

**Protocol for the Use of Sterile Larvae in Wound Management**

**Approved by:** CHS Clinical Policy Group and Clinical Quality and Governance Committee

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**Directorate responsible for Review** Adult Services Tissue Viability Team

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**Signature:** .....  
Jenny Dowling  
Head of Clinical and Professional Practice and Board Nurse

**PROTOCOL FOR THE USE OF STERILE  
LARVAE IN WOUND MANAGEMENT**

**VERSION CONTROL**

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# Protocol for the Use of Sterile Larvae in Wound Management

*The Protocol for the Use of Sterile Larvae in Wound Management applies to all staff employed by NHS Leicestershire County and Rutland (NHS LCR) and Leicestershire County and Rutland Community Health Services (LCR CHS) to be referred to throughout as 'the Organisation'. NHS LCR is the operating name of Leicestershire County and Rutland PCT.*

## INTRODUCTION

### Scope

This protocol is applicable to all qualified nursing staff employed by Leicestershire County & Rutland community health services.

The qualified nurse should ensure that they work in line with their professional standards

- NMC Code of conduct (2008)
- NMC Record Keeping

This protocol should be applied in conjunction with the following

- The Leicestershire & Rutland Community Health Services Wound Management

All staff will attend mandatory training in Wound Management and Assessment

### Protocol for the Use of Sterile Larvae in Wound Management

Sterile Larvae are available on a "Named Patient" basis only and treatment needs to be prescribed by the patients G.P.

There are two methods of application available;

a) **LarVe** - free-range larvae which are applied direct to the wound and retained within a special dressing system and b) **BioFOAM** dressings, whereby the larvae are sealed within a finely woven net pouch containing small pieces of foam which aid the growth of the larvae and manage exudate. The larvae remain sealed within the dressing throughout the treatment. **BioFOAM** dressings come in a variety of sizes and are applied according to the nature and size of the wound being treated.

## 1. INDICATIONS FOR BIOSURGERY (LARVAL THERAPY)

- 1.1 Necrotic or sloughy wounds (including leg ulcers, pressure sores, burns, ulcerated areas on the feet of diabetic patients)
- 1.2 Patient unsuitable for surgery.
- 1.3 Wounds unsuitable for surgical debridement.

1.4 When previous treatment of the wound has been ineffective.

## 2 CONTRA-INDICATIONS FOR BIOSURGERY (LARVAL THERAPY)

2.1 If treatment is unacceptable to the patient.

- Patient unable or unwilling to give informed consent.
- Large areas of sloughy or necrotic tissue (i.e. larger than 40cm<sup>2</sup>).
- Wounds that have a tendency to bleed easily.
- Wounds that communicate with a body cavity or any internal organ.
- Wounds close to any large blood vessels.
- Facial wounds.
- Patients on Warfarin therapy who are being treated at home

## 3. SUPPLY OF LARVAE AND REQUESTS FOR TREATMENT

3.1 Patient identified as suitable for larval therapy following wound assessment (see Section 1).

3.2 The species of fly currently used to produce larvae for use in wound management in the UK is the greenbottle species *Lucilia sericata*.

Sterile larvae are reared by Zoobiotic Ltd., Surgical Materials Testing Laboratory, Bridgend – Telephone 0845 2301810, Fax 01656 668047.

- The larvae are dispatched in small plastic flasks, which contain approximately 150 to 200 larvae. Prescription needs to state the number of pots and net size. (see 3.3 below)
- Prescription for BioFOAM needs to state the size of dressing
- Orders must be placed before 12 noon.
- Next day delivery is guaranteed for every day except Sunday, Monday. All orders will be delivered by 12 noon on the date delivery is required.
- Deliveries can be made Monday through to Saturday.
- Deliveries can be made before 9am on request (no extra charge)
- Cancellations must be made before 12 noon on the day before the delivery is due.

Each flask costs £98.00 plus VAT and delivery, BioFOAM prices start at £82.00 for a 2cm x 2cm kit (March 2009). For foot or hand wounds a 'net boot' or 'sleeve' should be ordered.

3.3. For further advice and size charts contact your Locality Tissue Viability Lead alternatively size charts and calculators may be downloaded or requested free of charge from [www.zoobiotic.com](http://www.zoobiotic.com).

