

WOUND CARE

INTRODUCTION TO WOUND DRESSINGS



JEC 2017

Wound Care

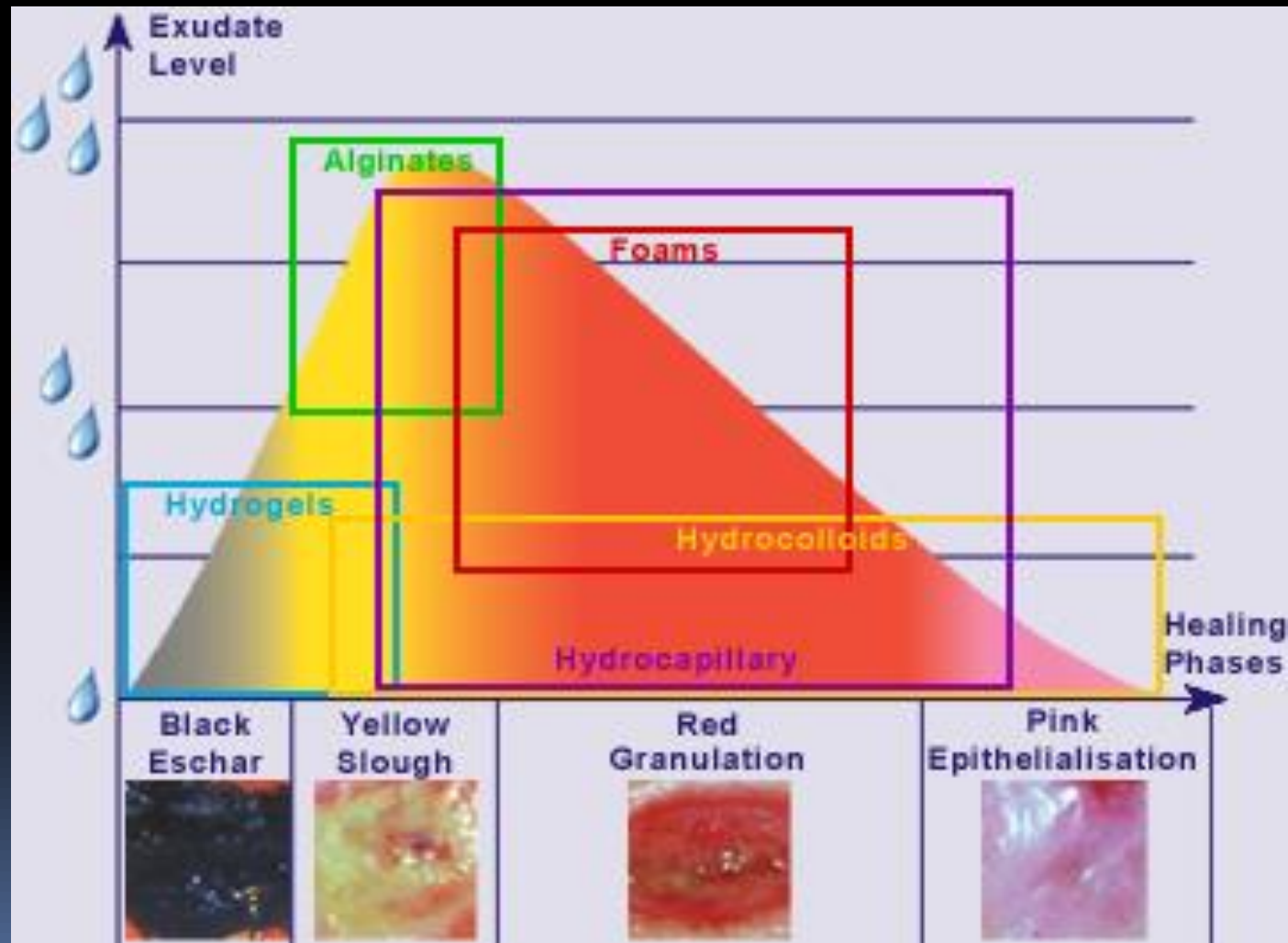
Successfully completed → specialized skills training in Wound Management.



WOUND CONDITIONS & SYMBOLS BY COLOURS

Black	Necrotic tissue
Yellow	Slough
Green	Infection
Red	Granulation
Pink	epithelization

INDICATIONS OF MODERN DRESSINGS



Wound Dressings

Wound Care → must be knowledgeable about the each dressing prior to using it.

