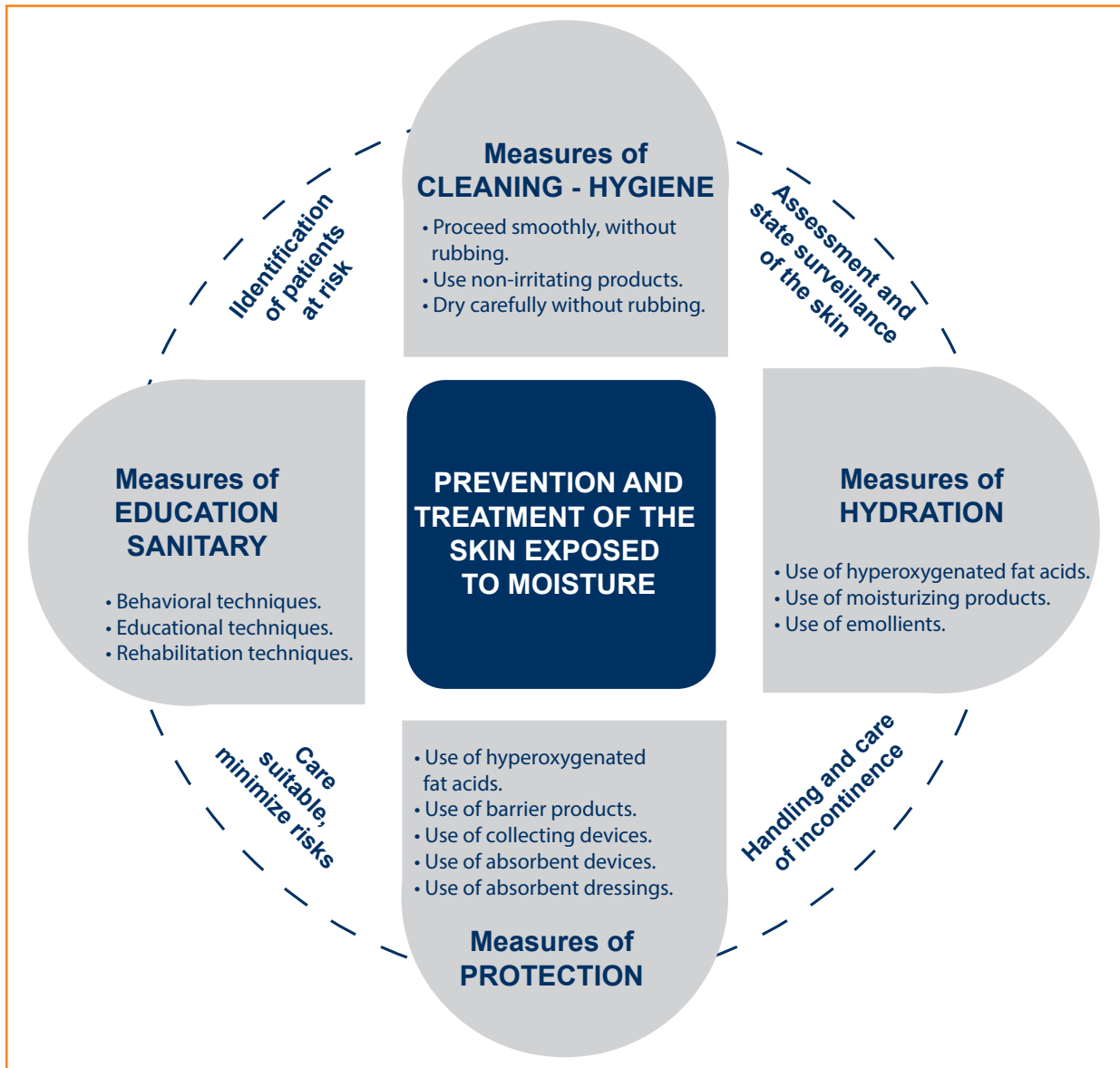
- **Educational and instructive techniques:**

They are constituted by care strategies oriented toward those dependent individuals who require assistance of a carer. The recommended strategies are: teaching about adequate cleaning and hygiene, correct application of the topical therapies, etc. **[GP]**.<sup>14, 37, 43</sup>.

