DEDER GENERAL HOSPITAL

SURGICAL SITE INFECTION (SSI) SCREENING PROTOCOL

PREPARED BY*: *HSQU

JULY 2016 E.C

DEDER, EASTERN ETHIOPIA

PROTOCOL APPROVAL SHEET

NAME OF PROTOCOL: SURGICAL SITE INFECTION (SSI) SCREENING PROTOCOL

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THIS PROTOCOL IS EFFECTIVE FROM JULY 2016 E.C TO JUNE 2018 E.C

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1. INTRODUCTION

This protocol for surgical site infection (SSI) surveillance is designed to support the implementation of the World Health Organization (WHO) Global guidelines on the prevention of SSI (1) and their implementation strategy.

The need to focus on SSI surveillance and prevention is primarily due to the following evidence (1-3).

SSI is the most frequent type of health care-associated infection (HAI) on admission. SSI is the most frequent type of HAI in low- and middle-income countries (LMICs). Approximately one in 10 people who have surgery in LMICs acquire a SSI.

In Africa, up to 20% of caesarean section procedures lead to a wound infection.

SSI is also reported as the second most common HAI in Europe and the United States of America (USA). In Europe, SSI affects more than 500 000 people per year, costing €19 million; in the USA, SSI contributes to patients spending more than 400 000 extra days in hospital, costing US$ 10 billion a year.

In the USA, 39-51% SSI pathogens are resistant to standard prophylactic antibiotics.

Surgical sepsis accounts for approximately 30% of all patients with sepsis. Implementation of SSI prevention measures, especially using multimodal strategies, is effective to reduce the occurrence and the burden of infection (4-6). For example, a 17% decrease in SSI related to 10 selected procedures was reported between 2008 and 2013 in the USA (7) following improvement programmes. In African hospitals, a 60% SSI risk reduction was observed following the implementation of a WHO multimodal strategy in the context of the WHO Surgical Unit-based Safety Programme (SUSP) including SSI surveillance (8).

HAI surveillance and timely feedback of results, including SSI surveillance, are strongly recommended by WHO as part of the core components of effective infection prevention and control (IPC) programmes (4). Every health facility should be committed to this in order to provide quality, safe health care and to ensure that surveillance is not undertaken in isolation, but is instead connected to other evidence-informed activities. Conducting high-quality SSI surveillance is crucial to detect the magnitude of the problem and to assess the impact of any prevention/improvement intervention

2. DEFINITION OF SSI

One or more of the following criteria should be met:

1. Purulent drainage from the incision wound Positive culture from a wound swab or aseptically aspirated fluid or tissue
2. Two of the following:
   - wound pain or tenderness
   - localized swelling
   - Redness
   - heat
3. Spontaneous wound dehiscence or deliberate wound revision/opening by the surgeon in the presence of:
   - pyrexia > 38C or
   - localized pain or tenderness
4. An abscess or other evidence of infection involving the deep incision that is found by direct examination during re-operation, or by histopathological or radiological examination

➢ A major surgical procedure is defined as any procedure conducted under general, spinal or major regional anesthesia.

3. PURPOSE

Infection at the site of surgery may be caused by poor infection prevention practices in the operating room or on the ward after completion of surgery. The surgical site infection rate is an indicator of the quality of medical care received by surgical patients and an indirect measure of infection prevention practices in the hospital. By monitoring surgical site infection hospitals can assess the adequacy of infection prevention practices in the hospital and take action to address any problems identified.

4. SCOPE

- Applicable for all major surgical procedures performed in Deder General Hospital and fulfilling the above definition of major surgery.
- The protocol also applicable to track SSI after discharge of patients undergone major surgery until one month after discharge.
- This protocol along the tools attached are advisable to be used throughout the fourth cycle of EHAQ.

5. PROCEDURES

1. Surgical site infection surveillance peri-operative tool will be used to assess the level of patients, procedures, hospital setting or surgical team practices.
2. Post operative SSI surveillance tool will be used to screen for sign and symptoms of SSI during the hospital stay and after discharge.
3. **In hospital SSI screening.**

