ACE Draft IE registry May 2024

Instructions:

Red denotes basic fields (all sites attempt to answer)

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

Black fields denote optional fields.

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

***(asterix) denotes field unique to Australasian registry.**

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.

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Index:

1.Demographics

Name

Identifier (code)

Age (years)

Sex M//F/other

* 1st nations? Y, N, N/A

**Yes drop-downs Aboriginal, Torres Strait Islander, Maori, Pacific Islander, other (free text)*

*Distance of patient from presentation Hospital (km)

Drop-down < 50km, 50-200km, 200-500km, > 500km, N/A

*Method admission to 1st hospital

From outpatient clinic, direct referral to ward from home, Public transport to ED

Private vehicle (car) to ED, Road ambulance, Air ambulance, N/A

2. Background/Pre-existing.

*Date of admission to referring non-CTS centre (N/A option)

*Date admission CTS centre (N/A option)

Known **renal disease** Y,N, N/A

If Y Dialysis prior to admission Y,N, N/A

Diabetes Y,N, N/A

** If Y drop-down Type 1, Type 2, N/A*

**If Y to DM HBA1C % with date (include N/A)*

****Treatment***

Known liver disease? Y,N, N/A

If Y drop-down(1) Cirrhosis Y,N, N/A

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

Known COAD? Y,N, N/A

If Y severity drop-downs :

mild FeV1 > 80%, mod 50-79%, severe 30-49%, very severe < 30%, N/A

Previous CVA (long-term symptoms) Y,N, N/A

Antithrombotic Rx at presentation? Y,N, N/A

If Y drop-down warfarin/heparin, NOAC, ASA, ADP inhibitor, other

ETOH (within 3 months of diagnosis: Y,N, N/A

If Y (ANZ) < 1/D, 1-2/D, > 2/D ??? per week ???? (use DK?)

Smoker never, active, previous , N/A

Frailty

Self-reliant at ADLS? Y,N,N/A

If N drop-downs

Dependent on accessibility aid? Y,N,N/A

Domiciliary care? Y,N, N/A

Nursing home ? Y,N, N/A

* *Modified Rankin.(mRS) score 0 -6.*

3. IVDU/IDU

Never, active, previous, N/A

*If active or previous drop-downs: (ANZ)

*Safe injecting practices?

*Drop-downs:

*Shares needles or syringes Y,N, N/A

Frequency > 1/D, 1/D, 2-4 x per week, weekly, < 1/week, N/A

engaged with D&A? previously, currently, no, N/A

Attends safe injecting centers? Rarely, sometimes, never, always, N/A

Uses skin disinfectants? Rarely, sometimes, never, always, N/A

Uses same injecting sites? Rarely, sometimes, never, always, N/A

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

4. Immunosuppression.

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

If Y, drop-down 1: skin, leukaemia/lymphoma, orall/head/neck, lung, GIT, GUT, other

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

Active Cancer Y,N,N/A

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

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

HIV Y,N, N/A

If Y , on treatment? Y,N,N/A

Immunosuppressive agents within 3 months of diagnosis? Y,N, N/A

If Y drop-downs

**Glucocorticoids > 15mg/D Y,N, N/A*

**Oncologic chemotherapy Y,N, N/A*

**Biologics Y,N, N/A*

**Immune therapy Y,N, N/A*

** transplant medications*

**Others (free text)*

5. **Cardiac pre-existing**

Known heart failure Y,N,N/A

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

***Congenital heart disease Y,N, N/A**

BAV, VSD, ASD secundum, PDA (patent ductus arteriosis)

other

If other drop-down

ASD primum, Unicuspid or quadricuspid AV,

Coarctation of aorta, Ebstein's anomaly.

Pulmonary stenosis (PS, Tetralogy of Fallot (TOF),

Total anomalous pulmonary venous connection (TAPVC)

Transposition of the great arteries (TGA), Truncus arteriosus (TAC)

Other CHD please specify (free text)

For each of above:

Was it repaired Y, N, N/A

If Y to repair : percutaneous, open surgery, N/A

If Y to repair was there residual defect ? Y,N,N.A

*** Rheumatic Heart Disease Y, N, N/A**

If Y drop-downs

Valves mitral, aortic, pulmonary, tricuspid

For each valve: repaired/replaced Y,N, N/A

On penicillin prophylaxis currently Y,N, N/A

*Other valvular abnormality (pre-existing non-CHD, non-RHD) Y,N, N/A

If Y drop-downs

AS

Valve Prolapse/flail and/or or myxomatous disease

Valve regurgitation

Other (free text)

If Y free text

Implantable cardiac device? Y,N,N/A

*If Y drop-downs: 1 chamber PPM, 2 chamber PPM, ICD, CRT,*leadless pacemaker,* left atrial appendage occlusion device*

If Y drop-down2 : year current device implanted.

6. **Previous IE?** Y,N, N/A

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

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

** Cause if known?* Dental, skin, musculoskeletal, thoracic/respiratory tract, GIT, GUT, IVC, dialysis catheter, other.

IVDU, nosocomial, dental pathology, pre-existent valvular pathology, bowel pathology, skin pathology eg psoriasis other (free text) N/A

Organism related to that IE episode?

Drop-down organism list(see section 10).