Must know the following:

- Type of dressing
- Indication of use
- Composition of the dressing
- Contraindications

Wound Dressings

Types of Dressing

ALGINATE

HYDROGEL

FOAM

OINTMENT / CREAM / PASTE / LIQUID /
SPRAY / POWDER

COLLAGEN

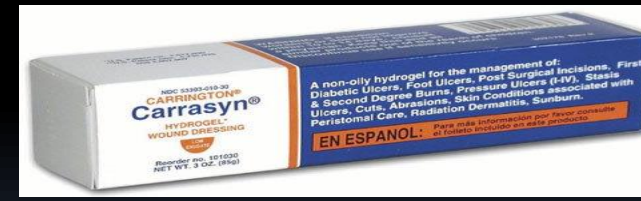
BIOLOGICS

HYDROCOLLOID / HYDROFIBER

COTTON / ABSORBENT / GAUZE

Wound Dressings

Types of Dressing



Wound Dressings

Indication of Use

Each wound care dressing receives an approval from FDA prior to be sold in the U.S. market. This approval involves clinical studies completed by the manufacturer to show the efficacy of the dressing when utilized to treat specified or associated medical condition. FDA mandates all manufacturers to print “ Indication of use” on the packaging.

Wound care → must follow manufacturer’s guide when using any wound dressing.



Wound Dressings

Composition of the dressing

Sodium Carboxymethylcellulose

Gelatin, Pectin and Carboxy-methylcellulose

Sea Weed

Polyurethane, Polyacrylate Fibers, Soft Silicone

Anti-Microbial : Silver based, Polyhexanide, Betaine, Iodine etc.

Collagen: Bovine, Porcine, Human and Type I, II, IV etc

Wound Dressings

Contraindications

A factor that is a cause for the administration of a drug or a dressing inadvisable.

Wound Care → must be aware of the contraindications of each dressing utilized.



Wound Management Strategies - Dressings

Hydrogels

Hydrogels

Plain Hydrogel is generally clear viscous gel made with condensed water or glycerin. Glycerin based Hydrogels are also available in a non-adhesive sheet or impregnated gauze form.

Hydrogels are used on wounds with low to moderate exudates.

A secondary dressing is always required when applying a gel or impregnated gauze.

Hydrogel sheets are commonly used on the Radiation skin irritations.

Purpose

- Keep wound moist, prevent and protect it from desiccating
- To promote autolytic debridement
- Barrier against wound contamination from external sources

Hydrogels



Alginate

Alginate

Alginate is a naturally occurring polysaccharide found in brown seaweed.

Alginate fibers are non-toxic and soluble in body fluids, which interacts with the exudates from the wound to form a hydrophilic gel.

Alginate dressings vary in absorbency but typically they will absorb up to 15-20 times their own weight in exudates.

Alginate dressings are commonly used in moderate to high exudating wounds.

Purpose:

- Fill wound cavities
- Absorb exudates in highly exudating wounds
- Promote moist wound healing / manage moisture / prevent maceration
- Permit gaseous exchange

Alginate



Foams

Foams

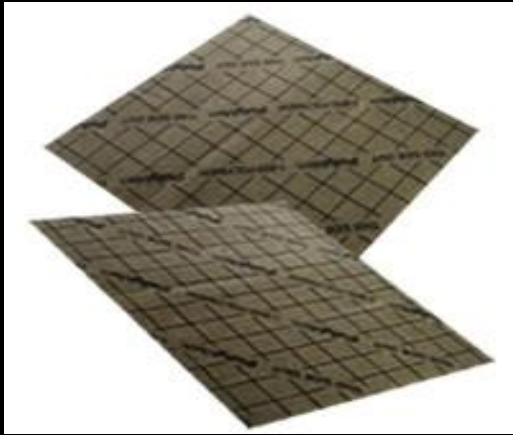
Most of the foam dressings are made of hydrophilic polyurethane, viscose and acrylate fibers or particles of superabsorbent poly-acrylate, or which are silicone-coated for non-traumatic removal.

Foams are recommended for wounds producing low, moderate to heavy exudate.

Purpose:

- Fill wound cavities
- Absorb exudates in highly exuding wounds
- Promote moist wound healing / manage moisture / prevent maceration
- Permit gaseous exchange
- Provide thermal insulation
- Barrier against wound contamination from external sources.

Foams



Hydrocolloids

Hydrocolloids

Hydrocolloids are a type of dressing containing gel-forming agents, such as sodium carboxymethylcellulose (NaCMC) and gelatin. The hydrocolloid dressing is occlusive or semi occlusive. impermeable to fluids and bacteria. Hydrocolloids are semi-permeable to gas and water vapor. Hydrocolloids are appropriate for wounds with light to medium exudates. Hydrocolloids should not be applied to infected wound or wounds with moderate to heavy exudates.