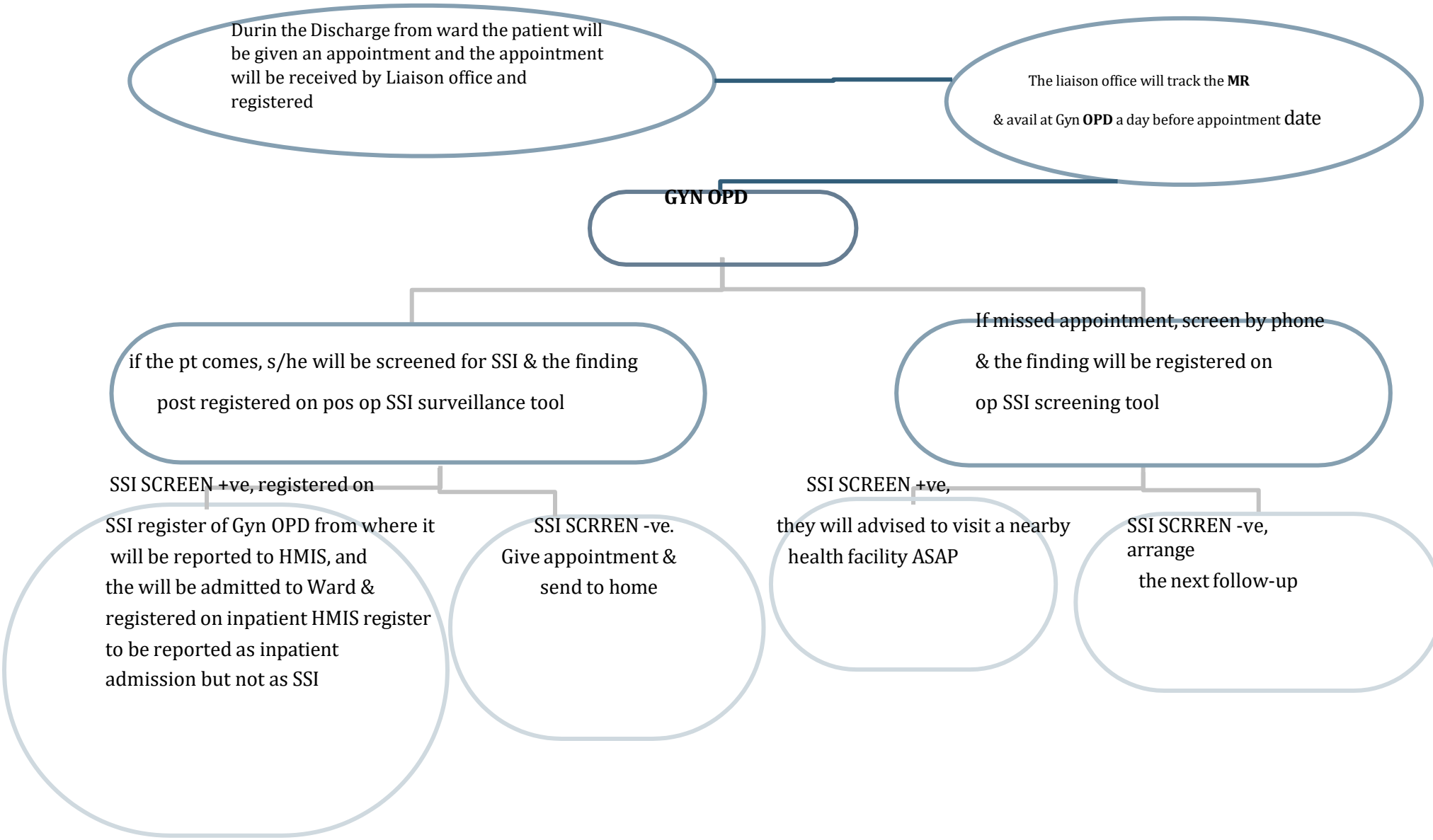
   ☞ SSI surveillance tool will be attached to the patients MR and the patients will be screened by the checklist on daily basis by the attending physician or IESO until the date of discharge.

   ☞ If SSI detected the finding will be registered on ward SSI register and reported to HMIS on the monthly basis.

6. SSI tracking after Discharge

- After Discharge patients will be counseled to report if there is any sign and symptoms of SSI immediately on by attending Physician or IESO during discharge.
- The Patient will have followed up on 7th, 15th and 30th post operative days.
- During each follow up SSI surveillance tool will be attached to their MR and completed by the physician &/or IESO

SSI PATIENT'S FLOW DIAGRAM



7. RESPONSIBILITIES

1. Physician/IESO
   - Follow patients for SSI on daily basis and document findings positive/negative findings during inpatients stay and follow up sessions after discharge.
   - Counsel patients on the any reportable sign and symptoms of SSI to whom, when, and how to report the issues and actions to be taken by the patients or care takers.
2. Attending nurse
   - Properly document the all-patients information on SSI register.
   - Report SSI within 8 hours of detection with reporting format.