#### 4. RECEIPT OF LARVAE

- 4.1 The larvae are delivered in a small plastic container fitted with a lid containing a filter permeable to air but not to micro-organisms. The Free Range Larvae container is supplied packed in a polystyrene box together with a vial of 0.9% sodium chloride, an instruction leaflet, a moistened piece of gauze used to keep the larvae moist during transport (this gauze is not to be used for wound management), a piece of sterile retention net, 2 or 3 Granuflex hydrocolloid dressings and a roll of Slek plastic tape. BioFOAM packs contain 1 or more BoiFOAM dressings and 1 x 60g pot of Sudocrem.

#### 5. CLINICAL USE OF LARVAE

- 5.1 The larvae should be applied within eight hours on the day of delivery. Until this time they should be stored in the insulated box, which contains a cool pack, until required for use. They should be kept at a temperature of between 8 -10 ° C and should **not** be put into a refrigerator.

#### 6. WOUND ASSESSMENT PRIOR TO USE OF LARVAL THERAPY

- 6.1 Tissue Viability Lead can be contacted for support/advice prior to first use of larvae.
- 6.2. The larvae are about 2-3mm long when they arrive. The amount of larvae used on a wound will depend upon the wound size and depth and the amount of non-viable tissue present. A maximum of 10 larvae per cm<sup>2</sup> should be used per wound.
- 6.3 If using **BioFOAM** use as many dressings as necessary to cover the area to be cleansed.
- 6.4. The wound needs to be moist for the larvae to work. If the wound is covered in a hard necrotic layer then the wound should be treated with hydrogel or hydrocolloid to soften the eschar prior to larval therapy.

**Note:** Purilon gel (Coloplast) is non toxic to larvae, if other hydrogels are used prior to larvae application the wound must be cleansed thoroughly prior to larvae application.

#### 7. MATERIALS REQUIRED TO APPLY DRESSINGS

- 7.1 To apply free range larvae you will need
- a **LarVe** pack
  - a dressing pack
  - a supply of nonwoven swabs

- a low adherent dressing pad (e.g Release)
- a roll of standard adhesive tape (e.g Micropore)
- an absorbent dressing pad and lightweight retention bandage
- a pair of scissors
- an additional saline or tap water to remove dressing residues

7.2. To apply **BioFOAM** dressings you will need

- a **BioFOAM** pack
- a dressing pack
- a low adherent dressing pad
- an absorbent dressing pad and lightweight retention bandage
- sterile saline or tap water to remove dressing residues

## 8. APPLICATION OF THE 'FREE RANGE' LarvE

- 8.1. Remove any existing dressings and irrigate the wound to remove any dressing residue.
- 8.2. Cut strips of hydrocolloid dressing and place these around the wound margins. The margin of the hydrocolloid fulfils two important functions; it protects the intact skin from the proteolytic enzymes produced by the larvae; and it provides a base for the second layer of dressing. If the wound is small, or of limited depth a double layer of hydrocolloid may be used to form a shallow chamber. If the area is difficult to dress (eg., around the toes) or a hydrocolloid dressing cannot be used, the surrounding skin can be protected with strips of bandage impregnated with zinc paste.
- 8.2. Approximately 5ml of sterile saline should be added to the larvae container, which is gently agitated to release the larvae from the sides of the tube. If more than 1 pot is used pour the contents of the first tube into the second and so on.
- 8.3. Measure and, if required, cut the piece of sterile netting so that the wound is covered and its edges cover half the hydrocolloid border.
- 8.4. Place the net on top of a sterile gauze swab and pre-moisten with a small amount of the sterile saline to reduce any surface tension and ensure that the larvae do not move rapidly across the net.
- 8.5. Slowly pour the saline containing the larvae onto the net. If the solution is poured too quickly some of the larvae may run off the net and onto the surrounding area.
- 8.6. Invert the net over the wound and secure it to the hydrocolloid with Sleek tape, cover the net with a saline soaked swab and then cover with the low adherent pad. A further absorbent pad should then be placed over

the top. The pad can be bandaged in place if required. Do not use occlusive dressings e.g Tegaderm film as this will suffocate the larvae. N.B. If zinc bandage is used in place of hydrocolloid use a further layer to secure the net but do not occlude the centre. This is to permit drainage of exudate and allow the larvae to obtain an adequate supply of oxygen.