- **Behavioural-educational and rehabilitative techniques:**

These are techniques recommended in those patients / individuals that are receptive for their self-care. They are positive reinforcement treatments that consist in bladder training, rehabilitation of the pelvic floor, hygienic-dietetic measure, etc. **[GP]**.<sup>14, 37, 43</sup>.

## 8.8. MODEL FOR THE PREVENTION AND TREATMENT OF THE MASD



## 09 SUMMARY OF EVIDENCE RECOMMENDATIONS

EVIDENCE [E] / RECOMMENDATION [R] / GOOD PRACTICE [GP]		LEVEL / GRADE
[GP]	Carry out an anamnesis, a visual examination of the skin and a physical examination, in order to determine the cause which gave rise to the lesion and to be able to carry out a differential diagnosis of the lesions.	<b>LOW</b> (GNEAUPP, 2006). <sup>14</sup>
[R]	Use of a validated instrument that allows you to check the condition of the skin and monitor its evolution. Preferably, the EVE, PAT scale and moisture sub-scale of the Braden scale are recommended.	<b>HIGH</b> (GPC Valencia, 2012), <sup>16</sup> (GPC Zaragoza, 2013). <sup>17</sup>
[R]	The areas exposed to prolonged moisture should be carefully cleaned, as well as a proper drying of the skin.	<b>LOW</b> (GPC Valencia, 2012). <sup>16</sup>
[R]	Assess all of the processes that can cause an excess of moisture in the skin: incontinence, profuse sweating, drains, wound exudate, fever, etc.	<b>LOW</b> (GPC Valencia, 2012). <sup>16</sup>
[E]	The frequent and repeated use of conventional soaps is considered a technique that is too aggressive for skins exposed to moisture and for fragile skins.	<b>LOW</b> (Global IAD Expert Panel, 2015). <sup>35</sup>
[E]	Too hot water should not be used (preferably tepid), this could originate, in addition to lesions due to the heat, excessive and unnecessary drying of the skin.	<b>LOW</b> (GNEAUPP, 2006). <sup>14</sup>
[GP]	The use of soaps based on non-ionic surfactants like propylene glycol, polysorbate-20 and / or soaps with amphoteric surfactants like betaine cocamidopropyl are recommended, as they are less irritative and recommended for paediatric use.	<b>LOW</b> (GNEAUPP, 2006), <sup>14</sup> (Global IAD Expert Panel, 2015). <sup>35</sup>
[R]	The skin must be dried softly, very carefully, without rubbing and with special attention to the areas of folds and perianal and perigenital areas.	<b>LOW</b> (GPC Valencia, 2012), <sup>16</sup> (GPC Zaragoza, 2013). <sup>17</sup>



[GP]	In cases of skin eczema (dermatitis), macerated skin or which presents skin lesions (cracks, fissures or small excoriations), it is recommended to use cleaning products with a single step action (apply and remove without rinsing).	<b>VERY LOW</b> (GNEAUPP, 2006), <sup>14</sup> (JBI, 2007). <sup>38</sup>
[GP]	A better knowledge by professionals and the users themselves, on the different hygiene products available and their benefits, would help to maintain the skin care.	<b>VERY LOW</b> (GNEAUPP, 2006) <sup>14</sup> .
[R]	To carry out a programme for the protection of the skin keeping it hydrated and protected from the effects of moisture and incontinence.	<b>LOW</b> (GPC Valencia, 2012), <sup>16</sup> (GPC Zaragoza, 2013). <sup>17</sup>
[R]	Use hyperoxygenated fatty acids (in healthy skin) to improve hydration and skin resistance against the friction, pressure and moisture.	<b>HIGH</b> (GPC Valencia, 2012), <sup>16</sup> (GPC Zaragoza, 2013). <sup>17</sup>
[R]	Protect the skin from the excess moisture with barrier creams based on zinc oxide.	<b>LOW</b> (GPC Valencia, 2012) <sup>16</sup> , (GPC Zaragoza, 2013). <sup>17</sup>
[R]	Remove the zinc oxide barrier product with oil-based products before applying it again on the affected skin.	<b>VERY LOW</b> (GPC Valencia, 2012), <sup>16</sup> (GPC Zaragoza, 2013). <sup>17</sup>
[R]	Zinc oxide should not be used if signs of infection are suspected in the skin since it could lead to a bacterial contamination in situ.	<b>LOW</b> (GNEAUPP, 2006). <sup>14</sup> .
[GP]	Barrier products with silicon help to protect the skin, reducing the resistance of friction forces and repelling external moisture, while protecting it from excessive drying of the skin.	<b>VERY LOW</b> (GNEAUPP, 2006), <sup>14</sup> (Global IAD Expert Panel, 2015). <sup>35</sup>
[GP]	Barrier products with petroleum jelly are indicated for the treatment and protection of erythema associated to continuous exposure of faeces and urine.	<b>VERY LOW</b> (GPC Valencia, 2012). <sup>16</sup>
[GP]	It is recommended to use products with a Karaya base for severe cases of recurrent diarrhoea (faecal incontinence) and incontinence of ostomies, due to their beneficial action in protecting the skin against maceration.	<b>VERY LOW</b> (PREVENCARE, 2008). <sup>13</sup>
[R]	Use non-irritant polymeric barrier films to prevent and treat dermatitis in the perilesional area of any type of wound, stoma or drain.	<b>MODERATE</b> (GPC Valencia, 2012), <sup>16</sup> (Revisión sistemática, 2009). <sup>41</sup>

