



**National Wound Care
Strategy Programme**



**Surgical
Wounds**

Surgical Wound Complications Consultation

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Working in partnership with

TheAHSN*Network*

Surgical Wounds

The most common type of wound that requires NHS care are surgical wounds (57%)

Surgical wounds are deliberately caused through a surgical incision and heal either by:

- Primary intention (where the edges are brought together in approximation)
- Secondary intention (where tissue has been lost or because the wound edges cannot be brought into apposition for suturing)

Most heal without complications or delay, but healing is problematic in a significant minority

2021



Surgical Wound Complications:

Surgical wound dehiscence (SWD)

- The separation of the margins of a closed surgical incision, with or without exposure or protrusion of underlying tissue, organs or implants. Separation may occur at single or multiple regions, or involve the full length of the incision, and may affect some or all tissue layers.

Surgical Site Infection (SSI)

- An infection related to an operative procedure, that occurs at, or near, the surgical incision within 30 days of the procedure, or within 90 days if prosthetic material is implanted at surgery.

SWD increases the risk of SSI and vice versa.

- A dehisced surgical incision may or may not display clinical signs and symptoms of infection
- Not all infected or inflamed wounds dehisce¹

1. World Union of Wound Healing Societies (2018) Surgical wound dehiscence: Improving prevention and outcomes. Wounds International

Surgical Wound Complications

Complications leading to delayed healing

- Surgical Site Infection
- Surgical Wound dehiscence (including Seroma & Haematoma)

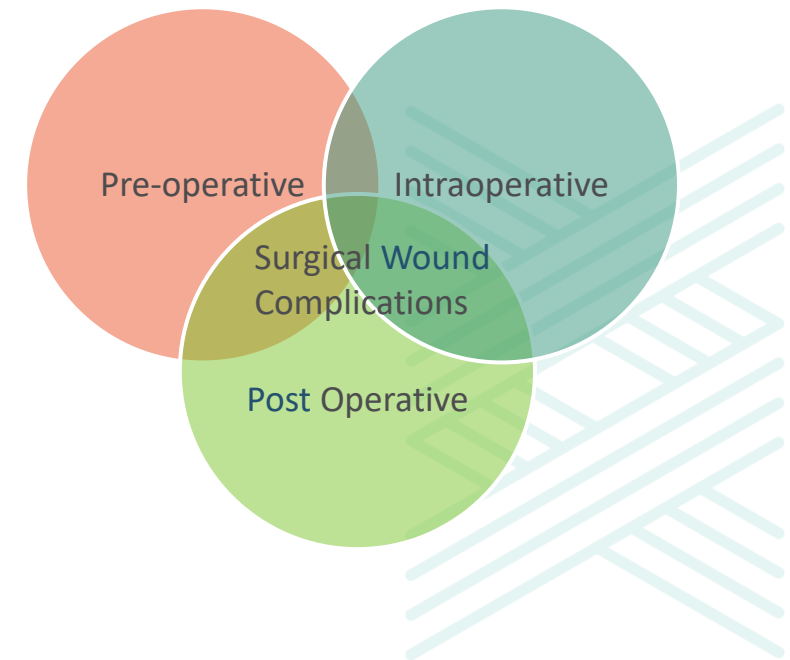
Other wound healing complications:

- Hypergranulation
- Medical Adhesive Related Skin Injury (MARSI)
- Moisture Associated Skin Damage (MASD) / Maceration

Complications unrelated to delayed healing

- Scarring
- Incisional hernia

Sandy-Hodgetts et al (2017)¹



1. Sandy-Hodgetts K, Leslie GD, Parsons R, et al. Prevention of postsurgical wound dehiscence after abdominal surgery with NPWT: a multicentre randomised controlled trial protocol. *J Wound Care* 2017; 26(2): S23–26.

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Surgical Wounds - recommendations for care

For further information, please refer to the full NWCSF Recommendations at NationalWoundCareStrategy.net



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Excellence. Every Patient. Every Time.

Pre-Surgery Assessment and Information

Delayed healing can be due to:

- Lifestyle factors.
- Pre-existing co-morbidities.
- Psychological and social factors.
- Cultural and ethnicity factors.

Before surgery, as part of assessment, discuss:

- Lifestyle factors.
- Recent travel history.
- Current MRSA/VRE status or need for screening.
- Current medical conditions.

And address any modifiable issues.

Patients undergoing elective surgery should:

- Be assessed to stratify risk of SSI/SWD.
- Receive written information specific to type of surgery.

Pre-Operative Phase (24 hours before surgery)

Address any cultural/ethnic/religious factors that may impact on care

- a. Shower or bathe before surgery.
- b. Nasal decolonisation.
- c. Avoid routine hair removal: if necessary, use clippers, not razors.
- d. Avoid routine mechanical bowel preparation.
- e. Follow NICE advice for antibiotic prophylaxis.