8. MONITORING MECHANISM

The implementation of this protocol will be monitored every one month using the following:

- Availability of the protocol at service delivery
- Adherence monitoring
- Clients awareness
- Staff awareness

MEASURMENTS

- Proportion of MR with attached SSI surviellance tool
- Percentage of SSI surveillance tool completeness
- Proportion of attended appointment.

9. REFERENCES

1. Protocol for surgical site infection surveillance with a focus on settings with limited resources ISBN 978-92-4- 156554-7 © World Health Organization 2018
2. Ethiopean Hospital performance monitoring guideline 2011.

Surgical site infection surveillance peri-operative data collection form

ID	Patient name	Age/ Date of birth ..../..../.....	InPatient number	Date of admission ..../..../.....
	Primary diagnosis	Sex ☐ F ☐ M	Surveillance number	

World Health Organization

1

Surgical procedure..... Operating theater [ ]

Date of surgery..... Lead surgeon name.....

Grade.....

CDC – NNIS Risk Index Variables

2

ASA class

☐ 1. Normal healthy person
☐ 2. Mild systemic disease (e.g. hypertension, well controlled diabetes)
☐ 3. Severe systemic disease not incapacitating (e.g. moderate COPD, diabetes, malignancy)
☐ 4. Incapacitating systemic disease that is a constant threat to life (e.g. pre-eclampsia, heavy bleeding)
☐ 5. Moribund patient, not expected to survive with or without operation (e.g. major trauma)

Weight.....kg
Height.....cm

3

Surgical wound class

Clean ☐ = Sterile tissue with no resident bacteria e.g. neurosurgery
Clean-contaminated ☐ = CONTROLLED entry to tissue with resident bacteria e.g. hysterectomy
Contaminated ☐ = UNCONTROLLED entry to tissue with bacteria e.g. acute gastrointestinal perforation
Dirty / infected ☐ = Heavy contamination (e.g. soil in wound) or infection already established

4

Start time (knife to skin)
[:] 24h clock

End time (skin closure)
[:] 24h clock

Duration =.....hrs .....mins

Urgency of operation

☐ Emergency – must be done immediately to save life (e.g. major bleed)
☐ Urgent – must be done within 24-48h (e.g. repair of fracture)
☐ Semi-elective – must be done within days-weeks (e.g. tumour removal)
☐ Elective – no time constraints (e.g. cosmetic procedure)

PRE/PERI-OPERATIVE PROCESS MEASURES

5

Patient preparation

Pre-op bath / shower (full body [Y / N] Date ...../...../.....
Antimicrobial soap used [Y / N] Plain soap used [Y / N]
Hair removal (HR): ☐ Razor ☐ Clippers ☐ None
HR Date ..... ☐ Home ☐ Ward ☐ Theatre

Surgical antibiotic prophylaxis

☐ No prophylaxis required
Required but not given due to: ☐ Unavailable
☐ Other .....

Antibiotic given:

☐ Co-amoxiclav ☐ Cefazolin ☐ Cloxacillin ☐ Vancomycin
☐ Ciprofloxacin ☐ Gentamicin ☐ Metronidazole ☐ Penicillin
☐ Other antibiotic..... Dose..... (mg)
Time given [:] 24h clock Time re-dosed [:] 24h clock

Surgical skin preparation (under sterile conditions)

☐ Chlorhex-alc ☐ Iodine+alc ☐ Chlorhex-aq ☐ Iodine-aq
Appropriate skin preparation technique [Y / N]
Allowed to fully dry [Y / N]

Surgical hand preparation

☐ Alcohol-based hand rub ☐ Antimicrobial soap+water
☐ Plain soap+water
Time spent on procedure [ ] mins [ ] secs
Appropriate hand preparation technique: [Y / N]

Theatre traffic

Headcount at start of operation..... total .....
Number of entries during operation.....
Door openings during operation..... total .....

Postoperative antibiotics

Were antibiotics ceased at completion of surgery? [Y / N]
If not, what antibiotics were prescribed?
Drug..... Dose..... (mg)
Doses / day..... Duration (days) .....

Reason given

☐ Post-op prophylaxis ☐ Drain / implant inserted
☐ Treating suspected / known infection ☐ Other .....

Drain / implant

Location.....
Drain inserted? [Y / N]
If YES, type of drain: ☐ Open ☐ Closed
Antibiotic given in presence of drain but no infection? [Y / N]
Implant used? [Y / N]
☐ Metal (Ortho) ☐ Skin graft ☐ Mesh ☐ Other

6 **Other measure(s) – decided at local level**.....
.....

