HPA – Local and Regional Services
Management of PVL-*Staphylococcus aureus*
Recommendations for Practice

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INTRODUCTION

This document must be read in conjunction with the 'Guidance on the diagnosis and management of PVL-associated *Staphylococcus aureus* infections (PVL-SA) in England', published by the PVL sub-group of the Health Protection Agency (HPA) Steering Group on Healthcare Associated Infection in November 2008 [1]. It is intended for use by the Health Protection Units (HPUs) and Community Infection Control Teams (CICTs) for risk assessment and management of sporadic cases and potential outbreaks of PVL-SA infection. This guidance does not cover treatment of an acute infection and of contacts, which is the responsibility of the treating clinician or the General Practitioner (GP), advised by the local Microbiologist as required. The recommendations on the clinical aspects of management of cases and contacts are derived from the clinical guidance document [1]. The operational recommendations are a result of comments received from key experts and frontline staff during formal and informal consultations within the HPA.

It must be emphasised that little data exist on effectiveness of screening and topical decolonisation in preventing further infections, particularly in the community setting. This working guidance would be subject to change particularly if a body of evidence was made available in future. The recommendations made in this guidance are not expected to be implemented strictly by all users. This document is intended as a helpful guide to HPU and CICT staff in the risk assessment and management of cases.

SURVEILLANCE

It is recommended that HPUs are notified of new cases of confirmed PVL-SA infection when: (i) the case is a single case in a patient in a high risk group (health care worker, residential/care home staff, those involved in gyms or close contact sports such as wrestling and rugby, etc.) or in a closed community where there may be potential for onward transmission (e.g. prison, military camps, nursing home, etc.) or (ii) there is a cluster or outbreak in the community or institutional settings.

These reports are likely to come from GPs, or in some instances from microbiologists or hospital clinicians. There might be a local arrangement with the Microbiologist to receive local reports or to receive copy reports of confirmed cases from the Staphylococcal Reference Unit (SRU) at HPA Centre for Infections (CfI). Copy reports can be requested by contacting Dr Angela Kearns at SRU, CFI (angela.kearns@hpa.org.uk; Tel: 0208 327 7227. It is essential that the local HPUs are aware of the new cases in risk groups, closed communities and when there are clusters or outbreaks enabling institution of appropriate prevention and control measures without delay. In line with the current HPA policy, all significant incidents and potential or actual outbreaks should be reported on the HPA Incident Reporting Information System (IRIS) and HPZone (where available).

ROLES AND RESPONSIBILITIES

The roles and responsibilities of the HPU and the CICT as well as primary care should be clarified and agreed locally in respect of management of apparent single, sporadic cases and potential clusters or outbreaks of PVL-SA. Single cases of PVL-SA infection are likely to be followed up by primary care or CICTs, whereas HPUs should focus on the management of cases in risk groups, closed communities with potential for spread and in clusters and outbreaks.

MANAGEMENT OF SPORADIC CASES IN THE COMMUNITY

Following a report of single cases of PVL-SA infection, the following actions are recommended. The flow charts for risk assessment and management of cases and close contacts are provided in

Appendix 1 and 2. In general the responsibility for assessment and management of single cases and their contacts lies with primary care/GP and the HPU should facilitate and support this.

For the case:
A proforma to collect detailed patient information on cases is provided in Appendix 3. This may be a useful tool in assessment of individual cases. GPs or HPUs may find the form helpful for collecting information on cases that they are investigating and following up.

If patient acutely infected:

- If treatment of the index case has not been initiated, the HPU/CICT should ensure that a referral is made to the GP. No decolonisation treatment should be undertaken until the acute infection has resolved.

- If necessary the HPU/CICT could send guidance for screening and treatment of PVL-SA infection in primary care to GP [1]

- The patient should be provided by the GP with a patient information leaflet on PVL-SA [1]

Once acute infection has resolved or if patient is an asymptomatic carrier:

- The patient's GP should arrange decolonisation of patient. The HPU/CICT might assist by sending guidance for screening and treatment of PVL-SA in primary care to the GP [1]. (N.B. see contacts section – if more than one person in household requires decolonisation then perform all at same time)

- When decolonisation is undertaken, the GP should provide a patient leaflet. This can be made available by the local HPU/CICT [1]. This leaflet can also be downloaded from the HPA website.

- Occupational health issues will be the responsibility of the employer. Generally, employees with PVL-SA colonisation should be able to work providing they are not implicated in workplace transmission of PVL-SA infection and they cease work as soon as a possibly infected skin lesion develops.

