Doncaster and Bassetlaw Hospitals NHS
NHS Foundation Trust

Use of Sterile Maggots in Wound Management Policy

This procedural document supersedes: PAT/T 11 v.4 – Policy for the Use of Sterile Maggots in Wound Management

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Date written/revised	March 2015
Approved by (Committee/Group)	Policy Approval and Compliance Group
Date of approval	25 March 2015
Date issued	21 May 2015
Review date	January 2018
Target audience:	Clinical Staff - Trust wide

Amendment Form

Version	Date Issued	Brief Summary of Changes	Author
Version 5	21 May 2015	• Updated reference • New Trust-style format • Added Equality Impact Assessment	Sue Johnson
Version 4	December 2010	• Amendment form and contents page added • Format updated • Inclusion of BioFoam format • References and Bibliography updated	Sue Johnson
Version 3	March 2006	Points 5.3 and 5.4 reflect the period of time that must be given prior to using sterile maggots post antibiotic therapy and the use of silver donating products.	Sue Johnson

Contents

1. POLICY STATEMENT

This policy has been developed to enable nursing staff to manage wound debridement utilising Maggot Larval Therapy (MLT) according to best recognised practice. Wounds are an expensive and growing problem: today over 2,000 wound management products are available on the market. In addition, all members of the healthcare team can be involved in wound care in a variety of settings, with patients often moving between professionals and environments.

This policy will help ensure best practice and minimise the potential for inconsistency of care locally.

2. INTRODUCTION

2.1 This document should be used in conjunction with the most recent edition of the Royal Marsden NHS Trust Manual of Clinical Procedure and Wound Management Guideline PAT/T 6 and Wound Management Policy PAT/T 7.

2.2 It is intended for nurses working within Doncaster and Bassetlaw Hospitals NHS Foundation Trust, and recognises that nurses fulfil an essential role in wound management.

2.3 All nurses within Doncaster and Bassetlaw Hospitals NHS Foundation Trust recognise the importance of consistent individualised care and the need to include the latest evidence based techniques and wound management products that are clinically effective (NMC 2015).

3. PURPOSE

3.1 To provide a standardised approach to the use of MLT within the framework of holistic care.

3.2 To ensure appropriate management of acute, surgical and chronic wounds.

3.3 To ensure the most appropriate product is utilised for optimum wound healing, patient comfort and cost effectiveness.

3.4 To ensure no act or omission on the nurses part leads to inappropriate management of a wound (NMC 2015).

3.5 To promote and co-ordinate a systematic approach to wound management, addressing symptom control and maintaining the individuals quality of life recognising that complete healing is not always achievable.

4. KEY PRINCIPLES

4.1 To ensure a comprehensive assessment of health needs, in relation to the use of MLT, is undertaken.

4.2 To ensure that continuity of care takes place where different nurses may be called upon to meet the needs of the patient.

4.3 To ensure that a standardised approach to the use of MLT takes place.

4.4 To ensure the appropriate wound management product is utilised for optimum wound management, cost-effectiveness and patient comfort.

4.5 To ensure that wound management products are used cost-effectively thereby minimising waste and inappropriate usage.

5. DEFINITIONS

5.1 MLT is suitable for most types of wounds that contain adherent slough or necrotic tissue, or wounds that are clinically infected. These wounds include:

- Pressure ulcers
- Leg ulcers
- Diabetic foot ulcers
- Traumatic wounds
- Amputation sites
- Dehisced surgical wounds
- Some fungating wounds
- Infected wounds of all types that have failed to respond to conventional treatments
- Indolent wounds
- Neuro-ischaemic toes.

5.2 The following wounds are not generally considered to be suitable for MLT:

- Any wound where the blood supply is insufficient to permit healing to take place
- Dry necrotic wounds
- Fistulae
- Wounds that connect with the abdominal cavity
- Any wound that bleeds easily
- Areas of necrotic tissue close to major blood vessels or nerves.

6. ROLES, DUTIES AND RESPONSIBILITIES

6.1 Application

6.1.1 MLT should only be undertaken following a referral from the Tissue Viability/ Wound Care Specialist. Prior training in practical aspects of the technique is essential.

6.1.2 Written consent will be obtained by a member of the Wound Care Team and will be recorded in the patient's medical notes. A patient information sheet should also be given to the patient or their carer prior to the commencement of the therapy to address any further concerns that they may have.

6.1.3 Although MLT is effective in the treatment of many different types of wounds, hard necrotic tissue may prove difficult for them to penetrate. In such situations, the use of Purilon Gel to rehydrate or soften the dead tissue prior to the application of the maggots will make the therapy more effective.

