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Contents

Introduction

Wounds should be assessed using the guidance contained within the Scottish Wound Assessment and Action Guide and then treatment commenced according to the NHS Borders Wound Formulary. Larval therapy is included in the Formulary as a therapeutic option for the management of infected, sloughy or necrotic wounds but not generally as a first-line option. Larvae are designated in the Formulary as "Specialist Initiation Only" and, as such, it is expected that only Community Nurses with a non-medical prescribing qualification, and Specialist Practitioners in Acute Care, will approve their use, after ensuring that funding is available. The use of larval therapy will normally only be considered if conventional methods of debridement are unsuccessful as per the treatment algorithm contained herein.

A Company called BioMonde® supplies the larvae. Their main contact number for advice during office hours is **0345 2301810**, or they can be contacted by e-mail via enquiries@biomonde.com . For assistance out with office hours, the Clinical Helpline for Healthcare Professionals is **0345 2306806** which is manned after 5pm on weekdays and at weekends. The Company website www.biomonde.com is a useful source of further advice and information. In addition, BioMonde® have Nurse Advisors who will visit the practice / ward area if requested to offer practical clinical support or to assess wounds. The Nurse Advisor for NHS Borders is Alison Millar, who can be contacted directly on 07896687010 or via e-mail amillar@biomonde.com

The larvae can be sensitive to environmental conditions and are unsuited to certain wound types and, as such, their use should only be initiated on the advice of a practitioner experienced in their use. This will ensure that resources are used effectively and efficiently. Other staff should observe these practitioners to familiarise themselves with the wound assessment process, as greater numbers of experienced practitioners will lead to less delay in commencing larval therapy where it is deemed necessary. There is an online learning platform offering e-modules on all aspects of larval therapy – the training is free and can be undertaken by any healthcare professional. It has been accredited as 5 hours of learning by the Royal College of Nursing and by the Royal College of Podiatrists. Further details from larvalacademy.com .

This document summarises the procedures that should be followed in NHS Borders when using larval therapy.

Mechanism of Larval Action

Larvae are living creatures that need oxygen to survive. They move over the surface of the wound secreting a powerful mixture of proteolytic enzymes that break down dead tissue into a semi-liquid form that they are able to ingest (Hobson 1931, Vistnes et al 1981). Enzymes secreted by the maggots will only liquefy devitalised tissue. It has been proposed that once they come into contact with healthy human tissue the enzymes are inactivated, so there is no danger that larvae will remove good tissue from a wound along with devitalised tissue (Weil et al 1933). Although historically there is evidence that larvae have been used in cleaning wounds since ancient times, the larvae of the greenbottle fly, Lucilia sericta, were first applied clinically in 1983 (Pechter & Sherman 1983). There was resurgence in interest in larval therapy in 2000, following the emergence of various strains of antibiotic-resistant bacteria (Sherman et al 2000).

Larvae also kill or prevent the growth of bacteria in wounds by a number of different methods:

- They ingest and digest bacteria within the devitalised tissue in the wound, which are then killed in the larval gut (Livingston & Prince 1932, Mumcuoglu et al 2001, Lerch et al 2003)
- Larval secretions increase the pH of the wound to around 8 – 8.5 due to the production of ammonia, inhibiting the growth of some bacteria (Thomas et al 1999)
- Larvae secrete chemicals with inherent antimicrobial activity and these may also help to combat infection, being effective against bacteria such as E. coli, Pseudomonas aeruginosa, Staphylococcus aureus, Klebsiella sp., Group C and G Streptococci amongst others (Bexfield et al 2004, Jaklic et al 2008). Larvae are also able to combat wound infections caused by antibiotic-resistant strains of bacteria such as Methicillin-resistant Staphylococcus aureus (MRSA) (Jaklic et al 2008)
- Of interest in recent years has been the emergence of the existence of the bacterial biofilm, where certain bacteria exist within a polysaccharide matrix where, due to low diffusion, thick extra-cellular matrix, co-existence of antibiotic-degrading bacteria, and a low blood supply, the bacteria are less susceptible to antibiotics (Lerch et al 2003, Mumcuoglu et al 2001). Larval action can increase microcirculation and possibly destroy biofilm structure, exposing susceptible bacteria to the action of antibiotics (Costerton et al 1994)