For contacts of cases:

Decolonisation of contacts of a case of necrotising pneumonia caused by PVL-SA
Close contacts should be offered a five day decolonisation regime starting immediately (including Chlorhexidine gargle if feasible) by the GP. Consideration should be given to using suitable antiviral prophylaxis (e.g. Oseltamivir) if the index case is found to have had influenza and advice obtained from a Consultant Virologist or Respiratory Physician.

Decolonisation of contacts of a case with other PVL-SA infections (i.e. excluding necrotising pneumonia):

- On receipt of a report of a case of PVL-SA infection, an assessment of the close household and sexual partners of the case should be undertaken by the GP. A risk assessment should be undertaken to see if screening and/or decolonisation are appropriate or feasible.

- This should assess whether close contacts are likely to have current or past (in the last year) PVL-SA infections, such as recurrent skin lesions. Any contacts who are likely

to have current infections should have decolonisation deferred until acute infection has been treated or ruled out. Employment history should also be sought.

- If a household contact is likely to be colonised because of a history of past infection, all contacts in the household should undergo decolonisation at the same time as the index patient. Prior screening is not required. This should be arranged by their GP.

- If there is no history of past infection in contacts, and they are not in a high risk group, then no screening or decolonisation is required unless the index case has a recurrence of infection following previous decolonisation. In such circumstances the entire family contact group should be screened and all given decolonisation therapy if any contacts are found to be positive on screening.

- If there is no history of past infection in contacts, but a contact(s) is in a high risk group then this contact(s) should be screened. If any contact in the high risk group screens positive, then decolonisation should be given to the entire family group, by their GP.

- Any contact found to be positive on screening should receive a PVL-SA information leaflet. This can be provided by the HPA and all those being offered decolonisation should receive the decolonisation leaflet. The patient's GP should be sent guidance for screening and treatment of PVL-SA for primary care [1].

- If a contact requiring decolonisation has any pre-existing dermatological conditions, or is a neonate, this should be discussed with a dermatologist prior to starting the course of treatment.

<u>Screening after decolonisation</u>

- Following a course of decolonisation, no repeat screening is required unless a case or a close contact is particularly vulnerable to infection or poses a special risk to others e.g. healthcare worker, nursery worker. In such circumstances, repeat screening of the case and/or the close contacts should be done at least one week post decolonisation by their GP.

- If repeat screening is positive, a second round of topical decolonisation should be arranged for the case and/or the whole household group by their GP.

- Following two rounds of topical decolonisation, no further screening should be undertaken. Patients/contacts should maintain sensible precautions to prevent transmission in household/community settings [1]. If the index case develops recurrent infection and/or further acute infections continue to arise within close contact groups, specialist advice should be sought.

These actions are summarised in flowcharts in Appendices 1 and 2. It is important that both the text and the flowcharts are used together.

MANAGEMENT OF POTENTIAL CLUSTERS/OUTBREAKS

The HPA 'Guidance on the diagnosis and management of PVL-associated *Staphylococcus aureus* infections (PVL-SA) in England' provides useful advice on the risk assessment and management of PVL-SA clusters in institutional settings such as care home, prisons, barracks, schools, nurseries and sports facilities [1]. This advice should be followed and the incident managed according to the

local outbreak policy where appropriate. However, clusters of cases in such facilities should be discussed with the Health Protection Unit and a decision taken whether to convene an Outbreak Control Team (OCT) depending on the number of cases and potential risk of transmission among close contacts. It is recommended that a CCDC leads the outbreak management by chairing the OCT meeting. The HPA standards for Incident and Outbreak Investigations should be met [2].