6.1.4 It is generally recommended that MLT should be left on a wound for 3 days because, under ideal conditions, they will be fully grown by this time. The outer dressings should be changed on a daily basis using pre-wetted gauze swabs.

6.1.5 When the MLT is removed, the wound should be reassessed. At this point, more maggots may be applied if required or, if the wound is fully cleansed, the treatment may be changed and a more conventional dressing applied.

6.1.6 Maggot Larval Therapy is available in two forms, 'free range' and BioFOAM dressings. The BioFOAM range combines the clinical benefits of free range maggots with the ease of use of a modern dressing. Thus overcoming the 'YUK' factor for both nurses and patients.

6.1.7 The materials required to perform a MLT dressing will be determined by the size and location of the wound but for a simple dressing the following items will generally suffice:

LarvE

- *LarvE* pack containing one or more vials of sterile maggots OR a Biofoam presentation pack., a tube of sterile saline and a nylon net dressing, bag or sleeve, a hydrocolloid sheet dressing,
- A roll of waterproof adhesive tape 2.5cm wide (e.g. Sleek^{tm} Smith and Nephew Healthcare)
- A roll of zinc paste bandage if hydrocolloid sheet is not to be used
- A sterile dressing pack
- Pair of sterile scissors
- A perforated plastic film dressing such as Solvaline or Release
- An absorbent dressing pad
- A roll of adhesive tape (e.g. Micropore or equivalent)
- A lightweight retention bandage such as K band

BioFOAM

- BioFOAM pack containing one or more BioFOAM dressings and 1 pot of sudocreme
- A sterile dressing pack
- Solvaline dressing
- Absorbent dressing pad
- Sterile saline

6.1.8 The number of maggots to be applied will be determined by the size and condition of the wound. One container of ***LarvE*** will generally be sufficient for wounds measuring up to 5 cm x 5 cm. Larger wounds may require two or more pots to effect debridement. BioFoam packs are available in different sizes and the size of dressing will be dependent on the size of the wound. Experience has shown that it

is much more cost effective to use large numbers of maggots for one or two treatment cycles than smaller numbers for an extended period. The Tissue Viability / Wound Care Specialist will determine the amount of LarvE that is required.

6.1.9 It is recommended that a dressing system be used that retains the maggots within the wound and prevents them from migrating onto the surrounding skin. The precise nature of the dressing system selected will be determined by the size and location of the area to be treated. See application guide for procedure when applying MLT.

6.1.10 Removal of maggots is a simple process. Depending upon the location and size of the wound, the net retention dressing should be removed and the maggots gently removed with a gloved hand or a pair of forceps. Any maggots that have found their way into the depths of a wound will generally come to the surface if the wound is irrigated with a stream of sterile water or saline. IF USING Biofoam packs these are easily removed by lifting them gently from the wound bed.

6.1.11 Maggots will not pupate or turn into flies within a wound and they cannot multiply or 'breed'. If further maggots are to be applied, it does not matter if a few small individuals are missed, as these will easily be retrieved at the time of the next dressing change by which time they will be fully grown.

6.1.12 The maggots supplied to the Trust are sterile up to the time that they are introduced into the wound. After they have been in contact with tissue or body fluid, they should be regarded as potentially contaminated and disposed of as clinical waste in accordance with the local control of infection policy.

6.1.13 If a patient dies during the MLT, the maggots should be removed prior to transfer to the mortuary and disposed of as described above.

6.1.14 Some patients may experience some wound pain, this is temporary and the patient should be reassured and administered appropriate analgesia.

6.1.15 Some patients may experience a transient pyrexia, this usually settles within 48hrs without ant treatment. If pyrexia persists for longer than 48hrs investigations to determine cause should be commenced.

6.1.16 Some strong anecdotal evidence exists that shows the viability of the Maggot Larval Therapy is affected by topical antimicrobials especially silver. It is therefore recommended that antimicrobial dressing and silver are discontinued 7 days prior to Maggot Larval Therapy.

7. EDUCATION AND TRAINING

7.1 Training will be given to staff on wards and departments where MLT is likely to be used, in line with the training needs analysis. All educational sessions delivered through the Trust's Education and Training Manual promote evidence based practice and the principles of clinical effectiveness and clinical governance.

7.2 All staff will have access to study days/workshops relating to MLT. A multidisciplinary approach will be taken and the education programme updated on a regular basis based on best practice.

8. MONITORING COMPLIANCE AND EFFECTIVENESS

8.1 All training given will be evaluated by the Wound Care Team at each training session and will be continually adapted to improve effectiveness.

8.2 Ward and department managers are required to ensure that adequate training records are maintained.

8.3 Staff should ensure that the application of Maggot Larval Therapy is documented in the appropriate IPOC including the lot number of the Maggot Larvae in case of an adverse event.