As well as breaking down necrotic tissue and combating wound infection, larvae have a third use in wound care, which is their role in facilitating wound closure. This was first documented in battle when it was reported that, when larvae developed in battle wounds, they prevented wound infections and accelerated healing (Larrey 1832). Baer (1931) and Fine & Alexander (1934) also continued larval therapy after debridement to keep wounds clean and to promote healing. More recently, Prete (1997) showed that larval secretions could stimulate granulation tissue formation as they were shown to stimulate the development of fibroblasts in culture.

When to consider Larval Therapy

It is expected that clinical staff will continue to assess wounds using the guidance contained within the Scottish Wound Assessment and Action Guide and will choose a suitable dressing product from the Wound Formulary. The necessary NHS Borders Assessment Chart for Wound Management, Formal Wound Assessment Chart, and Wound Treatment Plan and Evaluation of Care must be completed as usual. For wound healing to progress it is essential that devitalised tissue is removed and there are several Formulary products that can be used for this purpose. However, certain wounds can be difficult to debride and also, in some cases, it may be desirable for rapid de- sloughing to be achieved. Surgical debridement is an option but larval therapy is a non-invasive alternative. In the main, conventional methods of debridement should be attempted first, with progression to larval therapy to be considered if these fail.

Advantages of larval therapy identified in the literature referenced in the previous section may be summarised as follows:

- Rapid wound debridement
- Elimination of infection
- Control of odour (through inhibition of anaerobic bacteria)
- Stimulation of granulation tissue

Larval therapy can be highly effective in debriding wounds that fail to respond to conventional dressings. The treatment can be provided in both primary and secondary healthcare settings, eliminating the need for costly hospital admission for surgical debridement. Larvae are suitable for use in a wide variety of wound types as they feed on any de-vitalised tissue present – thus the original cause of the wound is unimportant, such as:

- Pressure sores
- 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 – larvae may stimulate granulation tissue

