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patient care, education, and research in biotherapy and symbiotic medicine**

Draft Policies & Procedures

TEMPLATE

for

Maggot Debridement Therapy (MDT)

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Disclosure: Ronald Sherman, one of the co-authors of this template and Board Member of the BTER Foundation is also the Director of the UC Irvine Maggot Laboratory, which produces and distributes Medical Maggots™ and Creature Comforts™ products.

Draft Policies & Procedures for
Maggot Debridement Therapy (MDT)

POLICY NAME

Maggot Debridement Therapy Policy and Procedure

POLICY NUMBER

XXXXX

PURPOSE

The purpose of this policy is to provide guidelines for the use of Maggot Debridement Therapy (MDT) in wound management.

PERSONNEL

ET and/or Wound Care Specialist
MD, DO, DPM, PA, NP
RN, LPN, LVN, CCA, CNA, NA
Physical therapists
Pharmacy &/or Supply & Receiving staff
Social Worker / Case Manager
Infection Control

INDICATIONS

Non-healing wounds that contain slough or necrotic tissue (neuropathic and ischemic foot ulcers, pressure ulcers, venous stasis ulcers, traumatic wounds, and problematic post-surgical wounds). [Note: Some therapists use MDT to determine how deep the non-viable tissue extends, and thereby assess whether or not the limb can be salvaged. Some therapists use MDT to disinfect a wound, decrease malodorous drainage, or stimulate wound healing; but these are NOT FDA-approved indications.]

WARNINGS, CONTRAINDICATIONS and RELATIVE CONTRAINDICATIONS

1. Persons allergic to fly larvae or materials used in their manufacture (brewer's yeast; soy) may manifest allergic reactions to maggots prepared in such media. ***Check manufacturer's labeling.***
2. Rapidly advancing infection that needs frequent inspection and possibly surgical intervention.
3. As an alternative to surgical resection for osteomyelitis, when surgery itself is not contraindicated.
4. Necrosis extending to major blood vessels that may bleed uncontrollably if debrided.
5. Unable to obtain informed consent from patient or family.
6. Wounds with inadequate blood supply to support healing should not be treated with maggot therapy, unless wound healing is not the ultimate goal.
7. Patients with natural or pharmacologically induced coagulopathy are at increased risk of bleeding; if they are treated with MDT they must be observed closely and frequently.
8. Disinfected maggots should never be transferred from one patient to another.
9. Vials of medicinal maggots should never be used more than once (unless the vial has been approved for "multi-dosing"), due to the possibility of contamination.
10. *Pseudomonas* infections may not always respond to maggot therapy; they may need specific antimicrobial therapy before or during MDT.
11. Medicinal maggots should not be used if the sterile seal is broken, if the container is damaged, if the maggots have a strong offensive odor, or if they are known or suspected of being contaminated.

EQUIPMENT/SUPPLIES

Dressing Application supplies – Larvae; hydrocolloid pad; mesh (i.e.: Creature Comforts [Dacron chiffon cut to size, from University of California Maggot Laboratory], Tegapore [3M], or closely woven, white nylon stockings); transparent semi-permeable membrane (film) dressing; 2"X 2", 4"x 4" +/- gauze wrap; scissors, scalpel and forceps (or suture removal set); normal saline; silk or cloth tape; glue (i.e.: Skin Bond [Smith & Nephew], contact cement); skin protectant.

Wound documentation supplies - Camera, wound tracing device, marker, Skin Ulcer Flow Sheet, Nursing records

Miscellaneous supplies – Consent form, PPE (see below), rubbish collection supplies

PERSONAL PROTECTION

Personal protective equipment (PPE) will be used at all times, as appropriate. Clean gloves will be used when handling maggots or wound dressings. Mask, eye protection, and gown, when performing treatment where exposure to blood/body fluids is likely.

COMPETENCIES

Only licensed personnel who have been trained in the procedure will apply MDT dressings. Any licensed personnel may remove MDT dressings. Outer dressings may be changed by any personnel allowed to change simple dry dressings by current hospital policy. Patients, family members and caregivers may remove MDT and/or change outer dressings as a part of teaching prior to discharge.

PROCEDURE

Dressing Application (Designed to create a maggot 'cage' over the wound floor, covered by loose absorbant gauze to contain the liquified drainage) -

1. Assess wound for appropriateness (see Clinical Indications, above).
2. Obtain MD order.
3. Obtain patient and/or family informed consent, and consent for photography, if applicable.
4. Obtain supplies. (See Equipment/Supplies, above)
5. Ensure that maggot container is intact and larvae are active. Read and understand product literature.
6. Photograph the wound before first treatment (recommended), and after a minimum of three applications to measure and document progress.
7. Using the wound tracing device and marker, outline the wound, and cut out the pattern.
8. Trace the pattern onto the hydrocolloid pad and the transparent film dressing, and cut out the shape of the wound from these dressings.
9. Place the cut-out hydrocolloid pad over the wound, to expose the wound but cover the peri wound skin. Apply securely to the skin, such that it frames the wound.
10. Apply 5-10 maggots per cm² of wound surface with some loose gauze, (too few maggots will be ineffective, too many may cause undue pressure or pain). Maggots may be transferred from the vial either by wiping them from the vial wall with a normal saline dampened 2x2" gauze pad or by transferring the maggot-laden gauze pad supplied within the container. If using the maggot-filled gauze pad within the container, approximate the desired number of larvae by cutting the gauze pad proportionately (applying only half the pad to the wound should transfer only about 50% of the larvae).
11. Place the porous cover (i.e.: Dacron chiffon, Tegapore, nylon stocking) over the maggots in the wound, making sure to extend it well past the wound edges, and affix it securely to the hydrocolloid pad with glue and/or tape.