9. AUDIT

9.1 Prospective audits of the Wound Care IPOC will be monitored by the Wound Care Team to ensure effectiveness of the Sterile Maggot Policy and will be included in the annual report.

10. EQUALITY IMPACT ASSESSMENT

An Equality Impact Assessment (EIA) has been conducted on this procedural document in line with the principles of the Equality Analysis Policy (CORP/EMP 27) and the Fair Treatment for All Policy (CORP/EMP 4).

The purpose of the EIA is to minimise and if possible remove any disproportionate impact on employees on the grounds of race, sex, disability, age, sexual orientation or religious belief. No detriment was identified. (See Appendix 1)

11. ASSOCIATED DOCUMENTATION

11.1 This policy should be used in conjunction with:

- PAT/T 6 Wound Management Guideline
- PAT/T 7 Wound Management Policy
- PAT/T 32 Aseptic Non Touch Technique Policy
- PAT/IC 5 Hand Hygiene Policy
- PAT/IC 19 Standard Infection Control Precautions Policy
- PAT/IC 24 Cleaning and Disinfection of Ward Based Equipment
- PAT/PA 19 Mental Capacity Act 2005 Policy and Guidance

12. REFERENCES

Nursing and Midwifery Council - NMC (2015) *Code of Professional Practice* London NMC.

13. BIBLIOGRAPHY

Baer, W. S. Sacro-iliac joint; Arthritis Deformans: viable antiseptic in chronic osteomyelitis. *Proceedings of the International Assembly Inter-State Postgraduate Medical Association North America* (1929) 1929; 5: 365.

Hobson, R. P. On an enzyme from blowfly larvae. (Lucilia Sericata) which digests collagen in alkaline solution. *Biochemical Journal* 1931; 25: 1458, 1931.

Ziffien, S. E., Heist, H. E., Womack, N. A. M. S. C. The secretion of collagenase by maggots and its implication. *Annals of Surgery* 1953; 138: 932-934.

Fraser, A., Ring, R. A., Stewart, R. K. Intestinal proteinases in an insect, Calliphora vomitoria L. *Nature* 1961; 4806: 999-1000.

Pendola, S., Greenberg, B. Substrate-specific Analysis of Proteolytic Enzymes in the Larval Midgut of Calliphora vicina. *Annals of the Entomological Society of America* 1975; 68(2): 341-345.

Vistnes, L. M., Lee, R., Ksander, G. A. Proteolytic activity of blowfly larvae secretions in experimental burns. *Surgery* 1981; 90: 825-841.

Casu, R. E., Pearson, R. D., Jarmey, J. M., Cadogan, L. C., Riding, G. A., Tellam, R. L. Excretory/secretory chymotrypsin from Lucilia Cuprina: purification, enzymatic specificity and amino avid sequence deduced from mRNA. *Insect Molecular Biology* 1994; 3(4): 201211.

Weil, G. C., Simon, R. J., Sweadner, W. R. A biological, bacteriological and clinical study of larval or maggot therapy in the treatment of acute and chronic pyogenic infections. *American Journal of Surgery* 1933; 19: 36-48.

Fine, A., Alexander, H. Maggot therapy - technique and clinical application. *Journal of Bone and Joint Surgery* 1934; 16: 572-582.

Ferguson, L. K., McLaughlin, C. W. Maggot Therapy - A rapid method of removing necrotic tissues. *American Journal of Surgery* 1935; 29: 72-84.

Horn, K. L., Cobb, A. H., Gates, G. A. Maggot therapy for subacute mastoiditis. *Archives of Otolaryngology* 1976; 102: 377-379.

Baer, W. S. The treatment of chronic osteomyelitis with the maggot (larva of the blow fly). *Journal of Bone and Joint Surgery* 1931; 13(July): 438-475.

Child, F. S., Roberts, E. F. The treatment of chronic osteomyelitis with live maggots. *New York State Journal of Medicine* 1931; 31: 937-943.

Buchman, J., Blair, J. E. Maggots and their use in the treatment of chronic osteomyelitis. *Surgery, Gynecology and Obstetrics* 1932; 55: 177-190.

Livingston, S. K. Maggots in the treatment of chronic osteomyelitis, infected wounds, and compound fractures. An analysis based on the treatment of one hundred cases with a preliminary report on the isolation and use of the active principle. *Surgery, Gynecology and Obstetrics* 1932; 54: 702-706.

McLellan, N. W. The Maggot treatment of osteomyelitis. *Canadian Medical Association Journal*1932; 27: 256-260.

