

## Information Source:

Laemmle-Ruff, I. and Crawford, N.W. (2024). Respiratory syncytial virus prevention is finally here: An overview of safety. *Australian Journal of General Practice*, 53(10), pp.704–708. doi:<https://doi.org/10.31128/ajgp-06-24-7314>.

## Case: Sandra Potter

### Patient Information

- **Age:** 63 years
- **Gender:** Female
- **Indigenous Status:** Not Aboriginal and/or Torres Strait Islander
- **Year:** 2024
- **ICPC-2 Codes:** S – Skin

### Competency Outcomes:

#### 1. Communication and Consultation Skills:

- Engage in effective communication with the patient, ensuring informed consent for minor procedures.
- Discuss surgical site infection (SSI) risks and preventative measures.

#### 2. Clinical Information Gathering and Interpretation:

- Take a thorough history and conduct a relevant physical examination.
- Identify risk factors for SSI based on the patient's age, surgical site, and lesion histology.

#### 3. Diagnosis, Decision-Making, and Reasoning:

- Assess and plan for potential risks of SSI following a minor surgical procedure.
- Tailor the surgical plan to minimize infection risk based on patient characteristics and the lesion's complexity.

#### 4. Clinical Management and Therapeutic Reasoning:

- Develop a plan to manage the lesion excision, including infection prevention, post-operative care, and follow-up.

#### 5. Preventive and Population Health:

- Recognize and address modifiable risk factors for SSI and ensure appropriate patient education.

### Case Features

- **Condition:** Skin lesion excision with a focus on **surgical site infection (SSI) risk factors**.
  - **Key Focus Areas:**
    - Identifying predictors for SSI such as **patient age, anatomical site, expected histology, and complexity of the surgery**.
    - Applying preventive measures and educating the patient about infection risk.
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### Instructions

- **Review** the patient record summary, clinical examination findings, and histology report.
  - **Your examiner** will ask you a series of questions based on this information.
  - **You have 15 minutes** to complete this case. The time for each question will be managed by the examiner.
    - Question 1 – 4 minutes
    - Question 2 – 1 minute
    - Question 3 – 3 minutes
    - Question 4 – 3 minutes
    - Question 5 – 4 minutes
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## Candidate Information

### Patient Record Summary

- **Name:** Sandra Potter
  - **Age:** 63 years
  - **Gender:** Female
  - **Indigenous Status:** Not Aboriginal or Torres Strait Islander
  - **Allergies and Adverse Reactions:** Nil known
  - **Medications:**
    - Atorvastatin 20 mg daily (for hyperlipidaemia)
    - Lisinopril 10 mg daily (for hypertension)
    - Vitamin D supplements
  - **Past History:**
    - Hypertension, diagnosed 8 years ago.
    - Hyperlipidaemia, diagnosed 5 years ago.
    - No previous history of skin cancer.
  - **Social History:**
    - Retired school teacher, enjoys gardening.
    - Non-smoker, occasional glass of wine with dinner.
    - Lives with her partner.
  - **Family History:**
    - Mother: Deceased from stroke at age 70.
    - Father: Skin cancer (BCC), diagnosed in his 60s.
  - **Vaccination and Preventative Activities:**
    - Up to date with all routine vaccinations.
    - Regular skin checks due to family history of skin cancer.
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## Scenario

Sandra Potter, a 63-year-old woman, presents to your clinic for removal of a **suspected squamous cell carcinoma (SCC)** on her lower leg (just above the ankle). The lesion has been slowly growing over the past few months, and a biopsy performed two weeks ago confirmed it as **premalignant**, consistent with SCC in situ.

Sandra is scheduled for a **minor excision procedure** to remove the lesion. However, she expresses concerns about the risk of **infection** after the procedure, particularly since she enjoys gardening and is often outdoors. She also mentions that she has heard infections can be more common in older patients. She wants to know how likely an infection is and what can be done to prevent it.

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## Clinical Examination Findings

- **General Appearance:** Healthy, well-groomed, no signs of distress.
- **Vital Signs:**
  - BP: 135/85 mmHg
  - HR: 72 bpm, regular
  - Temp: 36.7°C
  - RR: 14/min
  - SpO2: 98% on room air
- **Skin Examination:**
  - 1.5 cm lesion above the right ankle, firm, slightly raised, with scaly surface.
  - No surrounding erythema or signs of infection.
  - No regional lymphadenopathy.
- **Vascular Examination:** Peripheral pulses normal, no evidence of venous insufficiency or peripheral arterial disease.

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## Histology Report

- **Biopsy Results:**
  - **Lesion Type:** Squamous cell carcinoma in situ (Bowen's disease).
  - **Margins:** Involved at the biopsy site.