<b>[R]</b>	The use of non-irritant polymeric barrier films is recommended in those areas exposed to incontinence, folds and soft parts to prevent bodily fluids that irritate the skin due to excessive moisture.	<b>MODERATE</b> (GPC Valencia, 2012). <sup>16</sup>
<b>[R]</b>	Solutions with alcohol are not recommended in basic skin hygiene.	<b>MODERATE</b> (GPC Valencia, 2012). <sup>16</sup> <b>LOW</b> (GPC Zaragoza, 2013). <sup>17</sup>
<b>[R]</b>	It is not advisable to use polyurethane film on injuries with moderate exudate or that are very exudative.	<b>MODERATE</b> (GPC Valencia, 2012). <sup>16</sup>
<b>[GP]</b>	The use of polyurethane film is not advisable as a barrier product due to its ease in retaining the exudate and moisture, which can encourage bacterial proliferation and lead to macerating healthy skin.	<b>VERY LOW</b> (GPC Zaragoza, 2013). <sup>17</sup>
<b>[R]</b>	The possibility of using control devices, for each case in particular, should also be assessed: – <b>Incontinence</b> : Collectors, bladder probes and absorbent diapers. – <b>Drains</b> : Use of suitable devices (bags, redon drains...) and monitor leakage from drains. – <b>Profuse sweating</b> : Temperature control and change of clothes when necessary – <b>Exudate from wounds</b> : Use absorbent dressings depending on the amount of exudate from the wounds and the frequency of scheduled dressing.	<b>LOW</b> (GPC Valencia, 2012). <sup>16</sup> <b>C</b> (GPC Zaragoza, 2013). <sup>17</sup>
<b>[R]</b>	A correct health education favours the prevention and treatment of lesions.	<b>C</b> (GPC Zaragoza, 2013). <sup>17</sup>
<b>[GP]</b>	Instruct carers of dependent patients in educational techniques and behavioural techniques, education and / or rehabilitation in self-care to autonomous patients.	<b>VERY LOW</b> (GNEAUPP, 2006). <sup>16</sup>

# 10 LITERATURE

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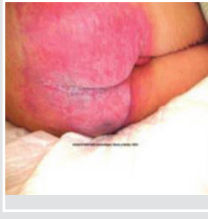



# 12 ANNEXES

## ANNEX 1

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VISUAL ERYTHEMA SCALE (EVE)	
0	No erythema.
1	Little erythema (almost imperceptible).
2	Moderate erythema (pink skin).
3	Severe erythema (red or purple skin).
4	Broken skin.

## ANNEX 2

ICONOGRAPHIC SCALING OF MOISTURE DIAPER DERMATITIS (DPH)			
CLASSIFICATION BY AFFECTION			
TYPE	SEVERITY	AFFECTATION	
Type 1	LICHENIFICATION: Thickened epidermis.	MILD	
Type 2	ERYTHEMA + EDEMA: Epidermal inflammation.	MILD +	
Type 3	ECZEMA DESCAMPING: Dry epidermis.	MODERATE	
Type 4	IRRITATIVE ERITEMA + HUMIDITY: Superficial epidermis.	MODERATE +	
Type 5	CANDIDIASIS: Affectation of the epidermis.	HIGH	
Type 6	ULCER: Deep dermis affection.	VERY HIGH	

