ACE Draft IE registry February 2025

Instructions:

Red denotes basic fields (*all sites attempt to answer)*

Drop-down fields for RED are in lilac

Blue denotes CTS fields (CTS centres fill *in addition* to red fields)

Drop-down fields for CTS are in green.

Black fields denote optional fields, *up to individual discretion whether attempt.*

If a patient is transferred from a non-CTS site to CTS site, it is expected *the CTS site will fill* the red-fields.

For most fields, a drop-down box will only be necessary/activate if mark "Y" to the particular field

The ACE committee express their gratitude to the Danish Nidus team for permission to synchronise data-fields.

ACE Draft IE registry December 2024

Index:

1.Demographics

Registry site: (tick box and appropriate drop-down will appear)

Australia

* 1st nations? Y, N, UKN

Yes drop-downs Aboriginal, Torres Strait Islander, Maori, Pacific Islander, other

New Zealand

*1st nations? Y,N, UKN

Yes drop-downs Maori, Pacific Islander, Australian Aboriginal, other

Singapore race /ethnicity

Drop-downs Chinese, Malay, Indian, others

India

Hong Kong

Malaysia

Name (for local use only- not for sharing)

Identifier (code) (generated by ACE for sharing)

Age (years)

Sex (assigned at birth) M//F/another term (free text)

Gender (how currently identifies) M/F/ another term (free text)

Stable accommodation ? Y/N, UKN

*Date of admissions to referring non-CTS centre (includes UKN option)

*Date of admissions to CTS centre (includes UKN option)

Primary admission to this site? Y/N,

Transfer from another site? Y, N

*Distance of patient from presentation Hospital (km)

Drop-down < 50km, 50-200km, 200-500km, > 500km, UKN

*Method admission to 1st hospital

From outpatient clinic, direct referral to ward from home, Public transport to Emergency department (ED)

Private vehicle (car) to ED, Road ambulance, Air ambulance, UKN

Any other sites prior to your centre? Y, N, UKN

If Y drop-downs: How many sites prior to your centre (include UKN)

If Y duration at site if known

ICU at other sites (prior to transfer)? Y, N, UKN

Interhospital transfer (IHT) method

Road ambulance, air ambulance, private transfer (no medical escort)

Any transfers to other sites during episode (eg neurosurgery). Use this option if returned to your site during episode. Y, N, UKN

If Y duration if known.

If Y reason (free text)

If Y ICU stay? Y, N, UKN

If Y any procedures performed (percutaneous or open surgery) free text

Method of transfer to other site

Road ambulance, air ambulance, private transfer (no medical escort), UKN

Method of transfer from other site back to yours?

Road ambulance, air ambulance, private transfer (no medical escort), UKN

Treatment for this episode at other sites post your centre? Y,N, UKN

If Y duration if known

ICU at other sites post transfer ? Y,N,UKN

If Y reason if known (free text)

Any invasive procedures at other sites post transfer? Y, N, UKN

If Y free text.

Method of transfer to other site

Road ambulance, air ambulance, private transfer (no medical escort), UKN

* Total number of hospitals admitted to for this episode (includes UKN option)

Total duration of hospitalisation (all sites) if known

2. Background/Pre-existing.

known renal disease Y,N, UKN

If Y Dialysis prior to admission Y, N, UKN

If Y to dialysis: peritoneal dialysis, hemodialysis via fistula,

hemodialysis via internal vascular prosthesis, hemodialysis via catheter,

Baseline eGFR and creatinine (pre-morbid) if known (N/A if on dialysis)

Cause of pre-existing renal impairment if known

Diabetes Y,N, N/A

** If Y drop-down Type 1, Type 2, UKN*

**If Y to DM HBA1C % with date (include UKN)*

****Treatment***

Known liver disease? Y,N, UKN

If Y drop-down(1) Cirrhosis Y,N, UK

If Y cause of liver disease if known

**If Y drop-down Pugh A,B, C*

2 Minute Medicine®	Child-Pugh Score		2minutemedicine.com
Factor	**1 point**	**2 points**	**3 points**
Total bilirubin (μmol/L)	<34	34-50	>50
Serum albumin (g/L)	>35	28-35	<28
PT INR	<1.7	1.71-2.30	>2.30
Ascites	None	Mild	Moderate to Severe
Hepatic encephalopathy	None	Grade I-II (or suppressed with medication)	Grade III-IV (or refractory)

	Class A	**Class B**	**Class C**
Total points	5-6	7-9	10-15
1-year survival	100%	80%	45%

Table I. Child-Pugh score.

Known severe pulmonary disease eg COPD (chronic obstructive pulmonary disease)/pulmonary fibrosis ? Y, N, UKN

If Y severity drop-downs :

mild FeV1 > 80%, mod 50-79%, severe 30-49%, very severe < 30%, UKN

Cause of severe lung disease if known

Home oxygen Y, N, UKN

Previous CVA (long-term symptoms) Y, N, UKN

Antithrombotic Rx at presentation? Y, N, UKN

If Y drop-down warfarin/heparin, aspirin, other (free text)

ETOH (within 3 months of diagnosis: Y,N, UKN

If Y

Female <= 7 units per week, > 7 units per week

Male <= 14 units per week, > 14 units per week

Smoker never, active, previous , UKN

On long-term antibiotic prophylaxis? Y,N, UKN

If Y antibiotic, dose and approx. duration (free text)

Frailty

Self-reliant at activities of daily living (ADLs) ? Y, N, UKN

If N drop-downs

Dependent on accessibility aid? Y, N,UKN

Domiciliary care? Y, N, UKN

Nursing home ? Y, N, UKN

CLINICAL FRAILTY SCALE

	1	VERY FIT	People who are robust, active, energetic and motivated. They tend to exercise regularly and are among the fittest for their age.
	2	FIT	People who have **no active disease symptoms** but are less fit than category 1. Often, they exercise or are very **active occasionally**, e.g., seasonally.
	3	MANAGING WELL	People whose **medical problems are well controlled**, even if occasionally symptomatic, but often **not regularly active** beyond routine walking.
	4	LIVING WITH VERY MILD FRAILTY	Previously "vulnerable," this category marks early transition from complete independence. While **not dependent** on others for daily help, often **symptoms limit activities**. A common complaint is being "slowed up" and/or being tired during the day.
	5	LIVING WITH MILD FRAILTY	People who often have **more evident slowing**, and need help with **high order instrumental activities of daily living** (finances, transportation, heavy housework). Typically, mild frailty progressively impairs shopping and walking outside alone, meal preparation, medications and begins to restrict light housework.
	6	LIVING WITH MODERATE FRAILTY	People who need help with **all outside activities** and with **keeping house**. Inside, they often have problems with stairs and need **help with bathing** and might need minimal assistance (cuing, standby) with dressing.
	7	LIVING WITH SEVERE FRAILTY	**Completely dependent for personal care**, from whatever cause (physical or cognitive). Even so, they seem stable and not at high risk of dying (within ~ 6 months).
	8	LIVING WITH VERY SEVERE FRAILTY	Completely dependent for personal care and approaching end of life. Typically, they could not recover even from a minor illness.
	9	TERMINALLY ILL	Approaching the end of life. This category applies to people with a **life expectancy <6 months**, who are **not otherwise living with severe frailty.** Many terminally ill people can still exercise until very close to death.

SCORING FRAILTY IN PEOPLE WITH DEMENTIA

The degree of frailty generally corresponds to the degree of dementia. Common **symptoms in mild dementia** include forgetting the details of a recent event, though still remembering the event itself, repeating the same question/ story and social withdrawal.

In **moderate dementia**, recent memory is very impaired, even though they seemingly can remember their past life events well. They can do personal care with prompting.