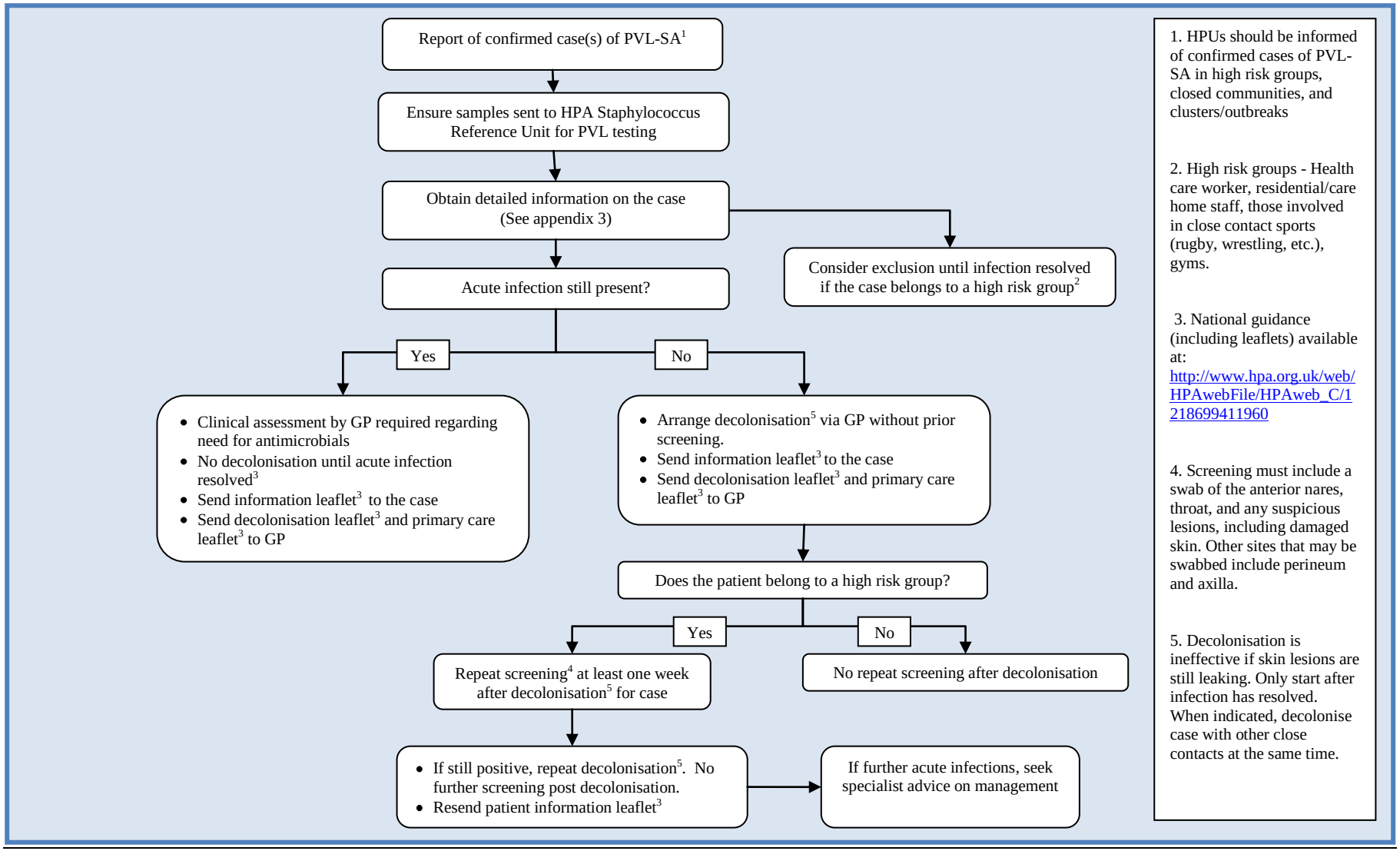
Suggested definition of outbreak: Two or more confirmed cases (caused by the same strain) associated by place or time but not within the same household or nursing /care home. When an outbreak is suspected isolates must be referred to SRU to determine whether they represent a single strain.

REFERENCES

1. Guidance on the diagnosis and management of PVL-associated *Staphylococcus aureus* infections (PVL-SA) in England. Health Protection Agency. 7 November 2008. Available from: http://www.hpa.org.uk/web/HPAwebFile/HPAweb_C/1218699411960

2. Standards for incident and outbreak investigation in England. Maguire H, Oliver I, Gorton R, Cohuet S, Fraser G. European Scientific Conference on Applied Infectious Disease Epidemiology Berlin 2008.