○ **Expected Histology for Excision: Premalignant.**

**Table 1. Patient and excision characteristics**

Characteristic	Overall (n=3819)	No SSI (n=3521)	SSI (n=298)	SSI rate (%)	P-value
Age (IQR), range (n=3794)	63 (50, 73), range 5 to 101	62 (49, 73); range 5 to 101	68 (58, 75); range 15 to 91	-	<0.001
Age >55 years	2548	2305	243	9.5	<0.001
Male (%)	2095 (54.9)	1912 (54.3)	183 (61.4)	8.7	0.018
<b>Medical conditions (%)</b>					
Any condition	520 (13.6)	462 (13.1)	58 (19.5)	10.6	0.002
Anaemia <sup>4</sup> (n=478)	1 (0)	1 (0)	0 (0)	0.0	1.0
Cancer <sup>1,3,4</sup> (n=2572)	50 (1.9)	39 (1.6)	11 (5.3)	22.0	<0.001
COPD (n=3752)	62 (1.6)	53 (1.5)	9 (3.0)	14.5	0.047
Diabetes (n=3818)	285 (7.5)	252 (7.2)	33 (11.1)	11.6	0.014
Hypertension <sup>4</sup> (n=478)	119 (24.9)	113 (26.0)	6 (14.0)	5.0	0.082
Ischaemic heart disease <sup>3,4</sup> (n=1663)	45 (2.7)	39 (2.6)	6 (4.0)	13.0	0.306
Inflammatory skin disease <sup>1</sup> (n=909)	2 (0.2)	2 (0.2)	0 (0)	0.0	1.0
Peripheral vascular disease	19 (0.5)	18 (0.5)	1 (0.3)	5.3	1.0
<b>Medications (%)</b>					
Any medication	602 (15.8)	538 (15.3)	64 (21.5)	10.6	0.005
Anticoagulants <sup>1,3,4</sup> (n=2572)	204 (7.9)	185 (7.8)	19 (9.2)	9.3	0.489
Antiplatelet	329 (8.6)	292 (8.3)	37 (12.4)	11.3	0.015
Daily inhaled steroids <sup>1,3,4</sup> (n=2570)	66 (2.6)	60 (2.5)	6 (2.9)	9.1	0.754
Immunosuppressants <sup>1</sup> (n=909)	12 (1.3)	10 (1.2)	2 (3.5)	16.0	0.135
Opioids <sup>1</sup> (n=909)	8 (0.9)	8 (0.9)	0 (0)	0.0	1.0
Oral steroids <sup>1,3,4</sup> (n=2572)	45 (1.7)	39 (1.6)	6 (2.9)	13.3	0.189
Disease-modifying anti-rheumatic drugs <sup>4</sup> (n=478)	2 (0.4)	2 (0.5)	0 (0)	0.0	1.0

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**Table 1. Patient and excision characteristics (cont'd)**

Characteristic	Overall (n=3819)	No SSI (n=3521)	SSI (n=298)	SSI rate (%)	P-value
<b>Smoking status (%)<sup>1,3,4</sup> (n=2549)</b>					0.250
Non-smoker	1579 (61.9)	1464 (62.4)	115 (56.7)	7.3	
Ex-smoker	678 (26.6)	615 (26.2)	63 (31.0)	9.3	
Current smoker	292 (11.5)	267 (11.4)	25 (12.3)	8.6	
<b>Histology (%) (n=3818)</b>					<0.001
Benign	1151 (30.1)	1117 (31.7)	34 (11.4)	2.1	
Premalignant	814 (21.3)	746 (21.2)	68 (22.8)	8.4	
Malignant	1853 (48.5)	1,657 (47.1)	196 (65.8)	10.6	
<b>Site of lesion (%) (n=3794)</b>					<0.001
Head and neck	894 (23.6)	864 (24.5)	30 (10.1)	3.4	
Upper limbs	1269 (33.4)	1135 (32.2)	134 (45)	10.6	
Torso	667 (17.6)	633 (18)	34 (11.4)	5.1	
Upper leg	437 (11.5)	407 (11.6)	30 (10.1)	6.9	
Below knee	552 (14.5)	482 (13.7)	70 (23.5)	12.7	
<b>Excision characteristics</b>					
Excision length <sup>1,3,4</sup> (IQR); range (n=2572)	20 (15, 30); range 1.5 to 100	20 (14, 30); range 1.5 to 100	27 (20, 38); range 6 to 80	-	<0.001
Excision length >2 cm	2761	2502	259	9.4	<0.001
Flap (%) (n=3815)	54 (1.4)	39 (1.1)	15 (5.0)	27.8	<0.001

Description of patient and excision characteristics of 3819 patients undergoing minor skin excision and comparisons between patients with and without SSI. The data combine results from four clinical trials. Not all characteristics were assessed in all trials; the trial number and/or sample sizes are stated for variables with fewer than 3819 valid entries; age (years) are presented as the median. The denominator for 'any' condition or medication mentioned in pooled data combines 'no' and 'missing values' for trials that did not record certain conditions or medications. Superscript numbers adjacent to variables denote which trial the variable was recorded in. No number (-) indicates that the variable was recorded in all four trials. Excision length (mm) is presented as the median.