In **severe dementia**, they cannot do personal care without help.

In **very severe dementia** they are often bedfast. Many are virtually mute.

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Rockwood K et al. A global clinical measure of fitness and frailty in elderly people. CMAJ 2005;173:489–495.

Immunosuppression.

Earlier (non-active) diagnosed cancer? Y, N, UKN

If Y, drop-down 1: skin (includes melanoma), hematological, oral/head/neck, lung, GIT, GUT, other

If Y drop-down 2: metastatic at any time? Y, N, UKN

Active Cancer Y,N,UKN

If Y, drop-down 1: skin, haematological, oral/head/neck, lung, GIT, GUT, other

If Y drop-down 2: metastatic ? Y, N, N/A

HIV Y, N, UKN

**If Y, on treatment? Y, N, UKN*

Other immunodeficiency (eg congenital)

Freetext eg 22q11, idiopathic CD4 deficiency, myelodysplasia.

Transplant Y,N

Solid organ drop-downs lung, heart, kidney, liver, other (can be more than one)

Duration since transplant if known

< 30 days ago, 30- 90 days ago, 3-6 months ago, 7-12 months ago, 1-2 years ago, > 2 years

Haematological transplant (free text)

If Y Bone marrow transplant - autologous, allo, stemcell

Duration since transplant if known

Immunosuppressive agents within 3 months of diagnosis? Y, N, UKN

If Y drop-downs

**Glucocorticoids > 15mg/Day Y, N, UKN*

Azathioprine

Methotrexate

Cyclosporin

Sirolimus

Tacrolimus

Mycophenolic Acid

**Oncologic chemotherapy Y, N, UKN*

**Biologics Y,N, UKN*

**Immune therapy Y,N, UKN*

**Others (free text)*

People who inject drugs (PWID)

Never, active, previous, UKN

*If active or previous drop-downs:

*Safe injecting practices?

*Drop-downs:

*Shares needles or syringes Y, N, UKN

*Frequency > 1/D, 1/D, 2-4 x per week, weekly, < 1/week, UKN

When last injected? < 1 week, 1 week to < 1 month, 1 – 3 months, 4 to 6 months, 7-12 months, > 1 year.

*engaged with D&A (drug and alcohol counselling)? previously, currently, no, UKN

*Attends safe injecting centers? Rarely, sometimes, never, always, UKN

*Uses skin disinfectants? Rarely, sometimes, never, always, UKN

*Uses same injecting sites? Rarely, sometimes, never, always, UKN

*Previous significant non-IE IDU associated infections (eg abscess, osteomyelitis) (free text)

- *For patients with 'yes' is selected for injecting drug use: Which drug did the participant inject MOST OFTEN in the last six months? (Select 1 only)*
  - *Heroin*
  - *Cocaine*
  - *Methamphetamine (meth, crystal, ice, speed, base)*
  - *Other opioids (methadone, buprenorphine, morphine, oxycodone, fentanyl, codeine)*
  - *Benzodiazepines*
  - *Other – please specify: _____*
  - *Unknown*

Source

Was presumed a source of infection identified? Y, N, UKN

If Y

Dental, skin, musculo-skeletal, thoracic/respiratory tract, gastro-intestinal tract (GIT), Genito-urinary tract (GUT) ,Intravenous catheter (IVC) ,dialysis catheter, other

Details (free text)

Was it confirmed as likely source? Y,N, UKN

Dental procedure within 3 months of diagnosis Y,N, UKN

** If Y Extractions ? Y, N, UKN*

If Y Prophylactic ABs at time? Y, N, UKN

Other trauma within 3 months of diagnosis

Piercing

Acupuncture

Tattoo

Cosmetic surgery

Instrumentation (endoscope, cystoscope) was biopsy performed? Was prophylaxis given?

Organ surgery (eg TURP)

Significant cut /splinter (eg prolonged bleeding)

3. **Cardiac pre-existing**

Known heart failure Y, N, UKN

If Y LVEF drop-downs : => 52% M 54% F, 41- 53 , 30-40, < 30% UKN)

Rheumatic Heart Disease (RHD) Y, N, UKN

On penicillin prophylaxis currently Y,N, UKN

Congenital Cardiac Disease (CCD)

If Y drop-downs, Bicuspid aortic valve (BAV), other free-text

Other structural heart disease

If Y free text

Cardiac/intravascular prosthesis

CVC Y, N, UKN

If Y type (PICC, Hickman's, Portacath, Vascular catheter, UKN/other)

If Y approximate duration since insertion (current device only)

< 30 days ago, 30- 90 days ago, 3-6 months ago, 7-12 months ago, 1-2 years ago, > 2 years

Pacemaker/defibrillator Y,N, UKN

If Y intracardiac, leadless, epicardial, UKN

If Y approximate duration since insertion (current device only)

If Y when was it last instrumented? < 30 days ago, 30- 90 days ago, 3-6 months ago, 7-12 months ago, 1-2 years ago, > 2 years

PPM wires only . when last replaced/inserted

< 30 days ago, 30- 90 days ago, 3-6 months ago, 7-12 months ago, 1-2 years ago, > 2 years

VAD (ventricular assist device) Y, N, UKN

When inserted?

< 30 days ago, 30- 90 days ago, 3-6 months ago, 7-12 months ago, 1-2 years ago, > 2 years

Was it removed? If Y when removed

< 30 days ago, 30- 90 days ago, 3-6 months ago, 7-12 months ago, 1-2 years ago, > 2 years

Drive-line culture positive? Y/N/UKN

If Y : organism: MSSA, MRSA, Pseudomonas aeruginosa, other (free text)

ECMO Y, N, UKN

If Y

When was on ECMO?

< 30 days ago, 30- 90 days ago, 3-6 months ago, 7-12 months ago, 1-2 years ago, > 2 yea

Duration on ECMO if known.

< 7 days, 7-14 days, 15-21 days, 22-30 days, > 30 days

4. **Previous IE?** Y, N, UKN

If Y . Date most recent episode. If > 12 months, year sufficient)

If Y, is current episode a 1st infection (unrelated to prior), relapse, N/A

* *Anatomical site of involvement if known?* Dental, skin, musculoskeletal, thoracic/respiratory tract, GIT, GUT, IVC, non-cardiac prostheses (free text), non-cardiac vascular stent (free text) non-vascular stent (free text) other.

Organism related to that IE episode?

Drop-down organism list(see section 7).

Valve(s) involved (drop-down list)

** For each valve Heart surgery for prior IE? Y,N, UKN*

** Number of previous IE episodes: 1,2,3 ,> 3, UKN*

iF Y drop-downs for each as per episode above

5. Prior cardiac surgery ? Y,N, UKN

If Y drop-downs

Surgery within past year? Y,N, UKN

If Y, approximate number months since procedure

Aortic Valve

Drop-downs : repair (includes vegetectomy), mechanical valve, prosthetic valve, homograft, autograft, TAVI, freestyle, other (free-text)

Date procedure (s) if > 1 year, state year only.

Mitral valve:

repair, mechanical prosthesis, biological prosthesis, homograft, autograft, mitraclip, other (free text)

Date procedure (s) if > 1 year, state year only.

Pulmonary valve

Repair only, mechanical prosthesis, bioprosthesis, homograft, Contegra, Melody valve, other (free text)

Date procedure (s) if > 1 year, state year only.