Wilson, E. H., Doan, C. A., Miller, D. F. The Baer maggot treatment of osteomyelitis Preliminary report of 26 cases. *Journal of the American Medical Association* 1932; 98: 1149-1152.

Livingston, S. K., Prince, L. H. The treatment of chronic osteomyelitis with special reference to the use of the maggot active principle. *Journal of the American Medical Association* 1932; 98: 1143-1149.

Pomeranz, M. M. Peculiar regeneration of bone, following maggot treatment of osteomyelitis. *Radiology* 1932; 19: 212-214.

Pavillard, E. R., Weight, E. A. An antibiotic from maggots. *Nature* 1957; 180: 916-917.

Freidman, E., Shaharabany, M., Ravin, S., Go1omb, E., Gollop, N., loffe-Uspensky, I., et al. Partially purified antibacterial agent from maggots displays a wide range of antibacterial activity. *Presented at the Int Conf on Biotherapy, 3rd, Jerusalem, Israel* 1998

Thomas, S., Andrews, A. M., Hay, N. P., Bourgoise, S. The anti-microbial activity of maggot secretions: results of a preliminary study. *Journal of Tissue Viability* 1999; 9(4): 127-132.

Robinson, W., Norwood, V. H. The role of surgical maggots in the disinfection of osteomyelitis and other infected wounds. *Journal of Bone and Joint Surgery* 1933; 15: 409-412.

Robinson, W. The use of blowfly larvae in the treatment of infected wounds. *Annals of the Entomological Society of America* 1933; 26: 270-276.

Robinson, W., Norwood, V. H. Destruction of pyogenic bacteria in the alimentary tract of surgical maggots implanted in infected wounds. *Journal of Laboratory and Clinical Medicine* 1934;19: 581-586.

Thomas, S., Jones, M. *Maggots and the battle against MRSA.* Bridgend: SMTL, 2000.

Thomas, S., Jones, M. Maggots can benefit patients with MRSA. *Practice Nurse* 2000; 20(2): 101-104.

Larrey, D. J. *Observations on wounds and their complications by erysipelas, gangrene and tetanus, Clinique. chirurgucale.* 51-52 *(Nov.)* 1829 *translated from the French by E.F. Rivinus. Des veTS ou larves de la mouche bleue, Chez Gabon, Paris,.* Philadelphia: Key, Mielke and Biddle" 1832.

Prete, P. Growth effects of *Phaenicia sericata* larval extracts on fibroblasts: mechanism for wound healing by maggot therapy. *Life Sciences* 1997; 60(8): 505-510.

Thomas, S., Wynn, K, Fowler, T., Jones, M. The effect of containment on the properties of sterile maggots. *British Journal of Nursing (supplement)* 2002; 11(12): S21-S28.

Hart. S (2007) Using an aseptic technique to reduce the risk of infection. *Nursing Standard* 21, 47, p 43 – 48

APPENDIX 1 – EQUALITY IMPACT ASSESSMENT - PART 1 INITIAL SCREENING

Service/Function/Policy/Project/ Strategy	CSU/Executive Directorate and Department	Assessor (s)	New or Existing Service or Policy?	Date of Assessment
Use of Sterile Maggots in Wound Management	Special Services CG Wound care	Sue Johnson	Existing policy	19/03/2015

1) Who is responsible for this policy? Special Services CG Wound care

2) Describe the purpose of the service / function / policy / project/ strategy? Policy for the effective use of Sterile Maggots in wound debridement

3) Are there any associated objectives? No

4) What factors contribute or detract from achieving intended outcomes? Appropriate management of dressings and identification of adverse events

5) Does the policy have an impact in terms of age, race, disability, gender, gender reassignment, sexual orientation, marriage/civil partnership, maternity/pregnancy and religion/belief? No

- **If yes, please describe current or planned activities to address the impact** [e.g. Monitoring, consultation]

6) Is there any scope for new measures which would promote equality? No

7) Are any of the following groups adversely affected by the policy?

Protected Characteristics	Affected?	Impact
a) Age	No	
b) Disability	No	
c) Gender	No	
d) Gender Reassignment	No	
e) Marriage/Civil Partnership	No	
f) Maternity/Pregnancy	No	
g) Race	No	
h) Religion/Belief	No	
i) Sexual Orientation	No	

8) Provide the Equality Rating of the service / function /policy / project / strategy – tick (✓) outcome box

Outcome 1 ✓	Outcome 2	Outcome 3	Outcome 4

If you have rated the policy as having an outcome of 2, 3 or 4, it is necessary to carry out a detailed assessment and complete a* **Detailed Equality Analysis form in Appendix 4

Date for next review: January 2018

Checked by: Sue Johnson **Date: 19/03/2015**