APPENDIX 1. RISK ASSESSMENT AND MANAGEMENT OF CASES OF PVL-SA INFECTION



1. HPUs should be informed of confirmed cases of PVL-SA in high risk groups, closed communities, and clusters/outbreaks

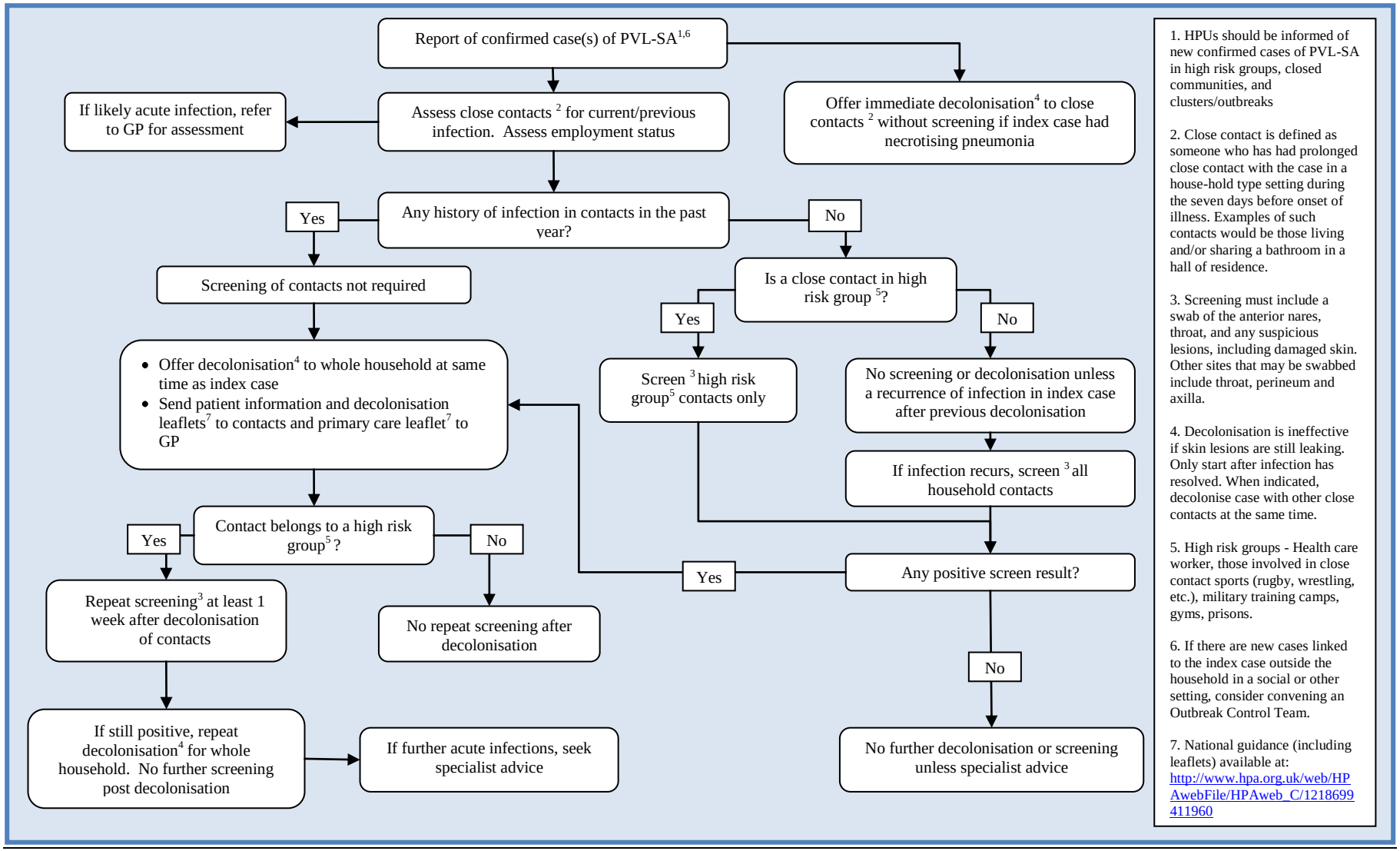
2. High risk groups - Health care worker, residential/care home staff, those involved in close contact sports (rugby, wrestling, etc.), gyms.

3. National guidance (including leaflets) available at: http://www.hpa.org.uk/web/HPAwebFile/HPAweb_C/1218699411960

4. Screening must include a swab of the anterior nares, throat, and any suspicious lesions, including damaged skin. Other sites that may be swabbed include perineum and axilla.

5. Decolonisation is ineffective if skin lesions are still leaking. Only start after infection has resolved. When indicated, decolonise case with other close contacts at the same time.

APPENDIX 2. RISK ASSESSMENT AND MANAGEMENT OF CLOSE CONTACTS OF PVL-SA INFECTION



1. HPUs should be informed of new confirmed cases of PVL-SA in high risk groups, closed communities, and clusters/outbreaks

2. Close contact is defined as someone who has had prolonged close contact with the case in a house-hold type setting during the seven days before onset of illness. Examples of such contacts would be those living and/or sharing a bathroom in a hall of residence.

3. Screening must include a swab of the anterior nares, throat, and any suspicious lesions, including damaged skin. Other sites that may be swabbed include throat, perineum and axilla.

4. Decolonisation is ineffective if skin lesions are still leaking. Only start after infection has resolved. When indicated, decolonise case with other close contacts at the same time.

5. High risk groups - Health care worker, those involved in close contact sports (rugby, wrestling, etc.), military training camps, gyms, prisons.