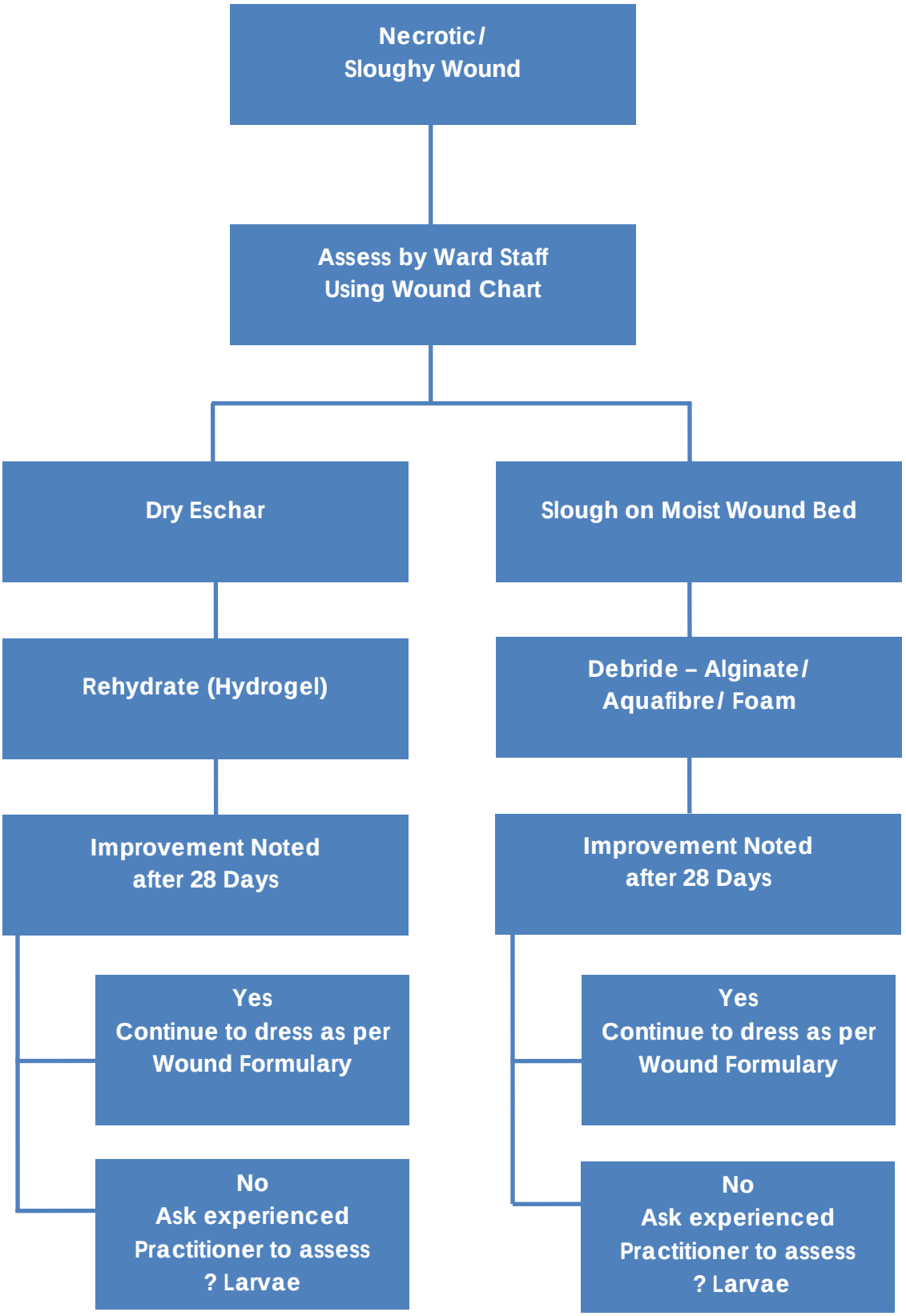
However, in looking at patient suitability for larval therapy, it would be worth bearing in mind the findings of Steenvoorde et al (2007) who found in their survey of 101 patients that some patient characteristics such as gender, obesity, smoking behaviour, presence of diabetes mellitus, and some wound characteristics, such as location of the wound, wound duration and size do not seem to contra-indicate eligibility for larval therapy. However, older patients and patients with chronic limb ischaemia or deep wounds were less likely to benefit. Septic arthritis was not found to be a good indication for therapy as none of the wounds improved.

Before considering larval therapy you must obtain permission from your line manager to ensure that funding is approved. Most importantly you must discuss the treatment with the patient and obtain their informed consent. BioMonde® produce a Patients' & Carers' Guide and this should be shown to and discussed with the patient/carer in order that the therapy and its possible side-effects are understood and accepted. The Consent Document (Appendix 1) must be completed, signed and filed in patient's case notes.

There follows a Treatment Algorithm that may be helpful when assessing wounds.

IMPORTANT NOTE RE ALGORITHM – NHS Borders Diabetic Team have identified a need for some diabetic wounds to be debrided with the minimum delay, due to the rapid deterioration to which these wounds can be subject. For that reason, diabetic wounds may have an accelerated pathway to larval therapy, i.e. progress to larvae after 7-14 days failure to debride with regular Formulary product, as opposed to 28 days for non-diabetic wounds. The accelerated pathway should only be followed after consultation with, and approval from, a member of the NHS Borders Diabetes Specialist Team.

Wound Algorithm



Indications, Cautions and Contra-indications

As previously stated, larval therapy has been used to treat most types of infected, sloughy or necrotic wounds, irrespective of aetiology. However, certain wounds and certain patient characteristics make larval therapy inadvisable or would necessitate caution.