Tricuspid valve

Repair only, mechanical valve, biovalve, other (free text)

Other intracardiac surgery (free text)

CABG Y,N, UKN

LIMA graft Y,N, UKN

estimated number of sternotomies prior to current episode 0,1,2,3 > 3, UKN

6. Clinical Presentation.

Date IE diagnosed

Duration symptoms before IE diagnosed (days) round to nearest 30 if months or nearest 7 if weeks)

Approximate weight (kg) include UKN

Approximate height (cm) includes UKN

Fever symptoms within 24 hours admission Y, N, UKN

Was fever confirmed by thermometer > 38.0 C Y,N, UKN

Weight loss > 5kg at admission Y,N, UKN

Myalgia/generalized weakness, musculoskeletal pains at admission Y, N, UKN

* Anorexia (loss of appetite) at admission Y, N, UKN

Dyspnea at admission Y, N, UKN

Hemoptysis on admission Y,N, UKN

Miscellaneous at presentation to hospital.

Neutrophil count

Platelet count

Albumin

CRP

Procalcitonin (if available)

Blood pressure (systolic)

Pulse rate

Urine abnormalities (sediment, protein, blood)

7. Diagnosis-Microbiology

Positive blood cultures (BCs)? Y,N, UKN

If Y Date collected of first positive BC

Duration (days) continuous bacteraemia/fungaemia (positive BCs)

** date final positive BC*

Was it a Blood Culture negative endocarditis (BCNE)? Y,N

If Y for BCNE

Number BCs collected prior to empiric antibiotics(Within 7 days prior to empiric antibiotics commenced)

Approximate date of most recent antibiotic before 1st blood culture collected . Number days if known.

Was diagnosis by serology (antibody or antigen) from blood Y,N, UKN?

Test with titre if known (free text)

Organism identified (see list below)

Date test requested

Date result known

was diagnosis by molecular tests from blood? Y,N, UKN

If Y Test drop-downs

Directed PCR, 16s, 18s, Metagenomics, other

Organism identified (see list below)

Date test requested

Date result known.

Most likely primary infection Organism 1, 2, 3 etc (in order of presumed importance)

Note list below may be revised to single drop-down list

Drop-downs-

Organism list will be alphabetical but divided into bacteria , mycobacteria and fungi.

Below list is just an example of most common pathogens.

Staphylococcus, Strep viridans group, Other Streps, Enterococci, HACEK, non-culturable bacteria, Candida, Other (if not in previous drop-downs)

Staphylococcus drop-downs

MSSA , MRSA, S. lugdunensis, S.caprae, S. captis, S. epidermidis

Strep viridans group drop-downs

S.mitis gp, S.anginosis gp, S.sanguinis gp, S.mutans gp, S salivarius gp,

Other Viridans Strp.

Other Streps drop-downs

S. bovis, S. pneumoniae, Abiotrophia, Granulicatella adiacens

GBS, GAS, other Strep spp.

For all Streps: MIC Penicillin (free text)

Enterococci step-downs

E.faecalis, E. faecium

HLGR? Y,N, N/A

HACEK drop-downs

Haemophilus parainfluenzae, Aggregatibacter actinomycetemcomitans,

Cardiobacterium hominis, Eikenella corrodens, Kingella kingii

Non-culturable bacteria drop-downs

C.burnettii, Bartonella spp, T.whipplei, L.longbeachiae, Brucella spp

Candida drop-downs

C.abicans, C.parapsilosis, C.tropicalis, C.glabrata, C.dubliniensis

Other (if not in previous drop-downs)

How identified?

Malditof, Vitek, API, sequencing , UKN, other (free text)

Was MIC done?

If Y results

Selected Sens

Streptococci : Penicillin, ceftriaxone,

If Enterococcus, High level gentamicin resistance (HLGR)? Y, N, N/A

Ampicillin MIC, :Penicillin MIC

Additional microbiology tests.

Culture from tissue Y,N,UKN

Drop-down: cardiac tissue (eg valve), ICD tissue (eg lead), embolic tissue, N/A

(free text site)

(organism list see above)

Molecular from tissue Y,N, UKN

Drop-down: cardiac tissue (eg valve), ICD tissue (eg lead), embolic tissue, N/A

Test drop-downs

Directed PCR, 16s, 18s, Metagenomics,other

Date test requested

Date result known.

Organism list (see above)

8. ECHO

Echos (1) prior to current illness

(2) Diagnostic echo (this is often admission TTE)

(3) Additional echo influencing management/outcome (can be more than 1)

(this is often TOE)

If Y then free-text how management influenced

(4) progress echo post discharge.

Echo fields below drop-down for each echo with ability to cut and paste

ECHO DATA
TTE/TOE
Date
Image quality good fair poor N/A
LVEF (%)
Implanted cardiac device (nil, PPM, ICD, BiV ICD)
Valve site – Please complete all data fields below for EACH valve site (ie AV, MV, PV, TV, MAIVF, lead, chamber- LV,RV, LA, RA, intraluminal-aortic wall, cavae, PA,PV, ASD, VSD, other-free-text) **Enter singular or multiple entries for each data field as appropriate**
Valve type (native/prosthetic -surgical/transcatheter/unknown, repair-surgical/ transcatheter/unknown.
Pre-existing valve pathology BAV/other- congenital/rheumatic/previous 'healed' IE lesion/ degenerative (sclerotic/calcific) /MVP or myxoedematous valve disease/ other
Veg size (largest, mm x mm) Location- leaflet/cusp, subvalvular, other (freetext) Mobile Y/N Shape: predominantly linear Y/N predominantly sessile Y/N mixed Y/N Approximate veg numbers
Valve thickening
Leaflet/cusp disruption /chord disruption (nil/perforation/partial destruction/valve aneurysm/ flail)
Periannular (valve ring) or other intracardiac site IE pathology (nil/phlegmon/abscess/pseudoaneurysm/dehiscence [perivalvular regurg/fistula) **Measurement of dimensions** **Abscess < 1/3, 1/3 to 2/3 , circumferential, N/A**
Regurgitation Grade (nil, trace/trivial, mild, mild to moderate, moderate, moderate to severe, severe)
Stenosis Grade (nil, trace/trivial, mild, mild to moderate, moderate, moderate to severe, severe)

In redcap, the data-fields will be auto-filled so all echos identical and so only need to input changes.

9. Other Imaging

Was any (non-echo) imaging done? Y,N, N/A

If Y, drop-downs Cardiac, Extra-cardiac

Cardiac – If Y, PET-FDG, CT - gated cardiac/aortogram, cardiac MRI, other (free text), Pre-op CTCA

If Y to each of the above – free text finding

Drop-downs for each "yes"

PET-FDG – If Y, Aortic valve, Mitral valve, Pulmonary valve, Tricuspid valve, TAVI, PPM pocket, PPM leads, ICD pocket, ICD leads, LAA occlusion device, CHD repair

If Y, abscess, infected, residual inflammatory, none, other (free text)

Extra-cardiac – If Y, drop-downs PET-FDG, CT brain, CT chest, CT abdomen/pelvis, CT joint/extremities, MRI brain, nuclear scans (Labelled white cell, technetium, gallium), ultrasound, duplex ultrasound, other (free text)

If Y to each,

PET - Embolic phenomenon, source of infection, malignancy, other (free text)

CT brain - Embolic phenomenon, source of infection, malignancy, other (free text)

MRI brain - Embolic infarcts, haemorrhage, mycotic aneurysm, other (free text)

MRA brain - Embolic infarcts, haemorrhage, mycotic aneurysm, other (free text)

CT chest - Embolic phenomenon, source of infection, malignancy, other (free text)

CT abdomen/pelvis - Embolic phenomenon, source of infection, malignancy, other (free text)

For each, describe finding

Nuclear scan - Embolic phenomenon, source of infection, malignancy, other (free text)

Duplex ultrasound - Embolic phenomenon, source of infection, malignancy, other (free text)

For each, describe finding

(PET only) If Y were recommended/standardized PET scan protocols for IE

If Y please specify (free text)

Any other significant findings of diagnoses (non-IE) on any imaging? Y,N, N/A

If Y please specify (free text)

10.Diagnosis-Duke (2023 criteria)

Duke Criteria : definite, possible, N/A

Optional but included for reference

Drop-downs for Duke major and minor criteria

Note : These criteria are only validated for research use

Each drop-down has only Y, N options. If unsure use "N" option.