Date form completed ...../...../..... Database entry [Y / N] Signature.....

Key explanations to complete the peri- operative form

Surgical procedure *- refers to an operation where at least one incision (including a laparoscopic approach) is made through the skin or mucous membrane, or reoperation via an*
incision that was left open during a prior operative procedure
AND takes place
in an operating theatre – select the exact surgical procedure from the list below.

Abdominal aortic aneurysm repair Limb amputation Appendix surgery Shunt for dialysis
Bile duct, liver or pancreas surgery Breast surgery
Cardiac surgery Carotid endarterectomy
Coronary artery bypass surgery – donor + graft sites
Coronary artery bypass surgery – chest only
Gallbladder surgery Colon surgery
Craniotomy Caesarean section Spinal fusion
Open reduction of fracture Gastric surgery Herniorrhaphy
Hip prosthesis Heart transplant
Abdominal hysterectomy Knee prosthesis
Kidney transplant Laminectomy Liver transplant Neck surgery Kidney surgery Ovarian surgery
Pacemaker surgery Prostate surgery
Peripheral vascular bypass surgery Rectal surgery
Refusion of spine Small bowel surgery Spleen surgery Thoracic surgery
Thyroid and/or parathyroid surgery Vaginal hysterectomy
Ventricular shunt Abdominal surgery

Grade of surgeon - senior (surgeon with more than 10 years of experience in total); junior (surgeon with less than 10 years of experience); trainee (junior doctor who is in training in the surgical specialty); 'other grade' of surgeon
(as defined locally).

Box 3

Surgical wound class -

1. **Clean** refers to an uninfected operative wound in which no inflammation is encountered and the respiratory, alimentary, genital or uninfected urinary tracts are not entered. In addition, clean wounds are primarily closed and, if necessary, drained with closed drainage.
Operative incisional wounds that follow non-penetrating (blunt) trauma should be included in this category if they meet the criteria.
2. **Clean-contaminated** refers to operative wounds in which the
respiratory, alimentary, genital or urinary tracts are entered under controlled conditions and without unusual contamination. Specifically, operations involving the biliary tract, appendix, vagina and oropharynx are included in this category, provided no evidence of infection or major break in technique is encountered.
3. **Contaminated** refers to open, fresh, accidental wounds. In addition, operations with major breaks in sterile technique (for example, open cardiac massage) or gross spillage from the gastrointestinal tract, and incisions in which acute, non-purulent inflammation is encountered, including necrotic tissue without evidence of purulent drainage (for example, dry gangrene), are included in this category.
4. **Dirty or infected** includes old traumatic wounds with retained devitalized tissue and those that involve existing clinical infection or perforated viscera. This definition suggests that the organisms causing postoperative infection were present in the operative field before the operation.

Patient pre-operative bath/shower – patient shower or bath should be performed with either antimicrobial soap or plan soap, ideally 1-2 hours beforethe operation or at least the night before.

Appropriate surgical hand preparation (scrubbing) - an antiseptic (antimicrobial soap and water) handwash or antiseptic handrub (alcohol-based handrub product classified as high quality), performed **immediately** preoperatively to eliminate transient flora and reduce resident
skin flora (such antiseptics often have persistent antimicrobial activity).
The technique should be the WHO recommended steps, including drying.
Length of time is according
to the manufacturers' instructions, typically 2-5 minutes for soap and water; for alcohol–based handrub follow manufacturers' instructions (http://www.who.int/gpsc/5may/hh-surgicalA3.pdf?ua=1).

Appropriate surgical skin preparation (under sterile conditions) – use of sterile gauze/ sponge and instruments, with movements from clean to dirty areas, that is, from the centre of the incision site outwards, maintaining aseptic technique and covering a broad area of the patient's skin, to be performed immediately before draping and incision. No areas touched that
are not part of the preparation area. Allow to fully dry before incision.

Surgical site infection surveillance post-operative data collection form

ID	Patient name	Age/ Date of birth ...../...../.....	InPatient number	Address (town/village)
	Telephone number 1	Whose telephone number		Checked? ☐
	Telephone number 2	Whose telephone number		Checked? ☐

World Health Organization

*All follow-up in the 30-day post-operative period should be recorded in **Box 2**. Each patient interaction should be recorded in the "Event" column from the day of surgery onwards, including: surgical procedure, wound dressing removed/changed, (each) inpatient (IP) review, discharge, outpatient (OP) review, telephone call, readmission, return to the operating theatre, surveillance discontinued (reason). At least three reviews are recommended in the 30-day follow-up period. For each "Event", please record the date, tick the "Antibx" column if antibiotics are prescribed/being taken, complete health workers' initials, and record any surgical site infection (SSI) symptoms or other important notes in the last column (see footnote 1).*

BOX 2 - Admission date to hospital for primary operation: ...../...../..... **Hospital discharge date:** ...../...../.....