Intra-Operative Phase

Key recommendations

- Appropriate theatre wear for patients.
- Specific non-sterile theatre wear for all theatre staff.
- Hand decontamination.
- Avoid routine use of non-iodophor-impregnated incise drapes.
- Sterile gowns for the operating team.
- Two pairs of sterile gloves, if high risk of glove perforation.
- Minimise movement in and out of operating area.
- Follow NICE advice for antiseptic skin preparation.
- Do not use diathermy for surgical incision.
- Seek to maintain patient homeostasis.
- Do not use wound irrigation or intracavity lavage to reduce the risk of SSI.
- Only apply antiseptics/antibiotics as part of a clinical research trial.
- Use digital wound imaging.
- Cover surgical incisions with an appropriate interactive dressing.

Post-Operative Phase

Key recommendations

- Aseptic non-touch technique for dressing changes.
- Monitor pain and offer appropriate analgesia.
- Base wound assessment on NWCSF minimum data criteria.
- Digital wound imaging.
- Sterile saline for wound cleansing for 1st 48 hours, then potable tap water/showering.
- Do not use topical antimicrobial agents for surgical wounds healing by primary intention.
- Monitor for signs of surgical site infection (SSI) / Surgical Wound Dehiscence (SWD).
- Report SSI/ SWD up to 30 days after surgery (or up to 90 days after surgery in patients receiving implants).
- Provide patients/carers and clinicians with:
 - Detailed written information about received and ongoing care.
 - When and how to seek advice from the surgical team.
 - Dressings for one week.
 - Name of person responsible for overseeing ongoing care.
- Use a structured approach to improve care that involves specialist wound care services.

Ongoing Care after Transfer from Care of the Surgical Team

RED FLAGS

- 🚩 **Treat as an emergency situation**
 - Haemorrhage/Catastrophic dehiscence.
 - 'burst abdomen' with visible internal organs.
- 🚩 **Arrange for immediate review by the senior clinical decision maker**
 - Systemic signs of infection/sepsis.
 - Follow NICE Guideline for Sepsis: Recognition, Diagnosis and Early Management.
- 🚩 **Seek review by surgical team within 24 hours**
 - Spreading cellulitis, or
 - Dehiscence if:
 - Surgery involved implants (e.g. mesh, prosthesis).
 - Aesthetically or functionally important surgical site (e.g. face or joints).
- 🚩 **Seek review by surgical team within 72 hours**
 - Dehiscence exposing subcutaneous layers and fascia.
 - Suspected sinus/fistula/tunnelling.
 - Stoma within wound boundaries.

Other failures to heal

- **Seek review** by clinician with surgical wound expertise who can escalate directly to surgical team as needed.

Suspected Wound Infection (without red flag symptoms)

- Wound swab for microbiology.
 - Bloods for full blood count and C-reactive protein (CRP).
 - Digital wound image.
- If concerned, **seek review** by surgical team within 72 hours.
- Only commence antibiotic therapy following consultation with the surgical team.

Prevention

Pre-operative Assessment to gain baseline information

Use of a validated risk assessment tool to address risk factors if available

High Risk Patients ensure patient has access to a ERAS programme and consider Prehabilitation*

Post-Operative Wound Care (5-14 days)

Surgical wound closed with sutures/glue or clips for healing by primary intention

Wound Care
Wound assessment
Peri-wound skin cleaning
Appropriate dressing
Care of drains and drain site
Record
Take digital image
Review effectiveness of treatment plan
Facilitate self care
Removal of closure materials

High Risk
Dressing materials and adjuncts that support the wound should be considered

Surgical wound intentionally left open to heal by secondary intention

Wound Care
As above apart from closure removal

Surgical wound intentionally left open but with plan for healing by delayed closure / tertiary intention

In addition,
Wound bed cleansing & debridement

Care of Open Wounds and Complications

HEALED (PIFU - Patient Initiated Follow Up)

Problematic removal of sutures / Complications

Early Red Flags:
Treat as an emergency situation

- Haemorrhage
- Newly exposed viscera

Intermediate Red Flags
24 hours Referral

- Systemic signs of infection/sepsis
- Spreading cellulitis
- Dehiscence if: surgery involved Implants
- Aesthetically or functionally important surgical site

72 Hour Referral

- Dehiscence with newly exposed subcutaneous layers and fascia.
- Suspected sinus/fistula/tunnelling
- Draining seroma's
- Stoma within wound boundaries