## ANNEX 3

PERIANAL ASSESSMENT TOOL (PAT)			
	1	2	3
<b>INTENSITY OF THE IRRITANT</b>	Feces formed And / or urine.	Soft feces with or without urine.	Liquid feces with or without urine.
<b>DURATION OF THE IRRITANT</b>	Needs changes of diaper every 8 hours.	Needs changes of diaper every 4 h.	Needs changes of diaper every 2 hours.
<b>CONDITION OF THE PERINE SKIN</b>	Clean and intact.	Erythema and / or dermatitis with or without candidiasis.	Eroded skin with or without dermatitis.
<b>CONTRIBUTING FACTORS</b>	None or 1 factor.	2 factors.	3 or more factors.
(Contributing factors: antibiotics, low albumin, total parental nutrition, colonization, other.)			



## ANNEX 4

Perianal Dermatitis Grading Scale						
	1	2	3	4	5	6
<b>COLOR OF THE SKIN</b>	No erythema.	Mild erythema.	Moderate erythema.	Severe erythema.		
<b>INTEGRITY OF THE SKIN</b>	Intact.	Light eczema.	Erythema / skin disease.	Ampoules or vesicles.	Broken or macerated skin.	Crust or peeling.
<b>SYMPTOMS</b>	None.	Tingle.	Pruritus.	Burning.	Pain.	
<b>AREA OF EXTENSION</b>	(The length and width measured in centimeters, first for the right side and then for the left side).					

## ANNEX 5

Incontinence Associated Dermatitis, IAD					
	0	1	2	3	4
<b>CUTANEOUS EXPOSED AREA</b>	None.	Small area (<20 cm <sup>2</sup> ).	Moderate erythema.	Severe erythema.	
<b>CUTANEOUS ERYTHEMA</b>	None.	Mild redness.	Moderate redness.	Severe redness.	
<b>CUTANEOUS EROSION</b>	None.	Slight superficial epidermal erosion.	Moderate dermal erosion with or without exudate.	Severe epidermal erosion and moderate dermal erosion with or without exudate.	Extreme tissue erosion with moderate exudation.

### SEVERITY SCALE OF SKIN LESIONS BY INCONTINENCE

#### A) TOTAL REDNESS AREA

##### Punctuation

- 0 No area.
  - 1 Small area ( $\leq 20 \text{ cm}^2$ ).
  - 2 Moderate area ( $> 20 \text{ cm}^2 \leq 50 \text{ cm}^2$ ).
  - 3 Large area ( $> 50 \text{ cm}^2$ ).
- 

#### B) SEVERITY OF REDNESS AT THE WORST POINT

##### Punctuation

- 0 No redness.
  - 1 Soft redness (spots and uneven appearance).
  - 2 Moderate redness (severe in spots, but not uniform appearance).
  - 3 Severe redness (severe in uniform appearance).
- 

#### C) TOTAL DENUATION AREA OF THE SKIN

##### Punctuation

- 0 No area.
  - 1 Small area ( $\leq 2 \text{ cm}^2$ ).
  - 2 Moderate area ( $> 2 \text{ cm}^2 \leq 5 \text{ cm}^2$ ).
  - 3 Large area ( $> 5 \text{ cm}^2$ ).
- 

#### D) SEVERITY OF DENUATION OF THE SKIN AT THE WORST POINT

##### Punctuation

- 0 No denudation of the skin.
  - 1 Soft denudation in the epidermis (some glassy appearance).
  - 2 Partial gross denudations that extend to the glassy layer of the epidermis, but do not include it (glassy appearance of the skin).
  - 3 Partial or complete denudations that extend to the glassy layer of the epidermis and by it (very glassy appearance of the skin, humid or wet surface).
- 

**Total score (A + B + C+ D)**

## ANNEX 7

HUMIDITY SUB-SCALE OF THE BRADEN SCALE					
Exposure to humidity		Scale		Exposure level of the skin to moisture	
<b>CUTANEOUS EXPOSED AREA</b>	None.	Small area (< 20 cm <sup>2</sup> ).	Moderate erythema.	Severe erythema.	
	None.	Mild redness.	Moderate redness.	Severe redness.	
<b>CUTANEOUS EROSION</b>	None.	Slight epidermal erosion.	Moderate dermal erosion with or without exudation.	Severe epidermal erosion and moderate dermal erosion with or without exudate.	Extreme tissue erosion with moderate exudation.