Purpose

- Hydrocolloids absorb liquid and form gels to promote moist wound healing.
- Barrier against wound contamination from external sources.
- To promote autolytic debridement
- Require changing only every 2-4 days
- Protect skin against shear & friction

Hydrocolloids



Semi-Permeable Membranes or Films

Semi-permeable membranes / Films

Semi-permeable film dressings are synthetic adhesive film dressings that are waterproof but which are also permeable to limited oxygen and water vapor to and from the wound site.

Purpose:

- Promote moist wound healing
- Promote autolytic debridement
- Protect skin against shear & friction
- Require changing only every 24-72 hrs.
- Barrier against wound contamination from external sources.

Semi-Permeable Membranes or Films



Collagen

Collagen Dressing / Extracellular Matrix (ECM)

Collagen is one of the most abundant with its essential role in the wound management. Several different collagen dressings are available utilizing sources including porcine, bovine, equine or human. Collagen plays a critical role in all phases of wound healing homeostasis, inflammation, proliferation, and remodeling.

Purpose:

- Promotes fibroblast production
- Organize collagen fibers in the wound
- Help preserve leukocytes, macrophages, fibroblasts, and epithelial cells.
- Assist in the maintenance of the chemical and thermostatic microenvironment

Regulate proteases (MMPs).

Promotes granulation

Collagen



Hydrofibers

Hydrofibers

Hydrofiber dressing is composed of sodium carboxy-methylcellulose fibers. Hydrofiber dressing is conformable, and capable of absorbing a large amount of drainage. Hydrofiber dressing transforms into a soft gel form after absorbing fluids, which creates a moist environment to support the body's healing process. Silver-impregnated hydrofiber dressings are commonly used due to their antimicrobial action.

Purpose:

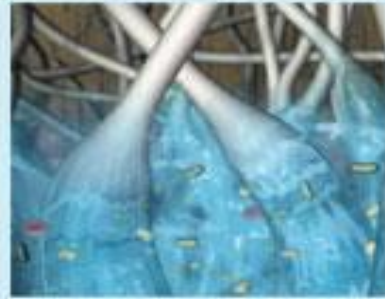
- Fill wound cavities
- Absorb exudates in highly exudating wounds
- Promote moist wound healing / manage moisture / prevent maceration
- Permit gaseous exchange
- Antimicrobial effect

Hydrofibers

Hydrofiber® Technology at work



Hydrofiber® Technology
before application to a wound



Transforming into a gel on
contact with exudate



Locking in exudate and
harmful components
contained within exudate,
keeping them away from the
wound



Impregnated Gauze

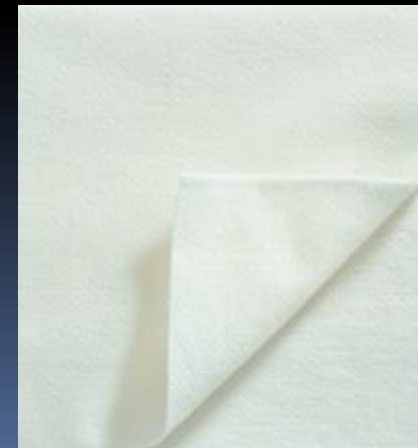
Impregnated / Petrolatum/Antimicrobial Gauze Dressing

Gauze dressings infused with a variety of substances are also commonly used for the management of different types of wounds. Most commonly; Gauze saturated with the petroleum-derived, gelatinous substance petrolatum blend with 3% Bismuth Tribromophenate (Antimicrobial) is used to prevent, infection, unnecessary dressing adherence (stickiness) to the wound bed, and maintain a healthy and moist wound environment. This type of dressing is recommended for light exudative wounds.