Caution/contra-indication	Rationale
Dry or necrotic wounds	Larvae become dehydrated in low moisture situations and larval death will occur rapidly if they are applied to a wound covered with hard, dry, necrotic material. Any eschar needs to be rehydrated for a few days prior to larval therapy to put some moisture back into the tissue. This can be done using saline soaks or a hydrogel such as Purilon® /Actiform Cool® which do not contain propylene glycol, a preservative that is toxic to larvae. – Note: the Formulary gels ActivHeal® and Hydrosorb® contain the preservative so are not suitable for use directly before larval treatment
Ischaemic wounds where the blood supply is insufficient to permit healing are contra-indications. All patients with a leg ulcer must have Ankle Brachial Pressure Index (ABPI) measured and those with ABPI < 0.8 should be referred to Vascular Unit (SIGN 2010) at Royal Infirmary, Edinburgh	Be very wary of ischaemic wounds like these as debriding can potentially create a large area of tissue loss that may be incapable of healing. In ischaemic areas it is often more prudent to keep the eschar dry rather than creating wet gangrene. If there is doubt as to the circulatory sufficiency (ABPI < 0.8) vascular advice must be sought before debriding.
Wounds that bleed easily or are close to major blood vessels or nerves are contra-indications. In addition, larvae should not be applied to patients with clotting disorders, or those on anti-coagulant therapy, unless they are under constant medical supervision in a healthcare facility.	The manufacturers advise that the safety of larvae has not been demonstrated in these types of wound. There is a possibility that erosion of blood vessel walls can occur with the potential for heavy bleeding, or that nerve tissue could be damaged. With the increased risk of bleeding in those on anti-coagulants it is essential that larvae in these patients be only used in

	hospitalised patients with INR within therapeutic range in order that immediate action can be taken if a bleed occurs.
Fistulae or wounds connecting with vital organs.	Again, safety of larval therapy has not yet been demonstrated so use is contra-indicated.
Excess exudate	The survival and growth rate of larvae is reduced in very wet wounds, possibly because their digestive enzymes become diluted and so are less effective. Thus they should not be applied to very wet wounds unless care is taken to ensure very frequent changes of outer dressings to avoid the larvae becoming too wet or drowning.
Concurrent therapies etc.	There is no evidence that larvae are affected by concomitant administration of chemotherapy or radiotherapy. They are also unaffected by X-rays. Normal therapeutic doses of other antibiotics do not affect the growth and development of larvae but metronidazole appears to have a toxic effect so the two therapies should not be used concurrently.
Toxic topical applications	Any dressings/topical applications that could be toxic to larvae such as antiseptics/antimicrobials such as Flamazine® must be thoroughly irrigated from the wound prior to larval
Allergies / Sensitivities	The treatment is contra-indicated if the patient is allergic to fly larvae or the components of the dressing including polyester and polyvinyl
Compression bandages	Compression is the most desirable treatment for venous leg ulcers with suitable ABPI **so should not be withheld** during larval therapy. However, the outer cohesive layer is occlusive so must not be applied as larvae would suffocate.

Possible Side Effects

Side-effect	Action
Skin irritation	Larvae release proteolytic enzymes to break down devitalised tissue and these enzymes can cause irritation if they come into contact with the skin surrounding the wound. These larvae have the property of not damaging healthy dermis and subcutaneous tissue but can destroy healthy epithelium (Gupta 2008). Thus the skin surrounding the wound must be protected. For patients having the BioBag® dressings, the peri-wound skin should be protected with a zinc-based cream or with strips of Steripaste® bandage, another zinc preparation. If a patient has a zinc sensitivity, a barrier preparation such as Secura® can be used. For loose larvae, a hydrocolloid dressing such as Askina Hydro® is used to protect the surrounding skin and to form a well to contain the larvae.
Increased exudate and odour levels	As larvae cleanse wounds by liquefying the tissue, there is always an increase in exudate production, which is usually reddish-brown colour, and can be mistaken for bleeding. Odour can also be increased.
Increased pain	Some patients find that larval therapy can increase pain levels, which is thought to result from an increase in the wound pH. It is a particular problem in those with a degree of ischaemia and can range from a pricking sensation to severe pain. Ensuring an adequate level of analgesia should be a priority when patients are having larval therapy. Pain normally ceases rapidly when the larvae are removed and the wound irrigated with saline. BioBag® dressings can make pain easier to manage as opposed to loose larvae as they are easily re-positioned.