Drop-down 1

Pathologic criteria 1: Y,N, **Microorganisms identified[a] in the context of clinical signs of active endocarditis in a vegetation; from cardiac tissue; from an explanted prosthetic valve or sewing ring; from an ascending aortic graft (with concomitant evidence of valve involvement); from an endovascular intracardiac implantable electronic device (CIED); or from an arterial embolus**

Pathologic criteria 2: Y,N,

Active endocarditis[b] (may be acute[c] or subacute/chronic[d]) identified in or on a vegetation; from cardiac tissue; from an explanted prosthetic valve or sewing ring; from an ascending aortic graft (with concomitant evidence of valve involvement); from a CIED; or from an arterial embolus

[b]Active endocarditis—vegetations, leaflet destruction, or adjacent tissue of native or prosthetic valves showing variable degrees of inflammatory cell infiltrates and healing. Many specimens demonstrate mixed features.

[c]Acute endocarditis—vegetations or cardiac/aortic tissue lesions of native or prosthetic valves showing active inflammation without significant healing or organizational change.

[d]Subacute/chronic endocarditis—vegetations or cardiac/aortic tissue lesions of native or prosthetic valves demonstrating evidence of healing or attempted healing: maturing granulation tissue and fibrosis showing variable mononuclear cell infiltration and/or calcification. Calcification can occur rapidly in injured tissue and vegetations or be part of the underlying valvular disease that was the original nidus for IE.

Major Criteria Drop-down 2

Microbiological

A.1 Positive blood cultures.

i. Microorganisms that commonly cause IE[a] isolated from 2 or more separate blood culture sets (Typical)[b] Y,N

or

ii. **Microorganisms that occasionally or rarely cause IE isolated from 3 or more separate blood culture sets (Nontypical)[b]** Y,N

[a]Staphylococcus aureus; Staphylococcus lugdunensis; Enterococcus faecalis; all streptococcal species (except for Streptococcus pneumoniae and Streptococcus pyogenes), Granulicatella and Abiotrophia spp., Gemella spp., HACEK group microorganisms (Haemophilus species, Aggregatibacter actinomycetemcomitans, Cardiobacterium hominis, Eikenella corrodens, and Kingella kingae). In the setting of intracardiac prosthetic material, the following additional bacteria should be included as "typical" pathogens: coagulase negative staphylococci, Corynebacterium striatum and Corynebacterium jeikeium, Serratia marcescens, Pseudomonas aeruginosa, Cutibacterium acnes, nontuberculous mycobacteria (especially M. chimaerae), and Candida spp

[b]"Blood culture set" is defined as a simultaneously drawn pair of 1 aerobic and 1 anaerobic bottle. "Positive" blood culture set is defined as microbial growth from at least 1 of the bottles. Blood cultures from separate venipuncture sites are strongly recommended whenever possible for evaluating suspected IE.

A.2 Positive Laboratory tests

i. Positive polymerase chain reaction (PCR) or other nucleic acid-based technique[c] for *Coxiella burnetii*, *Bartonella* species, or *Tropheryma whipplei* from blood Y,N

[c]Amplicon (16S or 18S) or metagenomic (shotgun) sequencing.

Or

ii. Coxiella burnetii antiphase I immunoglobulin G (IgG) antibody titer >1:800 [24][d], or isolated from a single **blood culture** Y,N

[d]Or equivalent titre results on other methodologies.

or

iii. **Indirect immunofluorescence assays (IFA) for detection of IgM and IgG antibodies to *Bartonella henselae* or *Bartonella quintana* with immunoglobulin G (IgG) titer ≥1:800** [24, 25][d] Y,N

iv.

B. Major imaging criteria

B1. Echocardiography and **cardiac computed tomography (CT)** imaging

i. Echocardiography and/or **cardiac CT** showing vegetation,[e] valvular/leaflet perforation,[f] valvular/leaflet aneurysm,[g] abscess,[h] pseudoaneurysm,[i] or intracardiac fistula[j] Y,N

[e]Oscillating intracardiac mass on valve or other cardiac tissue, **endovascular CIED** or other implanted material in the absence of an alternative anatomic explanation.

[f]Interruption of valvular endocardial tissue continuity.

[g]Elongation with saccular outpouching of valvular tissue.

[h]Perivalvular (or perigraft) soft tissue lesion with variable degree of evolution to an organized collection.

[i]Perivalvular cavity communicating with the cardiovascular lumen.

[j]Communication between 2 neighboring cardiac chambers through a perforation.

Or

New partial dehiscence of prosthetic valve as compared with previous imaging

B2. Positron emission computed tomography with 18F-fluorodeoxyglucose ([18F]FDG PET/CT imaging)

Abnormal metabolic activity[k] involving a native or prosthetic valve, ascending aortic graft (with concomitant evidence of valve involvement), intracardiac device leads or other prosthetic material[l,m] Y,N

[k]For prosthetic valve endocarditis (PVE), intense, focal/multifocal, or heterogeneous FDG uptake patterns; for native valve endocarditis and cardiac device leads, any abnormal uptake pattern

[l]Performed at least 3 months after prosthetic valve surgical implantation.

[m]Some prosthetic valves may have intrinsic non-pathological FDG uptake. An isolated FDG-PET positive generator pocket in the absence of intracardiac infection does not qualify as a Major Criterion. PET/CT can be useful in detecting extracardiac foci of infection].

C. Surgical major criteria

Evidence of IE documented by direct inspection during heart surgery neither Major Imaging Criteria nor subsequent histologic or microbiologic confirmation[n] Y,N

[n]Addition of this major criterion should not be interpreted as giving license to not send appropriate samples for histopathology and microbiological studies

Minor Criteria Drop-Down 3

A. Predisposition

- **Previous history of IE** Y,N
- Prosthetic valve[o] Y,N
- Previous valve repair[o] Y,N
- Congenital heart disease[p] Y,N
- More than mild regurgitation or stenosis of any etiology Y,N
- **Endovascular intracardiac implantable electronic device (CIED)** Y,N
- Hypertrophic obstructive cardiomyopathy Y,N
- Injection drug use Y,N

[o]Placed either by open-heart surgical or transcatheter approach.
[p]Includes cyanotic CHD (tetralogy of Fallot, univentricular heart, complete transposition, truncus arteriosus, hypoplastic left heart); endocardial cushion defects; ventricular septal defect; left-sided lesions (bicuspid aortic valve; aortic stenosis and insufficiency, mitral valve prolapse, mitral stenosis and insufficiency); right-sided lesions (Ebstein anomaly, anomalies of the pulmonary valve, congenital tricuspid valve disease); patent ductus arteriosus; and other congenital anomalies, with or without repair.

B. Fever documented temperature > 38.0 C Y,N

C. Vascular Phenomena Clinical or radiological evidence of arterial emboli, septic pulmonary infarcts, ***cerebral or splenic abscess,*** mycotic aneurysm, intracranial hemorrhage, conjunctival hemorrhages, Janeway lesions, purulent purpura Y,N

D. Immunologic Phenomena Positive rheumatoid factor, Osler nodes, Roth spots, or immune complex-mediated glomerulonephritis[q] Y,N

[q]Defined as either:
(1) Unexplained presence of either acute kidney injury (AKI, defined later) or acute on chronic kidney injury (defined later) plus 2 of the following: hematuria, proteinuria, cellular casts on inspection of urinary sediment, or serologic perturbations (hypocomplementemia, cryoglobulinemia, and/or presence of circulating immune complexes);
Or
(2) renal biopsy consistent with immune complex-mediated renal disease.