Progressing to healing

Dehiscence/ suture line break down

Open wound not decreasing in size or increasing

Wound is ready for surgical closure

After Care

After Healing

Consider advising
Massage to improve scar and increase tensile strength

Avoid sun exposure

Conservative Care

Some wounds are not capable of healing. This is a surgical decision and patients may be referred to a wound practitioner for continuation of care

For Elective Closure/Implant removal

Surgical Review

* Refer to Surgical Wound Complications Recommendations

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**Recommendations for
Preventing and
Managing
Surgical Wound
Complications**

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Surgical Wound Recommendations

- A – Prevention
- B – Intraoperative phase
- C - Post-operative wound care
- D – Aftercare following healing



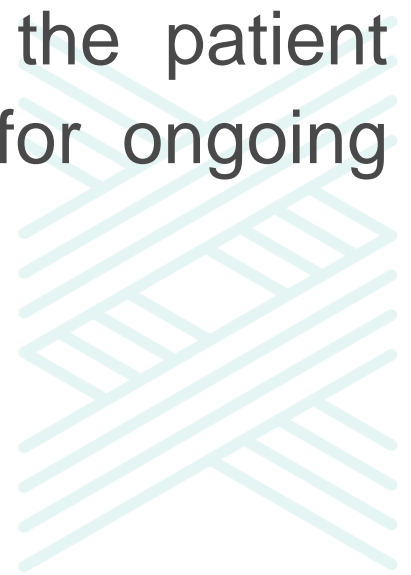
Prevention

- An **Enhanced Recovery After Surgery (ERAS)** programme targeted at reducing surgical wound complications should be used for all high-risk patients and considered for all other surgical patients and its use documented.
- A programme of **prehabilitation** should be considered to optimise the patient for forthcoming surgery.

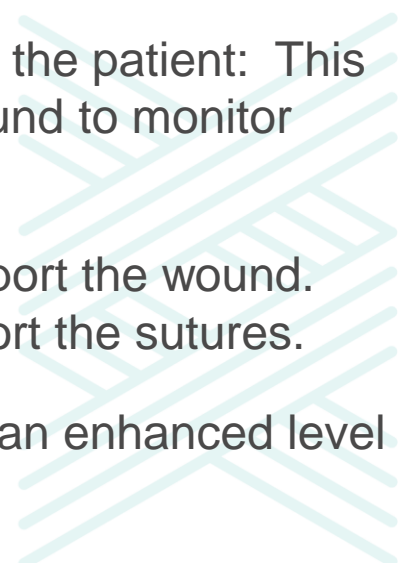


Intra-operative Phase

- In theatre, immediately following surgery and before a dressing is applied, consider capturing a digital image of the wound especially in high-risk patients.
- This image should be shared with the patient (if the patient wishes) and the health care provider responsible for ongoing care using NHS compliant digital technology.



Post-operative Wound Care

- Identifies patients at low and high risk and advises appropriate management:
 - Surgical wound assessment should be based on the recommendations of the NHS Wound Care Information Standard
 - Shared Care/supported self-management should be considered and discussed with the patient: This may include advice on dressing changes and taking a digital image of their own wound to monitor healing.
 - Consider using interactive dressing materials and adjuncts that will additionally support the wound. For example, abdominal supports, chest supports or use of adhesive tapes to support the sutures.
 - Consider using a risk-based assessment to determine whether the patient requires an enhanced level of care.
- 

Early Surgical Wound Complications

Early Red Flags

Treat as an emergency situation

- **Post-Operative Haemorrhage**
 - **Call for help.**
 - **Lay the patient flat.**
 - Apply a clean/sterile dressing material and apply direct pressure to the bleeding site until help arrives.
- **Catastrophic dehiscence with newly exposed viscera with visible internal organs ('burst abdomen')**
 - **Immediately inform the surgical team.**
 - **Lay the patient flat.**
 - Cover the exposed viscera/organs with saline-soaked gauze until the patient can be taken to theatre. Change saline-soaked gauze hourly to prevent desiccation of viable tissue.

If the patient has been discharged from Hospital, then call 999.



Intermediate Surgical Wound Complications

Intermediate Red Flags

Refer to the surgical team within 24 hours:

- **Systemic signs of infection/sepsis**
 - Arrange for immediate review by the senior clinical decision maker.
 - Follow [NICE Guideline for Sepsis: Recognition, Diagnosis and Early Management](#).
- **Spreading cellulitis** - (e.g., increasing erythema, swelling, pain, pus, heat).
Arrange for immediate review by the senior clinical decision maker

Dehiscence when surgery involved implants (e.g. mesh, prosthesis) or an **aesthetically or functional important surgical site** (e.g. face or joints).