Bleeding	The dressing should be checked daily and, in the event of bleeding, larval therapy should be discontinued and the wound monitored. An alginate dressing such as ActivHeal Alginate can be a useful haemostat and a pressure bandage may be indicated.

Loose Larvae or BioBag® Dressings?

Larvae are available in two forms: Loose larvae are applied directly to the wound, and allowed to roam freely under a containment net over the wound seeking out areas of slough or necrotic tissue.

A second presentation is available in which larvae are applied via a BioBag® dressing, in which the larvae are enclosed in net pouches containing pieces of polyurethane foam, that are placed directly upon the wound surface. The bags are of varying sizes containing different numbers of larvae to treat wounds of varying sizes. The larvae remain sealed within the bag throughout the treatment period.

Although loose larvae offer a clinical advantage on deep wounds where undermining or a sinus is present, the ease of application and removal of the BioBag® Dressing makes these dressings the product of choice for most users of sterile larvae both in the Primary and Secondary Healthcare sectors.

The precise nature of the dressing system selected will be determined by the size and location of the area to be treated. Correct selection will facilitate a secure dressing and prevent larvae escaping from the wound environment.

Determining the Number of Larvae/Size of Dressing Required

If using the loose larvae, the size of the area to be treated must be assessed to determine the number of larvae to be applied. BioMonde have devised a simple 'calculator' that may be used to help determine the number required. Loose larvae are supplied in pots of 100 or 200 and various combinations of these may be required depending on the size of the wound – see the following link for details of the Sizing & Ordering Guide , which contains the calculator, loose larvae kit sizes and order codes and also sizes and order codes for the BioBags®.

Dressing templates are available from BioMonde®, which can be laid over the wound to identify the dressing size required. The BioBag®(s) ordered should be large enough to cover the whole of the wound. If the bag is too large, it can be folded to fit the wound.

Prescribing and Ordering Larvae

It was originally the case that larvae could only be prescribed by a medical prescriber, but the rules regarding this changed in 2009 to allow their prescription as an unlicensed product by independent non-medical prescribers. The prescription should be written on the appropriate prescription form FP10 in community, or in-patient medicine Kardex and should be passed to the Hospital or community pharmacy who will place the order and provide details of the delivery address, the number of larvae required, the date and time of delivery and the address to which the invoice should be sent. BioMonde® are the only supplier of sterile larvae in the UK. The order can be made by telephone **(0345 230 1810)** or fax **(01656 668 047)** from the company who are open from 8.30am to 5pm hrs Monday to Friday. Deliveries must be signed for and are made Monday to Saturday. Orders received by 2pm can be dispatched by courier for delivery the following day, or by 4pm. Friday for delivery on Monday. In hospitals, the larvae will be delivered to the pharmacy who will advise the ward of their arrival, except for Saturday deliveries, which will go to the specified ward. An order can be cancelled by contacting BioMonde® **before 2pm on the day prior to planned delivery** – full payment will be required for late cancellations.