E. Microbiologic Evidence, Falling Short of a Major Criterion

1) Positive blood cultures for a microorganism consistent with IE but not meeting the requirements for Major Criterion[r] Y,N

[r]Excludes single positive blood cultures or sequencing based assays for microorganisms that commonly contaminate blood cultures or rarely cause IE.

Or **2) Positive culture, PCR, or other nucleic acid based test (amplicon or shotgun sequencing, *in situ* hybridization) for an organism consistent with IE[r] from a sterile body site other than cardiac tissue, cardiac prosthesis, or arterial embolus; or a single finding of a skin bacterium by PCR on a valve or wire without additional clinical or microbiological supporting evidence**

F. Imaging Criteria Y,N

Abnormal metabolic activity as detected by [18F]FDG PET/CT within 3 mo of implantation of prosthetic valve, ascending aortic graft* (with concomitant evidence of valve involvement), *intracardiac device leads or other prosthetic material

G. Physical Examination Criteria[s]
New valvular regurgitation identified on auscultation if echocardiography is not available. Worsening or changing of preexisting murmur not sufficient Y,N

[s]Applicable only when echocardiography is unavailable. Based on expert opinion.

Rejection Criteria drop-down 4.

A. Firm alternate diagnosis explaining signs/symptoms[e] Y,N

[e]Firm alternate diagnosis explaining IE signs and symptoms consists of either microbiologic or nonmicrobiologic causes. Firm alternate microbiologic diagnosis includes (1) identifiable source for bloodstream infection with a nontypical IE pathogen, (2) rapid resolution of bloodstream infection, and (3) absence of evidence for IE on cardiac imaging. Firm alternate nonmicrobiologic diagnosis includes (1) presence of non-IE cause for cardiac imaging findings (eg, marantic or nonbacterial thrombotic endocarditis) and (2) absence of microbiologic evidence for IE.

or

B. **Lack of recurrence despite antibiotic therapy for less than 4 d**. or Y,N

C. No pathologic or macroscopic evidence of IE at surgery or autopsy, with antibiotic therapy forss than 4 d Y,N or

D. Does not meet criteria for possible IE, as above Y,N

Duke Scoring

I. DEFINITE ENDOCARDITIS

- A. Pathologic Criteria
  - (1) **Microorganisms identified** in the context of clinical signs of active endocarditis in a vegetation; from cardiac tissue; from an explanted prosthetic valve or sewing ring; from an ascending aortic graft (with concomitant evidence of valve involvement); from an endovascular intracardiac implantable electronic device (CIED); or from an arterial embolus

or

- (2) **Active endocarditis** (may be acute or subacute/chronic) identified in or on a vegetation; from cardiac tissue; from an explanted prosthetic valve or sewing ring; from an ascending aortic graft (with concomitant evidence of valve involvement); from a CIED; or from an arterial embolus

- B. Clinical Criteria
  - **(1) 2 Major Criteria**

or

- **(2) 1 Major Criterion and 3 Minor Criteria**

or

- **(3) 5 Minor Criteria**

II. POSSIBLE ENDOCARDITIS

- A. 1 Major Criterion And 1 Minor Criterion

or

- B. 3 Minor Criteria

11. Current Episode Antibiotics

Drop-down for each antibiotic

Empiric antibiotic name (drop-downs) (may be several)

Start date empiric antibiotic

Targeted treatment antibiotic name: (drop-downs)

If non-guideline choice, reason (free text)

Route IV, IM, oral (if same drug both iv and oral, enter twice)

Optimized treatment dose (dose over 24 hours)

Start Date targeted antibiotic

End date targeted antibiotic

Input dose changes if available and reason for change (including UKN)

was TDM Therapeutic drug monitoring) performed? Y,N, UKN

If Y name drug (s)

Vancomycin

Gentamicin

Flucloxacillin

Cephazolin

other

If Y to TDM

Approximate Turn-around time for test < 48H, 48-96 hours, 5- 7 days, 8-14 days, > 14 days

Was TDM for the drug used available in your country? Y,N, UKN

, did it result in dose change? Y,N, UKN

(free text details)

Reason for ceasing antibiotic:

planned, ADR (Adverse drug reaction), optimization, other.

If ADR: drop-downs : renal, GIT, musculoskeletal, skin, bone-marrow, anaphylaxis, other (free text)

Were long-term/indefinite oral antibiotics planned at discharge? N,Y, UKN

If Y free text

Any oral regimens for primary treatment? (eg discharge against medical advice?)

Y, N, UKN

If Y free text.

Was patient moved to oral as per POET protocol? Y/N If Y date.

12. IE complications at admission

Embolism at admission Y,N, UKN

If Y : drop-downs. CNS (central nervous system), liver, spleen, lungs, renal, peripheral vasculature, eye, other (free text)

if CNS Y number, size, position emboli

If CNS Y, was there also hemorrhage? Y,N, N/A

** CNS interventions N,Y, N/A*

*if Y, then drop-down endovascular (date), open surgery (date).

Intervention to peripheral vasculature? Y,N, N/A

If Y, date.

Cardiac complications.

If Y, drop-downs and date of complication

Heart Failure, arrythmia, worsening valvular dysfunction (see echo), Other

If Y to heart failure

Drop-downs:

Clinical left heart failure (cardiogenic shock, pulmonary oedema)

Clinical right heart failure

If Y to (new) arrythmias

Drop-downs:

Heart block 1°HB, 2°HB, 3°HB, RBBB, LBBB, other/UKN

Tachyarrhythmia new onset AF/flutter, SVT, VT, VF other (free text) UKN

Immunological markers IE

Drop-downs: Osler, Petechiae, Janeway, Splinters, Retinal, other (free text),

Aneurysms Y, N, N/A

If Y, site + number (drop-downs, CNS, coronary, abdominal, pulmonary, peripheral, other)

If ruptured- date.

Any procedure on aneurysms- open or percutaneous, date.

Abscesses Y, N, N/A

If Y, site + number (drop-downs, CNS, coronary, pulmonary, abdominal, peripheral, other)

Any procedure on abscesses- open or percutaneous, date.

AMI directly related to IE (NOT to surgery), if Y

Sepsis (free text) also see ICU section

Renal complications

1 none

2 creatinine increased by less than two-fold from baseline

3. creatine increase > 2X baseline but renal support unnecessary

4. need for renal support -temporary

5. need for renal support-long-term

6. need for renal support but not offered or refused

7 not applicable (already on renal support)

If 2-6 drop-downs

Cause felt to be ATN

Cause felt to be interstitial nephritis

Cause felt to be immune-complex mediated glomerulo-nephritis

Cause felt to be other (free-text)

Cause unclear

Hematological complications

1. none

2. Thrombocytopaenia

If Y to 2. Drop-down options: ITP, sepsis, drug-related, other (free-text), unclear.

3. Anaemia (Hb < 10g/DL or < 100 g/L)

If Y to 3. Drop-down options

1 anaemia of chronic disease

2 anaemia of haemorhage

3 Immune-haemolytic anaemia

4 drug-related anaemia

5 other (free text)

6 unknown

13 CNS

1) Central Nervous System (CNS) event?