COPD, chronic obstructive pulmonary disease; IQR, interquartile range; SSI, surgical site infection.

## Examiner Information Only

### Questions and Suggested Answers

#### 1. Clinical Assessment:

- **Prompt:** What factors increase Sandra's risk of surgical site infection (SSI) following this minor excision procedure?
  - **Answer:** Based on the recent study, Sandra has several risk factors for SSI:
    - **Age (over 55):** Older patients, especially over 55, have a higher risk of infection.
    - **Anatomical excision site:** The lesion is located on the lower leg, which is one of the higher-risk areas for infection (below knee excision sites have the highest SSI risk).
    - **Expected histology:** The lesion is **pre-malignant** (SCC in situ), which has a higher risk of infection compared to benign lesions.
    - **Surgical complexity:** Depending on the procedure, more complex techniques like flaps can increase the risk of SSI, but if a simple elliptical excision is planned, the risk may be lower.

#### 2. Evidence Interpretation:

- **Prompt:** Based on the predictors of SSI, what surgical techniques or infection prevention measures should be considered?
  - **Answer:** Infection prevention measures include:
    - **Preoperative screening:** Given there is a high risk of SSI ( $\geq 15\%$ ), you may consider Bacterial decontamination with chlorhexidine wash, screening for MRSA with swab, and nasal mupirocin prior to surgery.
    - **Surgical technique:** A **simple elliptical excision** should be preferred over a more complex procedure like a flap, as complexity increases SSI risk.
    - **Post-operative care:** Proper wound care instructions, including keeping the area clean and dry, avoiding contamination (e.g., exposure to soil during gardening), and close monitoring for signs of infection.

- **Pre-operative skin preparation:** Using an antiseptic solution like chlorhexidine to clean the skin before surgery.
- **Antibiotic use:** Routine prophylactic antibiotics are generally not recommended for minor procedures in healthy individuals, but close monitoring of the wound post-operatively is important.

### 3. Patient Communication:

- **Prompt:** How would you explain Sandra's risk of infection and what steps can be taken to minimize it?
  - **Answer:** "While there is a risk of infection with any surgery, the fact that this lesion is on your lower leg and that you're over 55 means you do have a slightly higher risk than average. However, we'll take precautions to minimize this, such as using a simple surgical technique, ensuring the wound is cleaned well before and after the procedure, and giving you detailed instructions on how to care for the wound at home. If you notice any redness, swelling, or discharge after the procedure, it's important to let us know right away so we can treat it quickly."

### 4. Treatment Options:

- **Prompt:** What should be included in the post-operative management plan to minimize the risk of SSI?
  - **Answer:** The post-operative plan should include:
    - **Wound care education:** Provide Sandra with instructions on how to keep the wound clean, how to change dressings, and signs of infection to watch for (e.g., increased redness, warmth, discharge, or fever).
    - **Activity restrictions:** Advise Sandra to avoid activities that could expose the wound to contamination, such as gardening, until the wound has healed.
    - **Follow-up:** Schedule a follow-up visit in 1 week to check for signs of infection and ensure proper healing.

### 5. Follow-Up and Referral:

- **Prompt:** When would you consider prescribing antibiotics or referring Sandra for further care?



- **Answer:** If there is a high risk of SSI (>15%), you may consider Bacterial decontamination with chlorhexidine wash, screening for MRSA with swab, and nasal mupirocin. If a very high (>25%) risk, you would consider prophylactic antibiotics. Otherwise, antibiotics should be considered if there are early signs of infection, such as increased erythema, warmth, or purulent discharge. If there are any concerns about poor healing or if an infection becomes established, referral to a specialist may be warranted. Early signs of cellulitis or failure to respond to conservative treatment would also prompt a referral for more aggressive management or further excision.
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### Examiner Checklist

- **Clinical Knowledge and Skills:**
  - Correctly identified risk factors for SSI, including age, site, histology, and surgical complexity.
  - Demonstrated an understanding of preventive measures and wound care.
  - Applied evidence-based guidelines for post-operative management.
- **Patient Communication:**
  - Provided clear and empathetic explanation of SSI risk and steps for prevention.
  - Offered practical advice on wound care and post-operative activity restrictions.
  - Addressed the patient's concerns effectively, providing reassurance.
- **Evidence-Based Practice:**
  - Utilized clinical guidelines for predicting and preventing SSIs following minor surgical procedures.
  - Explained the rationale behind choosing a simple excision technique and emphasizing wound care.
  - Demonstrated a proactive approach to infection monitoring and follow-up.

This case provides registrars with a real-world example of managing a common procedure in general practice while considering the risks of infection and tailoring the surgical approach to the patient's characteristics and lesion.