If using loose larvae, retention items will need to be ordered also – order codes for all of the products are detailed in the Sizing & Ordering Guide:

- Nylon Flat Net Dressing - for wounds that are isolated and easy to dress
- Nylon Net Boot – for extensive wounds on limb extremities (feet, hands, stumps etc.)
- Nylon Net Sleeve - (formed by cutting off the closed end of the net boot so it is open at both ends) for extensive or circumferential limb wounds (arms or legs)

Upon Receipt of Larvae

Larvae must be examined upon receipt to ensure that they appear viable and their condition should be documented in the relevant patient's case notes. They should be visibly moving within the dressing or pot and, if they are not, they should be returned immediately to the pharmacy who will arrange for them to be returned to the company to request a refund. Larvae should normally be used on the day of delivery but must be applied by their expiry date, which will be clearly marked on the transit container and is normally the day after delivery. They should be kept in the transit container until required – they should be stored between 6 – 25 °C. Keeping the larvae cool, but not too cold, prolongs their life and ensures that they are at their most active when applied to the wound. **Do Not Store In The Fridge.**

Application and Care of Larvae

Loose Larvae

Please refer to the BioMonde Guides - Looking After Your Larval Therapy ; Flat Net Application Guide and Boot / Sleeve Application Guide

Items Required –

- Larvae 100 or 200 net kit packs or Boot Net Kit Packs as appropriate containing one or more vials of sterile larvae, a tube of sterile saline and a flat nylon net or boot
- A hydrocolloid dressing such as Askina Hydro® or, if skin very fragile or patient unable to tolerate hydrocolloid, strips of Steripaste® or Viscopaste® bandage instead (A hydrocolloid dressing is included in the kit pack but may need more)
- A dressing pack with sterile gauze / non-woven swabs
- Pair of sterile scissors
- Roll of waterproof adhesive tape such as Clinipore clear® (Sleek is in the kit)
- A non-occlusive absorbent dressing pad such as PremierPad®
- A lightweight retention bandage
- Yellow clinical waste bag

Preparation of Larvae

Add about 5 ml of sterile saline to the container of larvae, which is equivalent to a depth of about 1-2 cm in the bottom of the container, and gently agitate the container. This releases all the larvae from the top and side wall of the container into the solution. If more than one pot of larvae is to be applied, pour the contents of this first container into the second and agitate as before. Repeat this process as many times as necessary. Accumulating all the larvae in a single container in this way speeds up and facilitates the process of application.

Preparation of Dressing Trolley

Open the dressing pack and related materials and lay out on a dressing trolley, or other suitable surface, using an aseptic technique. The contents of the larvae container are sterile and this will help to maintain asepsis.

Ensure the patient is positioned comfortably and in a suitable position for the dressing to be applied and that they fully understand all aspects of the treatment.

Application of Loose Larvae

Remove any existing dressing and clean the wound to remove any dressing residues. Ensure the peri-wound skin is clean and dry.

Cut a hole in a hydrocolloid sheet the size and shape of the wound and place securely onto the surrounding skin. Alternatively cut strips of hydrocolloid dressing 3-5cm wide and place around the wound. As well as creating a retention border to contain the larvae, this protects the peri- wound skin and forms a layer upon which to attach the nylon net. If the wound is relatively small and of limited depth, a double layer of hydrocolloid may be applied to form a shallow chamber into which the larvae are introduced. This gives the larvae room to grow.

If a hydrocolloid dressing cannot be used, the skin surrounding the wound may be protected with strips of a bandage impregnated with zinc paste (Steripaste® or Viscopaste®).

Slowly pour the saline containing the larvae onto a piece of the sterile nylon net that is supplied with each Larvae 100 & 200 kit. Cut the net beforehand to such a size that it overlaps approximately half the width of the retention border on all sides. The net should be placed upon a sterile gauze swab and pre-moistened with saline to overcome surface tension effects. The liquid is drawn away through the net by the swab, leaving the larvae in a heap on the surface. If the larvae are poured out too quickly, the saline (and some of the larvae) may run off the net onto the surrounding area.

Invert the sterile nylon net over the wound and tape securely to the hydrocolloid sheet using the waterproof adhesive tape. The larvae will not fall off the net when it is inverted, as they will be held in place by surface tension.