No

Yes

Unknown/Not documented if yes, answer a-b

a. Type (check one):

Embolic without haemorrhage

Embolic with haemorrhagic transformation

Intracranial haemorrhage (ICH)

Subarachnoid haemorrhage

Abscess formation

b. Occurred before decision was made for valve surgery? No Yes, if yes, answer c

c. Was this a factor in the decision for surgery? No Yes

2) Was the initial presentation related to CNS complication?

yes no

3) mRS (Modified Rankin Scale) before the current illness : Available/Not available

Drop-downs if mRS available :

Score 0 – no symptoms

1 – no significant disability despite symptoms, able to perform usual duties and activities

2 – slight disability, unable to perform all previous activities but able to look after own affairs without assistance.

3 – moderate disability, requires some help, able to walk without human assistance, can live with support in the community

4 – moderately severe disability, unable to walk without human assistance and unable to attend to bodily needs without assistance (RACF level support)

5 – severe disability, bedridden, incontinent, requires nursing care and attention (RACF level support)

6 – dead

Were antibiotics administered before the stroke Y/N

A. YES – ANTIBIOTIC DURATION BEFORE STROKE (FREE TEXT – in days)

Is NIHSS (National Institutes of Health Stroke Score) when CNS event occurred available? Y/N

If Y (score if available will be already recorded in the patient's chart

Link to score here: National Institutes of Health Stroke Scale - Wikipedia, for reference only. State "not recorded" if not already in patient's chart. No need to calculate it yourself.

Number

Not recorded

Neurological symptoms:

Focal

Global

Asymptomatic

Neurological symptoms tick all that apply: (combination can be selected):

encephalopathy /delirium

seizure

isolated limb weakness/numbness (one limb)

hemiparesis/hemi sensory loss (2 limbs /half face)

cortical symptoms

tick boxes:

dysphasia , hemianopia/partial field defect, hemi-neglect

Cerebellar symptoms

Tick boxes:

Ataxia, dysarthria, nystagmus

Brainstem symptoms (cranial nerves) (free text if Y)

Was the patient thrombolysed? Y/N/ UKN

a. *IF YES – was this complicated by intracranial haemorrhage? Y/N*
b. *IF YES – did the patient deteriorate neurologically due to (intracranial haemorrhage) ICH? /YN*
c. *IF YES - Did they die due to ICH?*

If N. Why not thrombolysed. ? (tick boxes)

Futile (too extensive) , palliative intent (quality of life already too poor), patient/guardian request, medical contra-indications (cirrhosis etc)

If ischaemic stroke did the patient have a non contrast CT scan? Y/N/ UKN

IF YES – was stroke identified? Y/N

If yes – was there more than one stroke identified?

If yes – anterior circulation vs posterior circulation vs both anterior and posterior circulations

If ischemic stroke is the event, did the patient have a CT angiogram? Y/N

IF YES – was there a large vessel occlusion? Y/N

i. *IF YES – was the occlusion amenable to retrieval? Y/N*
ii. *If YES – was the location proximal middle cerebral artery (M1 or M2 portion) vs terminal internal carotid artery vs basilar artery vs proximal posterior cerebral artery vs proximal anterior cerebral artery?*
iii. *IF N – was the occlusion too distal for thrombectomy?*
    1. *Which artery was involved? Free text answer*

Occluded vessel (check one):

M1 MCA M2 MCA Tandem Intracranial ICA vertebrobasilar

extracranial / others

IF the stroke was ischaemic – did the patient undergo CT perfusion? Y/N

a. *IF N – why not? Tick boxes Futile (too extensive), palliative decision (comorbidities/age), patient refusal, logistical (not able to be offered in appropriate time-frame), other/UKN*
b. *IF Yes – results*
    i. *Core volume*
    ii. *Penumbra volume*

If the patient had a large vessel occlusion – was the patient offered a clot retrieval?

c. *IF N – why not? Tick boxes Futile (too extensive), palliative decision (comorbidities/age), patient refusal, logistical (not able to be offered in appropriate time-frame), other/UKN*
d. *IF YES – which vessel ?middle cerebral art vs terminal carotid vs basilar vs posterior cerebral vs anterior cerebral*
e. *IF YES – was it successful? Y/N*
f. *IF N – why not (free text)*

g. *If Y what was the final flow after ECR?*
   i. TICI 0
   ii. TICI 1
   iii. TICI 2a
   iv. TICI 2b
   v. TICI 2c
   vi. TICI 3

IF YES – what technique was used?
Aspiration
Stent retriever
combination

Was the patients stroke treated with reperfusion therapy (including thrombolysis or clot retrieval)? Y/N

IF YES - Stroke timeframes:

Stroke onset to CT scanning – free text in minutes

Stroke onset to intravenous thrombolysis if given – free text minutes

If thrombolysis not given reasons for (tick boxes) contraindications eg bleeding diathesis, *Futile (too extensive), palliative decision (comorbidities/age), patient refusal, logistical (not able to be offered in appropriate time-frame), other/UKN*

Onset to groin puncture for ECR (Embolic clot retrieval) – free text minutes

If indicated but not performed- reasons (tick boxes) *Futile (too extensive), palliative decision (comorbidities/age), patient refusal, logistical (not able to be offered in appropriate time-frame), other/UKN*

Retrieved embolus sent for histopathology?

yes no

Retrieved embolus sent for microbiology?

Yes no

Organism isolated from the retrieved embolus:

Yes, no ,not applicable

If Haemorrhagic transformation occurred and evident on CT scan:

prior to treatment of embolic stroke

after treatment of embolic stroke

Severity of haemorrhagic transformation on CT scan :

Petechial

Parenchymal

Was the stroke a primary haemorrhagic stroke? Y/N

IF primary haemorrhage did it delay cardiac surgery? Y/N

a. IF YES – how long was the delay (free text)

IF YES did the patient ever have surgery? Y/N

IF primary haemorrhage –

a. Was it parenchymal or petechial?

i. If parenchymal – did the patient have a CT angiogram? Y/N

1. IF Y – was there a mycotic aneurysm? Y/N

2. IF Y – was intervention offered? Y/N

3. IF Y – was this neurosurgical (open/clipping) ?

or neuroradiological (percutaneous/coiling)?

4. FOR EITHER – did the patient subsequently have cardiac surgery?

b. If petechial – did the patient have a CT angiogram? Y/N

i. THEN USE THE ABOVE TREE

FOR EITHER – did the patient have haematoma evacuation with neurosurgery?

Did the patient have an MRI? Y/N?

If no – WHY NOT? Tick boxes *Futile (too extensive), palliative decision (comorbidities/age), patient refusal, logistical (not able to be offered in appropriate time-frame),contra-indications to MRI (prostheses etc) other/UKN*

IF YES – select all results that apply:

Ischemic infarction (IS)

Intracranial haemorrhage (ICH)

Cerebral microbleeds (CMB)

Subarachnoid haemorrhage (SAH)

haemorrhagic transformation of ischemic infarct (HT)

Abscess formation

Cerebritis

Did the MRI impact on management including time of surgery:

yes free text why

no

unclear

NIHSS on discharge : …… score 0- 34……..N/A

Modified Rankin Score mRS (see p25 for scale) on follow up in 3 months : …score 0- 6……

Spinal cord lesion

Date of symptom onset

Date of diagnosis

Method of diagnosis (tick boxes) CT, MRI, WSC, PET-FDG, other.

Pathology: (tick boxes) abscess, bleed, infarct, other/UKN.

Site: tick box (epidural, intraspinal, cervical , thoracic, lumbo-sacral) can tick multiple.

Was surgery (drainage) required? iF Y date if known.

Outcome: paraplegia, quadriplegia, bladder dysfunction, bowel dysfunction, sensory disturbances only, respiratory failure (long term ventilation), death, UKN/other.

14. MDT (Multi-disciplinary team- minimum 3 disciplines)

Are formal MDTs available in your centre?