## 9. APPLICATION OF THE BioFOAM DRESSING

- 9.1 Remove any existing dressings and irrigate the wound to remove any dressing residue.
- 9.2 Protect the intact skin around the wound margins by applying a layer of Sudocrem or other suitable zinc based barrier cream.
- 9.3 Place the BioFoam dressing directly on the wound bed. Continue to add dressings until the area of the wound bed to be cleansed is covered.
- 9.4 Cover the **BioFOAM** with a low absorbent dressing pad and secure with a retention bandage. Do not use occlusive dressings as these will suffocate the larvae.

## 10. CARE OF THE WOUND WITH THE LARVAE IN PLACE

- 10.1 Daily dressing checks can be made. The young hatchling larvae are quite delicate and need to be kept moist. If the wound is relatively dry, a swab moistened with saline can be applied over the outside of the net of the **LarVe**. The **BioFOAM** dressings can be moved around and repositioned on the wound bed.
- 10.2 The patient cannot swim, bathe or shower whilst the larvae are in place. If the larvae are placed on the sole of the foot or over a pressure point then the patient must not weight bear.
- 10.3. The patient should avoid sitting too close to a source of heat eg fire or radiator as the larvae may dry out.

## 11. REMOVAL OF LARVAE

- 11.1 The 'free range' larvae should be left undisturbed for a maximum of three days unless the primary dressing (ie., the hydrocolloid or the nylon net) leaks and needs replacing.
- 11.2 Red staining on the absorbent pad is normal.
- 11.3 Once the net is removed the larvae will generally fall out of the wound. Any remaining larvae can be retrieved using forceps or gloves or

irrigated out of the wound using sterile saline. The dressing and the larvae should be placed in a clinical waste bag.

- 11.4 There is no danger that larvae will stay in the wound to pupate or “breed”. A mature larva must leave the wound to pupate or it will die. Once a larva is fully-grown it will come to the surface of the wound and this will ensure easy removal. If a larva dies in the wound it will biodegrade.
- 11.5. The **BioFOAM** dressing can remain in place for five days before disposal

## 12. DISPOSAL OF LARVAE

- 12.1 The larvae should be placed in an orange disposal bag with the old dressings, then placed in sealed clinical waste bags and sent for incineration. They must under **no circumstances** be put in a normal dustbin.

## 13. ON THE DEATH OF A PATIENT

- 13.1 If the patient dies then the larvae should be removed within 12 hours and disposed of as in section 11 above.

## 14. REFERENCES

Anon. "Larvae" Data Card. Biosurgical Research Unit. SMTL, Bridgend.