If a zinc paste bandage is used in place of the hydrocolloid sheet, press the nylon mesh firmly down into the paste and apply a further layer of bandage around the edges to anchor the net in position and ensure the larvae are securely held.

The central part of the net must remain un-occluded in order to permit free drainage of exudate and allow the larvae to obtain an adequate supply of oxygen.

Apply a swab moistened with sterile saline over the outside of the net. This keeps the young larvae moist, which they require.

Complete the dressing with an absorbent pad held in place with tape or a bandage as appropriate. Occlusive dressings or film dressings **SHOULD NOT** be used, as these will cause the larvae to suffocate.

Any unused larvae should be disposed of, as they can no longer be considered sterile.

Application of Larvae Using a Net Boot

For an extensive wound on the foot, a net boot is available. These are easier to apply than the standard dressing and provide a more effective method of preventing the larvae from escaping.

When using the boot, place a 'collar' or ring of hydrocolloid dressing around the limb above the wound. Ensure the hydrocolloid is in pieces, to allow for any swelling of the limb.

Trim the open end of the boot to a suitable size to allow comfortable fixation with a minimum of excess. Apply the boot over the limb and fix the open end to the hydrocolloid ring using waterproof adhesive tape.

Areas of healthy skin enclosed within the net boot should be protected with a piece of hydrocolloid, a thin layer of zinc paste or white soft paraffin, or some other bland skin preparation. Alternatively a proprietary skin protective agent may be used (e.g. Secura skin protective barrier film®). These will protect the intact skin from the action of the larval enzymes.

When using the boot system, instead of pouring the larvae out onto a piece of net or into the bag prior to application, pour the larvae onto a moistened non-woven gauze swab and gently wipe the swab over the wound surface.

Apply a suitable outer dressing as described previously.

Application of Larvae Using a Net Sleeve

For extensive or circumferential wounds on the leg, a net sleeve, open at both ends, can be slid into place over the affected area and sealed to strips of hydrocolloid formed into collars, placed above and below the margins of the wound. This technique allows large areas to be dressed whilst ensuring that the larvae are contained within the wound, and allows for expansion of the dressing if swelling occurs. The sleeve is formed by cutting the closed toe area off the net boot.

When using this technique, slide the net into position, fix to the upper hydrocolloid collar and push up the lower part of the net to expose the wound.

Protect the healthy skin enclosed within the sleeve as previously described, and apply the larvae to the wound using a swab as described above.

Once the larvae are in place, slide the open end of the sleeve down over the wound and fix to the second hydrocolloid collar.

Apply the non-occlusive outer dressing as described previously.

BioBag® Dressings

Before applying BioBag® Dressings to the wound, it is recommended that any existing dressing residues are thoroughly removed and the wound irrigated with sterile saline.

It is advisable to protect the surrounding skin from excoriation with a proprietary skin protectant such as a Zinc-based ointment (Sudocrem® is included in the pack) or impregnated bandage such as Steripaste® or Viscopaste®, or other barrier such as Secura®. As stated previously, larval secretions irritate intact skin and can cause inflammation and excoriation.

Wearing gloves, remove the BioBag® Dressings from the transit containers by emptying the bag onto a swab pre-moistened with sterile saline, then place directly on the surface of the wound. Repeat using as many BioBag® dressings as necessary to cover the area affected. Place onto wound so that where possible the wound margin is covered and fold/double back excess net of the bag away from peri-wound skin. At time of application and subsequent dressing changes, place a moistened swab over the BioBag® dressing to ensure the larvae are dampened.

Complete the dressing with a non-occlusive absorbent pad held in place with tape or bandage as appropriate. The pad is required, as exudate levels will increase due to devitalised tissue being liquefied. Remember not to use an occlusive dressing, as this would cause the larvae to suffocate. If the outer dressing is allowed to become very wet then this will also occlude the larvae and cause suffocation.