If Y tick boxes weekly, ad-hoc, participate in statewide MDT only (team outside)

Was an MDT part of management of this patient Y,N, UKN?

If Y then drop-downs below.

Specialties present for MDT discussion of ***this*** patient.

Drop-downs (tick those that apply)

General/internal medicine

Infectious diseases

microbiology

Cardiology

CTS

Neurology/stroke

Neurosurgery

Medical imaging/nuclear medicine

Pharmacy/clinical pharmacology

Addiction medicine

ICU

Vascular surgery

General surgery

Geriatrics

Indigenous liaison

Psychiatry/psychology

Endocarditis nurse/nurse navigator

Other (free text)

If *Y , date*

Did MDT change management? Y, N, UKN

Y drop-downs:

Was diagnosis changed? Y, N, UKN

Was Pharmacologic therapy changed? Y ,N, UKN

Was there a Surgical recommendation? Y, N, UKN

If Y was surgical recommendation changed? Y/N/UKN

decision for surgery, decision not surgical candidate, decision to defer recommendation until repeat meeting or other goals met, decision to change modality of surgery eg percutaneous instead of open, other, UKN

Was review MDT recommended ? Y, N, UKN

Were recommendations of MDT followed ? Y, N, UKN

(MDT details free text including reasons for not following advice)

15. Surgery

Was there an indication for surgery?

If Y date of indication

If Y dop-downs

MDT recommendation

Heart failure,

size veg primary embolism prophylaxis (if Y size veg)

embolism secondary prophylaxis (if Y size veg)

persistent bacteraemia/fungaemia

myocardial abscess

severe/worsening valvular regurgitation

vegetation size/mobility

organism (eg VRE, filamentous fungus)

other (free text)

Was CTS consulted? If Y date

If N reason for no CTS consult

No surgical indications, patient refuses surgery, felt palliation best plan, patient unfit for surgery, other

Has patient undergone percutaneous cardiac device extraction during current hospitalization? If Y, date.

Has patient undergone surgery during current hospitalization?

N ,Y, UKN

If Y date

Surgical scores (input at least one)- links to scores in drop-downs

Euroscore2 preferred.

STS

https://acsdriskcalc.research.sts.org/

Euroscore 2

https://www.euroscore.org/index.php?id=17

ASA 1 to 6

ASA 1	A person in good health
ASA 2	A mild but well-managed or treated condition
ASA 3	A serious condition that's has an impact on a persons overall health
ASA 4	A severe condition that's life-threatening
ASA 5	A life threatening condition that needs immediate surgery to increase survival odds
ASA 6	A deceased person who is an organ donor

Surgery performed? Y/N

If N defaults to non-surgery line immediately below, if Y defaults to actual Surgery below

***Reasons for non-surgery**

No surgical indications

Prognosis good without surgery

Patient or NOK or guardian/POA declines

*** Prognosis poor regardless of surgery:**

Elderly, frail or poor functional status (free text) (surgery not consistent with overall goals of care)

Acute IE related CVA preventing rehabilitation and recovery (free text)

ICH

Ongoing IVDU

Ongoing psychiatric concerns (free text)

Overwhelming infection (sepsis, haemodynamic instability due to sepsis)

Overwhelming heart failure (valvular failure, other causes)

Malignancy

Competing comorbidities

Inability to offer surgery Y,N

Damage too extensive

No surgical options available

JW status

Logistic barriers to surgery (resources/personnel/facilities/equipment not available)

Patient dies before surgery.

Other contraindications to surgery? Y,N, UKN

Kidney disease and unsuitable ineligible/refusing RRT

Lungs- malignancy or severer CLD

Liver- Child C or malignancy

GIT malignancy

Dementia

other malignancy

severe/end-stage neurodegenerative disease

Other (free text)

Was surgery delayed?

If Y tick boxes

Required further investigations as per surgical team

Delayed by anaesthetic team

Logistical delays (staff/bed/equipment unavailable)

Complication eg stroke

Patient request

Other (free text)

Actual Surgery. Y,N

Surgery Timing: emergency (< 4H), urgent (within 3-5 days), non-urgent (same admission)

- **Surgery**
  - Active or Healed infection
  - Percutaneous Intervention
    - Percutaneous valve, Angiovac extraction,
    - Extraction of Pacing or ICD leads
  - Concomitant Cardiac Surgery
    - CABG, Thoracic Aortic Surgery,
    - Other valve surgery not affected by IE
    - Other
  - Redo Surgery
    - Number of prior sternotomies
    - Removal of existing prosthesis
      - Tissue Valve, Mechanical Valve, Vascular Graft,
      - Patch, Transcatheter Valve / Clip
  - Advanced Surgical Techniques
    - Commando Y/N, Autotransplant Y/N, Transplant Y/N
  - Aortic Valve Surgery Y,N
    - Mechanical Complications
      - Root abscess present at operation (Y/N), VSD (Y/N)
      - Other Fistula (Y/N)
    - Repair
    - Valve Replacement
      - Mechanical, Bioprosthetic, Homograft, Autograft, Other
    - Root Intervention
      - Patch / Direct Closure / Repair, Replacement

- Mitral Valve Surgery Y,N
  - Repair
    - Leaflet / Subvalvular only, Annuloplasty only,
    - Leaflet and annuloplasty
  - Replacement
    - Mechanical, Bioprosthetic
- Tricuspid Valve Surgery
  - Repair
    - Leaflet only, Annuloplasty only, Leaflet and annuloplasty
  - Replacement
    - Mechanical, Bioprosthetic
    -
- Mechanical Support
  - Preop / Postop, VAD, ECMO
- Is future cardiac surgery planned? Y,N, UKN
- If Y, free text.

date CTS 1st consulted (include N/A)

time on Cardio-pulmonary bypass pump. 1H, 2H, 3H, 4H, longer(**free text)**

Return to theatre Y, N, N/A (if Y free text)

Blood transfusión and amount

Other clotting factors required (eg Fresh frozen plasma) amount if known.

Complications of surgery: Y,N, N/A

None,

If Y to complications-dropdowns:

CVA, acute renal failure (if not present before surgery)- if Y then dialysis Y or N. delirium, reopen for bleeding, tamponade, death,

peripheral ischaemia, arrhythmias requiring ICD post-op, general debility requiring inpatient rehab, wound infection, bacteraemia, other (freetext)

16. ICU specific

Did patient go to ICU? N, Y, UKN

If Y, did they go to ICU pre-surgery? Y, N, UKN

If Y then below fields all open up.

Cardiac Mechanical support N/Y/UKN

Extra-corporeal membrane oxygenation (ECMO) (dates if known + type ECMO if known) FREE TEXT

Intra-aortic balloon-pump (IABP) (dates if known)

Impella device (dates if known)

Ventricular assist device (VAD) (dates if known) also single or biVAD (type/model if known)

Arrythmias

No underlying rhythm

Pacing (drop down)- (temporary) Transvenous/Epicardial/Transcutaneous

/Permanent

Supra-ventricular/

SVT, Atrial fibrillation, atrial flutter

Ventricular/

ventricular tachycardia, ventricular fibrillation

Defibrillator inserted?

Cardiac arrest prior to surgery Y/N NA if Y shockable or non-shockable

inotropes (dates if known-score not duration) inotrope score(VISMAX) at 24 hours post surgery

intubation mechanical ventilation before or after surgery duration (dates if known)

Estimated duration if intubated PRIOR to surgery.

Total parenteral nutrition (TPN) (dates if known)

enteral (naso-gastric-tube-NGT) nutrition (dates if known).