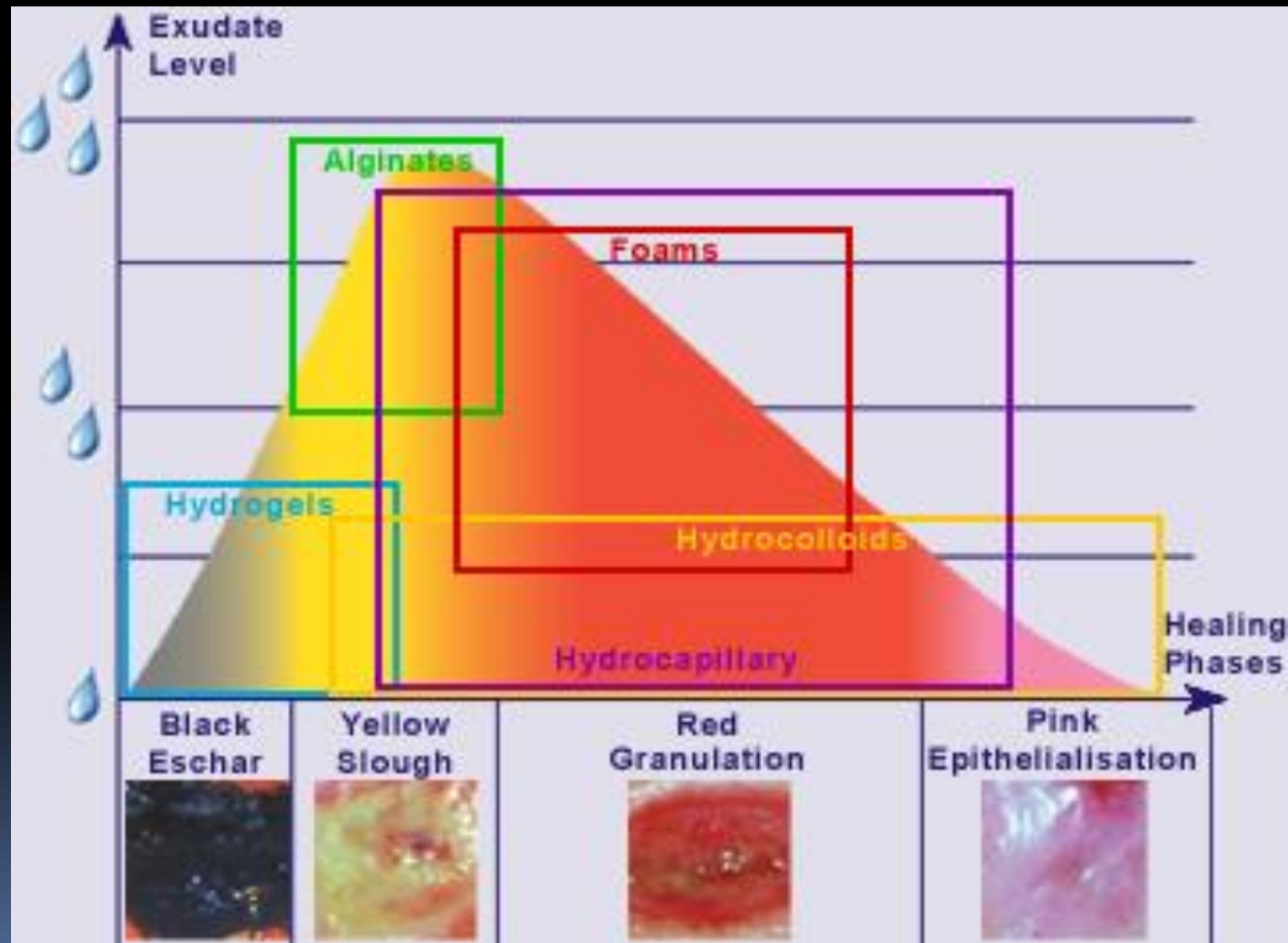
Purpose:

- Protective layer i.e. cover fascia, bone, tendon etc.
- Absorb exudates in lightly exudating wounds
- Promote moist wound healing
- Permit gaseous exchange
- Antimicrobial effect
- Prevent dryness of the affected area

Impregnated Gauze



INDICATIONS OF MODERN DRESSINGS

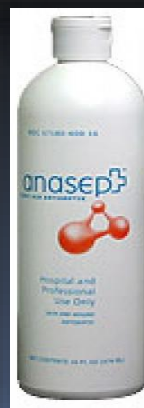


Wound Cleansers

Wound Cleansers

Wound cleansing is considered as an important aspect of the wound management. Safe and effective wound irrigation pressures is considered being between 4-15 psi, and pressures greater than 15 psi is considered unsafe and may cause trauma to the repair process or cells / tissue. 0.9% normal saline is commonly utilized for cleansing of wounds due to low cost, non-cytotoxic nature, and easy availability, but it is not recommended for the cleansing of infected wounds. Normal saline bottles once opened are good for 24 hrs and may inhibit bacterial growth after 24 hrs of opening. Use of wound cleansers with antibacterial properties and non-cytotoxic composition are considered to be the best practice in wound management.

Wound Cleansers





References

Montesano R, Orci L, Vasselli P. In vitro rapid organization of endothelial cells into capillary-like networks is promoted by collagen matrices. J Cell Biol. 1983; 97(5 Pt 1):1648-1652.

Thomas S., Loveless, P. A comparative study of the properties of twelve hydrocolloid dressings. World Wide Wounds, July 1997

Bryant RA, Nix D. Acute & chronic wounds. Current management concepts. 4th edition. St. Louis, MO: Mosby; 2012.



Sussman C, Bates-Jensen B. Wound Care: A Collaborative Practice Manual for Health Professionals. 3rd ed. Philadelphia, PA: Lippincott Williams & Wilkins; 2007:253–254, 688.

Williams, C. (1993): Alginate. British Journal of Nursing 1993 Vol. 3 No.13