12. Place the transparent film dressing over the chiffon, matching the pattern of the hydrocolloid and seal down the edges. The film should cover the hydrocolloid frame and peripheral skin, but must NOT cover the central porous wound covering, or else it will prevent air from reaching the maggots and prevent the necessary drainage of necrotic wound exudate.
13. Cover this "maggot cage dressing" with dry absorbent gauze and secure loosely with a short gauze wrap or two pieces of tape. Air should be able to enter the dressing and the liquefied necrotic tissue should be able to drain out. Check this outer dressing every 4-6 hours for soiling, and replace with clean dry gauze as needed.
14. Leave the maggot cage dressing in place for approximately 48 hours. If maggots escape the dressing they should be disposed of in a red garbage bag. The dressing may be resealed if possible, or may need to be removed completely and replaced with a normal saline moist to moist dressing (see below), changed every shift until new dressing orders can be written.

Dressing Removal (Remove all or nearly all maggots quickly and completely, disposing of them as wet dressing waste) –

15. Maggot debridement dressings should be removed after approximately 48 hours (maximum 72 hours).
16. To remove the dressings, place an infectious waste (i.e.: "red") bag next to or under the dressing.
17. Inspect the dressing and surrounding skin carefully, noting any problems or abnormalities.
18. Remove the outer gauze dressing and gently loosen (but do not remove) the hydrocolloid pad from the skin.
19. Quickly peel back the hydrocolloid pad and the entire cage dressing from the wound with one hand, while wiping the larvae in the same direction with a moist 4x4" gauze held in the other hand, "sandwiching" the maggots between the hydrocolloid pad and the fresh moist gauze pad. The "wiping" gauze pad can be moistened with normal saline, irrigation water, or gentle antimicrobial (i.e., hydrogen peroxide). If using the latter, be sure to rinse out the antimicrobial thoroughly after removing the maggots (see #21, below).
20. Toss the MDT dressing and sandwiched larvae into the infectious waste bag. If the bag is mounted underneath the wounded limb, then the loose maggots will drop into the bag below as they attempt to escape.
21. Irrigate the wound with normal saline.
22. It may be necessary to use gloved fingers, forceps, or cotton swabs to remove a few immature larvae. Never kill the larvae within the wound if you are unable to extract them. It is better to leave live larvae in the wound, which will crawl out on their own and bury themselves in a dry gauze dressing, rather than risk leaving dead larvae within the wound.
23. Check the bedding for loose larvae, which may wander off in search of the infectious waste bag. Grasp them firmly and drop them off at that destination.
24. Secure the waste bag in the following manner: Tie a knot in the plastic bag (or drop the paper bag into a plastic bag, and tie a knot in that plastic bag). Then place this plastic bag into a second infectious waste bag and seal it securely with a knot. This technique is called "double-bagging." Be sure that the knots are tied completely, securely, and "AIR-TIGHT." A bow tie made from two opposing edges of the bag ("rabbit-ear bow-tie") is not adequate to prevent maggots from escaping from the bag. Drop the double-bagged maggots and dressings into the infectious waste bin.
25. Assess the wound for another application of maggots, or another appropriate dressing.
26. Apply that dressing
27. Document.

Urgent, Emergent and Miscellaneous Procedures –

28. Someone must be on-call and available at all times to answer questions and address problems with MDT patients. The name and contact number must be clearly identifiable in the patient's chart, and should be made known to the nursing staff and to the patient and/or family

29. Staff must notify the wound care specialist on call for MDT patients if: the maggots are escaping, if the dressing comes loose, if the patient is not tolerating the therapy; or if there are any other non-routine problems.
30. If the patient does not tolerate the presence of the maggots (5-30% of patients experience some pain or discomfort after 30 hours, as the larvae grow larger, especially if the wounds were painful *before* MDT), then pain meds and anxiolytics should be readily available. If analgesics do not adequately control the pain, the dressing should be removed immediately. The pain should cease completely as soon as the dressings are removed. Replace the MDT dressing with a moist dressing, changed every shift, until new dressing orders can be written.
31. If maggots are seen to escape from the dressing, inspect the area and notify the wound care specialist on-call for MDT patients. Loose maggots should be "double-bagged" and discarded with infectious waste. If the dressing has a small defect or opening, and if the cage is not very full, then the dressing may be resealed. However, if the escape is due to the maggots being mature and leaving the wound, or due to too many larvae within the cage which is now bursting open, then the dressing should be removed and the wound inspected. The dressing can be replaced with a normal saline moist to moist dressing, changed every shift until new dressing orders can be written.
32. Contact the person on-call for MDT dressings if the patient expires. The dressings must be removed immediately if the patient expires.

ADDITIONAL CONSIDERATIONS

1. Maggot therapy must be performed within the context of good skin and wound care (pressure relief, cleanliness, repositioning of those with immobility, limb positions and dressings that optimize lymph and venous drainage and arterial perfusion, as per standard policies and procedures)
2. Patients with fever or changes in mental status should be evaluated for spread of infection (i.e., bacteremia, cellulitis) or elevated serum ammonia levels. Maggot dressings may need to be removed immediately to facilitate wound.
3. See also package labeling and manufacturer guidelines.

DOCUMENTATION

1. Consents
2. Skin Ulcer Flow Sheet
3. Dressing Change Flow Sheet
4. Wound Measurement Flow Sheet
5. Multidisciplinary Care Plan
6. Nursing Flow Sheet ;
7. Patient and Family Teaching Form
8. Discharge Teaching Form.

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APPROVALS:

Name	Title	Signature	Date
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Original Date: _____

Effective Date: _____

Expiration Date: _____

Supercedes #: _____

Originating Department: _____