Day	Date	Event	Antibx	SSI symptoms and other notes[1]	Health worker initials
1		Surgical procedure			
2-3					
4-5					
6-7					
8-10					
11-14					
15-17					
18-21					
22-25					
26-29					
Day 30				End of SSI surveillance (standard)	

1. *At each patient interaction, first check the patient's identification. Then assess or ask about the **SSI symptoms**:*
- *Drainage of fluid from wound: pus versus clear (serous) / bloody / other • Pain / tenderness beyond normal for operation*
- *Localized swelling or wound breakdown • Redness/heat of skin • Generally unwell, especially fever >38°C*

If any SSI symptoms are noted in Box 2, proceed to Box 3 to determine the SSI case definition and consult with the operating surgeon.

BOX 3

Surgical Site Infection? ☐ Yes ☐ No (Determine with case definition tick boxes below)
Patient re-admitted for Surgical Site Infection? ☐ Yes ☐ No (note reason) .....
Date of re-admission for Surgical Site Infection: ...../...../..... Discharge date: ...../...../.....

☐ **Superficial SSI** (skin/subcutaneous) e.g. cellulitis	☐ **Deep SSI** (fascia/muscle) e.g. deep abscess	☐ **Organ/space SSI**** Deeper than fascia/muscle e.g. endometritis (organ), peritonitis (space)
☐ Purulent drainage (pus) from superficial incision	☐ Purulent drainage (pus) from deep incision	☐ Purulent drainage (pus) from sterile organ or space (from an inserted drain)
OR	**OR**	**OR**
☐ Organism identified (if culture done)*	☐ Deep incision dehiscence or deliberately opened by surgeon	☐ Organ or space infection/abscess found on imaging/examination
OR	**AND**	**OR**
☐ Superficial incision deliberately re-opened	☐ Organism identified (if culture done)*	☐ Organism identified from fluid/tissue from organ/ space*
AND	**AND**	
☐ Infection symptoms[1]	☐ Infection symptoms[1]	
OR	**OR**	
☐ Surgeon/attending physician diagnosis	☐ Deep infection/abscess found on imaging/examination	

Other surgical complications
☐ Non-infectious **local** wound complications including bleeding and abnormal skin reactions
☐ Patient death: Date ...../...../..... Cause of death (as far as known) .....

Microbiology culture results*	Specimen taken Date...../...../..... type.....	Organism(s) identifed	Antibiotic resistance/sensitivities

*Note: most surgical wounds that have broken down rapidly become colonized with bacteria. Bacterial growth from a wound is only significant when a sample to identify organisms by microbiological culture is collected aseptically under sterile conditions **with** symptoms of infection also present.

Date form completed ...../...../..... Database entry [Y / N] Signature.....

Key explanations to complete the post-operative form

Whose phone number = patient (mobile or home), or family member, or neighbour, or friend

Checked = phone number called to check before patient leaves hospital

**** List of specific organ/space infection sites**

Code	Site	Code	Site
BONE	Osteomyelitis	MED	Mediastinitis
BRST	Breast abscess or mastitis	MEN	Meningitis or venticulitis
CARD	Myocarditis or pericarditis	ORAL	Oral cavity (mouth, tongue, or gums)
DISC	Disc space	OREP	Other infections of the male or female reproductive tract
EAR	Ear, mastoid	PJI	Periprosthetic joint infection
EMET	Endometritis	SA	Spinal abscess without menigitis
ENDO	Endocarditis	SINU	Sinusitis
GIT	Gastrointestinal tract	UR	Upper respiratory tract
IAB	Intraabdominal, not specified	USI	Urinary System infection
IC	Intracranial, brain abscess or dura	VASC	Arterial or venous infection
JNT	Joint or Bursa	VCUF	Vaginal cuff
LUNG	Other infections of the lower respiratory tract		

To understand specific criteria for defining these infections please refer to CDC/NHSN Surveillance Definitions for Specific Types of Infections

https://www.cdc.gov/nhsn/PDFs/pscManual/17pscNosInfDef_current.pdf