Refer to the surgical team within 72 hours:

- **Dehiscence with newly exposed subcutaneous layers and fascia.**
- **Suspected sinus / fistula tracking.**
- **Draining seromas.**
- **Enterocutaneous fistula formation.**
- **Peri-stoma wound dehiscence.**



<p>General Health Information</p>	<p>Risk factors for delayed healing ^b. Skin sensitivities. Impact of the wound on quality of life (physical, social & emotional). Information provided to patient and carers.</p>
<p>Wound Baseline Information^{1, 2}</p>	<p>Number of Surgical wounds Wound location Wound type/classification ^c - clean, clean-contaminated, contaminated dirty Date of Surgery Treatment aim ^d Planned re-assessment date ^e</p>
<p>Wound Assessment Parameters^{1,2}</p>	<p>Wound size (maximum length, width and depth). Closure method - sutures, staples, glue, adhesive strips. Date of closure removal. Drain in situ / type of drain. Prosthesis / implant present Undermining/tunnelling ^f Wound bed tissue type ^g Wound bed tissue amount ^h Description of wound margins/edges ⁱ Approximation of wound edges ^j Colour and condition of surrounding skin ^k Whether the wound has healed ^l</p>
<p>Wound Symptoms^{1,2}</p>	<p>Presence of wound pain ^m Wound pain frequency Fluid collection beneath the wound closure (Abscess, Haematoma, Seroma) ⁿ Crepitus present ^o Dehiscence (size and number) ^p Healing ridge present ^q Exudate amount ^r Exudate consistency/type/colour ^s Odour occurrence ^t Signs of systemic infection ^u Signs of local wound infection ^v</p>
<p>Surgical Wound Specific</p>	<p>Type of surgery ^x Emergency /Elective Surgery ^y Duration of surgery ^z Antibiotic prophylaxis given</p>

Post-operative Wound Care

SSI

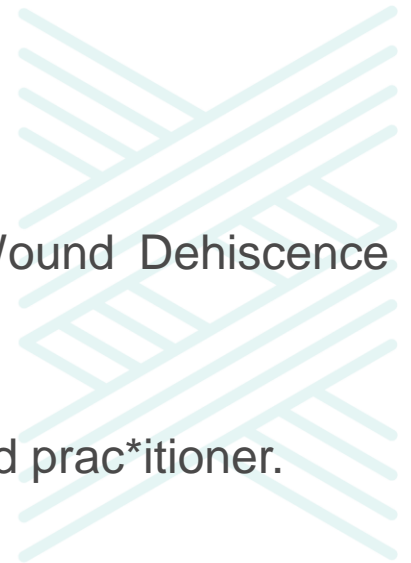
- Obtain relevant samples for culture and sensitivity testing.
- Consider prescribing an appropriate antibiotic that covers the likely causative organisms and considers local resistance patterns and the results of microbiological tests.
- Ensure patients are advised to complete the course if antibiotics are prescribed.
- Monitor patient for **signs of sepsis**.
- Report any SSI via the SSI Surveillance Service.



Post-operative wound care

SWD

- Investigate events leading to dehiscence e.g., coughing, vomiting, trauma, closure material removal purulent drainage.
- Identify and address modifiable factors that may be hindering healing. e.g., local or systemic infection.
- Consider whether further investigations are required.
- Consider removal of remaining sutures.
- Grade using the World Union of Wound Healing Society (WUWHS) Surgical Wound Dehiscence Grading System.
- Ensure any abscess, haematoma, or seroma is drained by an appropriately qualified practitioner.
- Debride non-viable tissue.



Aftercare Following Healing

- Consider teaching patients to massage the affected scar 7-10 days post healing with a simple emollient, in small circles, 2-3 times a day for up to 12 months starting gently and increasing pressure as can be tolerated.
- Patients should be advised to use sun protection (Factor 50) on the healed, affected scar for a minimum of 12 months and ideally up to 24 months.
- Should abnormal scarring (hypertrophic/keloid) become apparent consider referral to Plastic Surgery for specialist scar intervention



Where to find the information

- You can download the documents and the link to the consultation here: <https://www.nationalwoundcarestrategy.net/consultation-survey-surgical-wound-complications-recommendations-closes-15th-of-november/>
- You will be asked some basic demographic information and then questions on each section of the recommendations



NWCSP Recommendations and Clinical Pathway for Preventing and Managing Surgical Wound Complications Consultation

Surgical Wound Complications Clinical Pathway

* 5. To what extent do you agree the Preventing and Managing Surgical Wound Complications Clinical Pathway adequately covers this topic? ([NWCSP Preventing and Managing Surgical Wound Complications Clinical Pathway](#)).

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree





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Wounds**

**Thank you for your
attention**

Any Questions?

Working in partnership with

TheAHSN*Network*

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