6. If there are new cases linked to the index case outside the household in a social or other setting, consider convening an Outbreak Control Team.

7. National guidance (including leaflets) available at: http://www.hpa.org.uk/web/HPAwebFile/HPAweb_C/1218699411960

APPENDIX 3. SAMPLE QUESTIONNAIRE

Date & Time reported:	
Name of Person reporting:	
Designation:	Contact details:
Taken by:	HPU:

1. PATIENT DETAILS AND DEMOGRAPHICS

Name:	**Date of Birth:**
Country of birth / ethnicity:	**Gender:** Male / Female
Address:	**GP name and address:**
Home phone number:	**Mobile number:**
Occupation or setting **(Please circle)**	1 - Hospital [e.g. patient or health care worker] 2 - Nursing/residential [e.g. resident or care worker] 3 - Nursery/childcare/school worker 4 - Any institutional setting (e.g. sports centre/ armed forces/ prison) 5 - Food handler 6 - Other. Please specify _____
Current clinical status **(Please circle)**	**Confirmed case:** *S. aureus* has been confirmed as PVL-positive by SRU, HPA Colindale in a patient with skin or soft tissue infection (SSTI), or invasive disease such as necrotising pneumonia **Suspected case: P**atient has any of the infections above or there is clustering of SSTIs within a household or social group; or invasive infections in immunocompetent people, particularly community-acquired necrotising/haemorrhagic pneumonia in the young **Colonisation:** The presence of PVL-positive S. aureus without any symptoms/ signs of infection
Is the patient currently in hospital: Yes / No Name of Hospital: Telephone No: Ward: Has the hospital infection control team been informed: Yes No **Is the patient currently in the community setting:** Yes / No In own home: Yes/ No If No – where is patient currently : _____ Has the relevant community infection control team been informed: Yes / No	

2. RISK FACTORS FOR PVL *Staphylococcus aureus (please tick as many as apply)*

Healthcare / Social Care Worker	☐
Care Home resident	☐
Personal or family history of skin or soft tissue infection(s)	☐
Visits a gymnasium	☐
Takes part in contact sports	☐
Military personnel	☐
Travel outside the UK in the last 12 months	☐
Attends any other institutional setting (e.g. prison, nursery)	☐
Please specify _____	

Has he/she had contact with a confirmed or suspected case? (Please circle) Yes / No / Not known

If known, name of the confirmed or suspected case: _____

Clinical status of other case: Infected Colonised Suspected Don't know

Estimated period of contact: _____ to _____

Estimated duration of contact: ___Hours ____Days___Months

Type of contact: Household Social Work Health care setting
Other (please specify) _____

3. CLINICAL DETAILS

Main symptoms in the case:

Comorbid illnesses: (please circle all that are applicable)

Eczema / Psoriasis / Weeping skin lesions
Immunosuppression due to _____
Other systemic diseases _____
None

4. LABORATORY DETAILS

Date of test for PVL-SA:

Result of screen: Testing not complete ☐ SA isolated, PVL testing not complete ☐
PVL-MSSA ☐ PVL-MRSA ☐ Other *S. aureus* ☐ Negative for SA* ☐

If PVL-SA was isolated:

Date of first positive result:: Date sent to SRU, HPA:

PVL strain type:

*Note: If screening swabs were obtained while receiving antibiotic treatment in preceding 48 hours, a negative result is not valid and the screen needs to be repeated.

5. TREATMENT DETAILS

What was the indication for treatment? Decolonisation Treatment of infection	
Date treatment commenced:	
Treatment details	Antibiotic used: Duration of course: Repeat treatment details:

6. OUTCOME OF TREATMENT

If patient belongs to high risk group, was screening for clearance recommended post decolonisation? (High- risk group: Hospital health care worker, nursing/ residential home care worker, Nursery / childcare/ school worker, works in sports centre/ gym/ prison/ correction facility, food handler)	Yes / No / Not known Clearance screening results negative? Yes / No / Not known Date of most recent screen:
Patient Status	Still colonised ☐ Cleared PVL infection ☐ Deceased ☐ Not known ☐ If deceased, date of death: If deceased, was a) the death attributed to PVL ☐ b) PVL contributed to death ☐ c) PVL was incidental to death ☐ d) not known ☐

7. OTHER RELEVANT INFORMATION

Contacts of current case:

Name & Relationship to index case	Date of Birth	GP Details	Occupation	Risk factors for PVL infection	Symptoms/signs of PVL infection present?	Exclusion required?	Screening required?	Decolonisation / treatment required?

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