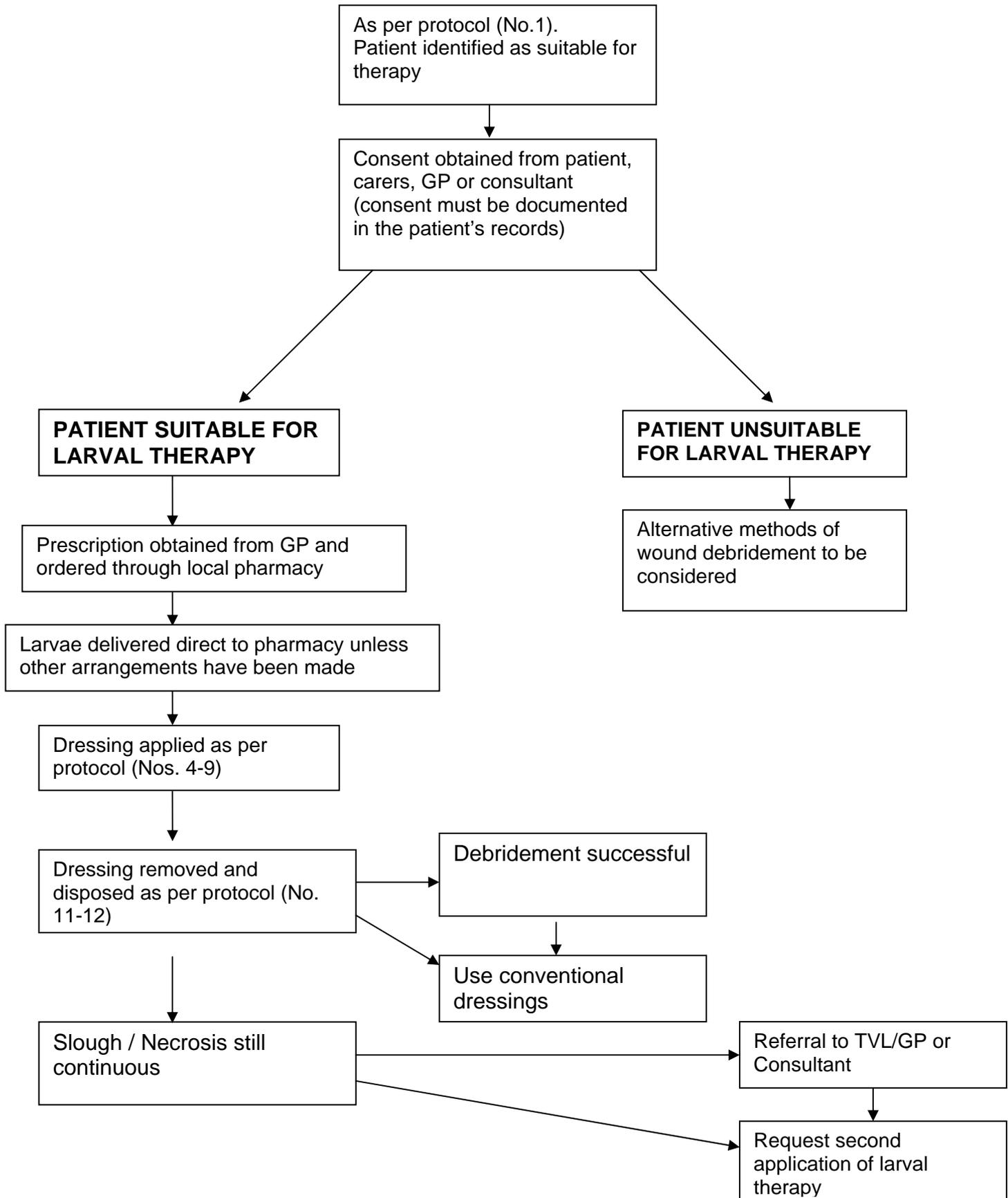
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Thomas S. Jones M. Shulter S. All you need to know about maggots. *Nursing Times* 1996: 92(46): 63-78.

Thomas S. Jones M. Shulter S. Using larvae in modern wound management. *Journal of Wound Care* 1996: 5(2): 60-6.

Evans H. A treatment of last resort. *Nursing Times* 1997: 93(23): 62-65.

## FLOWCHART FOR THE USE OF STERILE LARVAE IN WOUND MANAGEMENT



### **Equality Impact Assessment Tool**

To be completed and attached to any procedural document when submitted to the appropriate committee for consideration and approval.

		Yes/No	Comments
<b>1.</b>	<b>Does the policy/guidance affect one group less or more favourably than another on the basis of:</b>		
	• Race	No	
	• Ethnic origins (including gypsies and travellers)	No	
	• Nationality	No	
	• Gender	No	
	• Culture	No	
	• Religion or belief	No	
	• Sexual orientation including lesbian, gay and bisexual people	No	
	• Age	No	
<b>2.</b>	<b>Is there any evidence that some groups are affected differently?</b>	No	
<b>3.</b>	<b>If you have identified potential discrimination, are any exceptions valid, legal and/or justifiable?</b>	N/A	
<b>4.</b>	<b>Is the impact of the policy/guidance likely to be negative?</b>	No	
<b>5.</b>	<b>If so can the impact be avoided?</b>	N/A	
<b>6.</b>	<b>What alternatives are there to achieving the policy/guidance without the impact?</b>	N/A	
<b>7.</b>	<b>Can we reduce the impact by taking different action?</b>	N/A	

If you have identified a potential discriminatory impact of this procedural document, please refer it to the Policy Administrator, together with any suggestions as to the action required to avoid/reduce this impact.

For advice in respect of answering the above questions, please contact the Policy Administrator.