APACHE3/SAPS/SOFA scores on ICU admission

Risk of death (ANZROD-2020/ APACHE III ROD

Pick at least one of above scales) APACHE3 preferred.

Duration of sedation

ICU Length of stay (LOS) (+ date admit and discharge)

Reintubation Y, N, UKN

Tracheostomy Y, N, UKN

17 Histo-pathology

Was histology performed on valve? If Y fields below.

Diagnostic of IE ? Y,N, UKN

Site: Aortic, Mitral, Other (Please specify), Pulmonary, Tricuspid

Macroscopic: Calcification, Fenestration (s), Fibrosis/Sclerosis, Fragments, Fusion, Intact, Other (please specify), Pannus, Thrombus.

Vegetations: Macroscopically absent, Macroscopically present, Microscopically absent, Microscopically present, Other (please specify)

Perforation: Absent, Other (please specify), Present

Other pathological process: Amyloidosis, Atherosclerosis, Malignancy (please specify), Other (please specify), Sarcoidosis, Tumour (please specify)

Microscopic Changes: Acute inflammation, Calcification (diffuse), Calcification (Mild), Calcification (nodular), Chronic inflammation, Fibrin, Fibrosis (diffuse), Fibrosis (Mild), Fibrosis (nodular), Myxoid change, Neovascularisation, Nil, Other (please specify), Papillary fibroelastoma, Thrombus, Vegetation.

Organisms – Bacteria: confirmed on microbiology, Gram negative organisms present, Gram positive organisms present, Not seen, Other (please specify), Seen on H&E.

Organisms – Fungi: confirmed on microbiology, Not seen, Other (please specify), Seen on H&E, Seen on special staining (Grocott or other fungal stains)

Organisms – Other: confirmed on microbiology, Not seen, Other (please specify), Seen on H&E, Seen on special staining (eg Modified acid-fast or Acid-Fast stains).

SNOMED Codes: A-04100 (valve prosthesis), A-04110 (cardiac valve prosthesis), A-04112 (cardiac valve prosthesis, artificial), A-04114 (cardiac valve prosthesis, biological), D3-17600 (rheumatic valvulitis), D3-17601 (acute rheumatic fever with valvulitis), D3-17608 (chronic rheumatic valvulitis), D3-28008 (endocarditis, noninfective), D3-28100 (endocarditis, infective), D3-28101 (endocarditis, bacterial, acute), D3-28102 (endocarditis, bacterial, subacute), D3-28103 (endocarditis, bacterial, chronic), D3-28105 (endocarditis, bacterial, healed), D3-29103 (mitral valve prolapse), D3-29100 (myxoid transformation of cardiac valve), D3-29102 (myxoid transformation of mitral valve), D4-31513 (bicuspid cardiac valve), F-32400 (incompetence, of heart valve), M-50000 (degeneration), Other (please specify), T-35100 (tricuspid valve), T-35200 (pulmonary valve), T-35300 (mitral valve), T-35400 (aortic valve).

18. Patient function during episode

Did patient require walking aid (stick or rollator) during episode? Y,N, UKN

Did patient require hoist lift during episode? Y,N, UKN

Enteral/parenteral nutrition during hospitalisation? Y,N, UKN

19. *Duration(s) of episode*

Date admission and discharge hospital ward include UKN

Date admission and discharge ICU include UKN

* Date admission and discharge Rehab include UKN

* Date admission and discharge HITH/OPAT include UKN

* Duration total hospitalisation (your centre)

20. Further details at time of IV antibiotic completion

Events DURING treatment for IE episode (complications)

Line infection occurring during therapy for this IE episode Y, N, UKN

If Y date

If Y PIVC (peripheral IVC) , PICC (peripherally inserted central catheter),

CVC (central venous catheter), other, UKN

If Y inpatient or HITH/OPAT?

If Y organism if known.

If positive culture, was it (tick box) superficial swab, abscess aspiration,

line tip culture (> 15 colonies), blood culture from line, peripheral stab blood culture?

Line thrombosis Y, N, UKN

If Y, date, DVT, PE, superficial only

Other complications during therapy

VAP (ventilator-associated pneumonia), other RTI (respiratory tract infection), UTI (urinary tract infection), GIH (gastro-intestinal haemorrhage, CDAD (Clostridium-difficile associated diarrhoea), decubitus ulcer,

AKI (acute kidney injury) requiring dialysis, AKI (creatinine doubling) not requiring dialysis ,

Neurology (delerium, peripheral neuropathy, cranial nerve neuropathy, other)

other nosocomial (free text).

Was blood transfusion (except peri-cardiac surgery) required? Y, N, UKN

Was interventional procedure (scope or non-cardiac surgery) required?

If Y please specify intervention (free text)

If Y date , details (free text)

Other parameters by end of IV therapy phase of IE episode.

Highest CRP (C-reactive protein)

Highest procalcitonin

Lowest albumin

Highest creatinine

21. Final destination of episode (long-term)

Home (self-caring/ independant), Home (domiciliary care/ requiring medical assistance/supports at home), Nursing home, Death, UKN

Did patient self-discharge? Y, N, UKN

If Y, reason

Drop-downs: substance abuse, family /home/domestic issues,

work (includes own business),

social isolation (far from home), pre-planned travel, other (free text)

Free text details if available

If self-discharge, was follow-up offered? Y, N, UKN

If Y was follow-up attended? (includes telehealth)

22. Death

Did patient die during this episode? Y/N/UKN

If Y date

Cause of death if known

Palliated death? Y/N/ UKN

If Y date palliation commenced if known.

Was autopsy discussed with family? Y, N, UKN

Was autopsy formed? Y, N, UKN

If Autopsy performed : cause of death

Did patient die after episode/during follow-up? Y, N, UKN

Approximate date (free text)

Cause of death if known.

23. Post Discharge/Follow-Up

Patient given IE advice sheet /weblink at discharge or follow-up? Y, N, UKN

Patient given satisfaction survey form at discharge or follow-up? Y, N, UKN

Patient bio-banked? Y, N, UKN if Y name biobank

Patient participated in research project? (eg Randomized controlled trial-RCT) Y, N, UKN

If Y free text

Was patient presented at M&M (morbidity and mortality meeting) after acute event (usually post-discharge)? Y,N, UKN

If Y, date (free-text conclusions)

Patient status at 3 months

Drop-downs : dead, in hospital for rehab etc, in nursing home, at home but with domiciliary care, independent in all ADLs, N/A

Still on antibiotics Y,N, UKN

Patient status at 6 months

Drop-downs : dead, in hospital for rehab etc, in nursing home, at home but with domiciliary care, independent in all ADLs, N/A

Still on antibiotics Y,N, UKN

If S.bovis or Enterococcus spp, was a Colonoscopy organised? Y, N, UKN

Patient status at 12 months

in hospital for rehab etc, in nursing home, at home but with domiciliary care, independent in all ADLs

Still on antibiotics Y, N, UKN

Renal function wrt baseline at admission

Liver function wrt baseline at admission

If IVDU is patient still injecting? Y, N, UKN

If IVDU was patient offered counselling? Y, N, N/A If Y did they comply ? Y, N, UKN

***Last known contact with patient**: if > 1 year state number months, if > 2 years state number of years.

in hospital for rehab etc, in nursing home, at home but with domiciliary care, independent in all ADLs

Still on antibiotics Y, N, UKN

Other post-discharge events

Bacteraemia same organism within 6 months? Y, N, UKN

If Y date

Was it relapsed IE ? Y, N, UKN

New IE (different organism)

If Y date, organism

Other significant events (eg aneurysm, readmission for causes related to IE)

Free text with dates if known.

Cardiac surgery (planned at discharge)

Date, details.

Cardiac surgery (unplanned at episode discharge)

Date, details