Daily Evaluation, Aftercare & Duration of Treatment

Generally, whilst larval therapy of any type is in place, patients should not:

- Bathe or otherwise immerse wound in water
- Place the wound too close to a source of heat as larvae may dry out
- Put undue pressure on wound area e.g. if on buttocks, nurse side to side on bed; if on heel, limit mobilising and use pressure offloading measures

Loose Larvae with Standard Net / Boot / Sleeve

- On a daily basis, remove the outer pad and saline-soaked swabs – this may need to be done more frequently if there is strike-through
- Observe the larvae in the net to ensure they are still viable (movement and reddish-brown exudate expected)
- Re-secure the retention net and border if necessary
- Apply a fresh saline-soaked swab over the net – ensure this is not too wet as this could occlude and suffocate the larvae
- Affix a fresh non-occlusive absorbent pad on top
- The larvae should be left in the wound for 4 days. It should be apparent at Day 3 if further larvae are going to have to be ordered.

- Remove the outer bandages, absorbent padding and swab on a daily basis
- Check that the larvae remain active before replacing on the wound
- Re-apply barrier preparation to surrounding skin if required
- Moisten a swab with saline and place over the bag
- Renew the pad and fix as before
- Larvae should be left on a wound for 4 days
- Pain may become a problem so the patient's analgesia must be evaluated and increased if necessary – using the BioBag® rather than loose larvae enables better pain management as the larval enzymes can be irrigated away and the dressing replaced without the need to discontinue treatment

Reassessment of Wound

Re-assess the wound on Day 3 to see if further larval therapy is required or whether a change to conventional therapy is more appropriate – if full debridement has been achieved then no further larvae are indicated and the aforementioned Scottish Wound Assessment and Action Guide should be used to select a suitable dressing product to maintain a healthy granulating wound. Sometimes an experienced practitioner may sanction a further course of larval treatment.

Removal of Larvae

Loose Larvae

- First position a clinical waste disposal bag (yellow bag) under the wound to catch any larvae that fall out of the wound
- Depending upon the location and size of the wound, remove the net retention dressing with or without the hydrocolloid frame, and gently remove the larvae with a gloved hand or a pair of forceps
- Any larvae 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 as they have to come to the surface to breathe
- Larvae will not pupate or turn into flies within a wound and they cannot multiply or 'breed'. If further larvae are to be applied, it does not matter if a few individual larvae are missed, as these will die and be resorbed by the body

BioBag® Dressings

- Remove outer absorbent padding then remove BioBag® Dressing(s) and place in clinical waste bag for incineration

Disposal of Larvae

Provided an aseptic procedure is used, the larvae supplied by BioMonde are sterile up to the time that they are introduced onto the wound.

As soon as they come into contact with tissue or body fluid, however, they must be regarded as potentially contaminated, and therefore must be disposed of as any other type of dressing residue or clinical waste in accordance with the local control of infection policy, i.e. double bag in yellow bag and place in clinical waste bin for incineration.

For users in the community, larvae should be disposed of as per local policy regarding clinical waste.

If Patient Dies

If a patient dies unexpectedly during larval therapy, the larvae should be removed from the wound prior to the transfer of the patient to the mortuary, and disposed of as previously described to respect the patient's dignity and the sensitivities of the family.

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Appendix 1

CONSENT FOR THE USE OF STERILE LARVAE THERAPY

To be completed by nurse/doctor

Affix Patient Addressograph Label

Location ……..

Consultant / GP ……

I have fully explained the aims of larval therapy, the procedures and the possible side-effects to the patient using the information booklet "Patients' & Carers' Guide" produced by BioMonde®. I have also discussed alternative treatments.

Signature …… **Date** ……..

Print Name & Designation ……..

To be completed by patient / carer

I understand the treatment aims and possible side-effects of larval therapy and hereby consent to this treatment in preference to alternatives for the treatment of:

……

Signature of patient / carer (delete as appropriate)

…… **Date** ……..

Batch Number(s) & Expiry ……..

Date Applied ……