Valve(s) involved (drop-down list) native + prosthetic (if repair use prosthetic default)

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

** (any other IE episodes (> 1 prior)? Y,N, N/A*

iF Y drop-downs for each as per episode above

7. Prior cardiac surgery ? Y,N, N/A

If Y drop-downs

Surgery within past year? Y,N,N/A

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)

(ANZ) Other intracardiac surgery (free text)

CABG Y,N, N/A

LIMA graft Y,N, N/A

(ANZ) estimated number of sternotomies prior to current episode

8. Clinical Presentation.

Date IE diagnosed

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

Approximate weight (kg)

Approximate height (cm) includes N/A

Fever within 24 hours admission Y,N, N/A

Weight loss > 5kg at admission Y,N,N/A

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

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

Dyspnea at admission Y,N, N/A

9.Diagnosis-Duke (2023 criteria)

Duke Criteria : definite, possible, N/A

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, N/A **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, N/A

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

[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**][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]

[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]

[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]

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

[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

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

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

[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]

[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

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

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

Rejection Criteria drop-down 4.

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

[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

C. No pathologic or macroscopic evidence of IE at surgery or autopsy, with antibiotic therapy for less than 4 d or

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

10. Diagnosis-Microbiology

***Most likely primary infection**

Drop-downs-

Staphylococcus, Strep viridans group, Other Streps, 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, E.faecalis, E.facium, Abiotrophia, Granulicatella adiacens

GBS, GAS

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)

Free text.

***How identified?**

Malditof, Vitek, API, sequencing , , N/A other (free text)

***Was MIC done?**

If Y results

Selected Sens

Gram Pos : Penicillin, Ampicillin, Oxacillin, ceftriaxone, vancomycin, daptomycin,

Gram Neg: Ceftriaxone

*If Enterococcus, HLGR? Y,N, N/A

Positive blood cultures? Y,N, N/A

If Y Date collected of first positive BC

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

** date final positive BC*

Number negative BCs collected prior to empiric antibiotics(Within 7 days diagnosis))*

*Was diagnosis by serology (antibody or antigen) from blood Y,N, N/A

Test with titre if known (free text)

Date test requested

Date result known

*was diagnosis by molecular tests from blood? Y,N, N/A

Test drop-downs

Directed PCR, 16s, 18s, Metagenomics

Date test requested

Date result known.

***Additional microbiology tests.**

Culture from tissue Y,N,N/A

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, N/A

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

Test drop-downs

Directed PCR, 16s, 18s, Metagenomics

Date test requested

Date result known.

Organism list (see above)

*11. ECHO

Echos (1) prior to current illness

(2) Diagnostic echo

(3)Additional echo influencing management/outcome

(4) progress echo post discharge.

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

ECHO DATA
DOB
Gender
TTE/TOE
Date
Image quality **(>=good/fair/<=poor)**
BP
Heart rate
Heart rhythm
BMI
LVEF **(%)**
RVEF **(normal/mild/mild to moderate/moderate/moderate-severe/severe)**
RVSP
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) **Enter singular or multiple entries for each data field as appropriate**
Valve type **(native/repair without annuloplasty/annuloplasty repair /bioprosthetic/ mechanical/ transcatheter/ vascular conduit/valve [biological] conduit/valve [mechanical] conduit**
Pre-existing valve pathology **(age-degenerative[fibrosis and/or calcification]/myxomatous/functional/BAV/other-congenital/rheumatic/previous 'healed' IE lesion/Lambl's/fibroelastoma/other tumour/thrombus/pannus/other/unknown)**

Leaflet/Cusp/Annular vegetation **(y/n)**
Valve apparatus vegetation **(chord/papillary muscle)**
Other site: vegetation **(Nil/LV/LA/RV/RA/lead within RA/lead within RV/VSD/PFO/ASD/Aortic artery/Pulmonary artery/inferior vena cava/superior vena cava/Eustachian valve/pulmonary vein/other**
Veg size (for each site – valve, subvalvular, other) **(largest, mm x mm)** **Shape: predominantly linear Y/N predominantly sessile Y/N mixed. ???????**
Veg - multiple (for each site, valve, subvalvular, other) **(y/n)**
Veg - Any mobile component (for each site -valve, subvalvular, other) **(y/n)**
Leaflet/cusp disruption **(nil/perforation/partial destruction)**
Valve leaflet/cusp prolapse **(y/n)**
Flail leaflet/cusp **(Nil/Flail/Chord rupture/Both)**
Periannular (valve ring) IE pathology **(nil/phlegmon/abscess/pseudoaneurysm/dehiscence [perivalvular regurg.]/fistula,valve aneurysm, windsock)** **Measurement of dimensions** **Abscess < 1/3 , 1/3 to 2/3 , circumferential, N/A**
Myocardial abscess **(nil/ventricular septum/RV myocardium/LV myocardium)** **dimensions**
MAIVF (curtain) involvement **(nil, vegetation, abscess, pseudoaneurysm, phlegmon, perforation, fistula, desctruction)**
Extension of pus – other locations **(transverse sinus, left atrial wall, pericardial space, pulmonary artery, aorta, right atrial wall)**
Abscess/Pseudoaneurysm (in systole) - max. cavity size **(mm x mm)**

Fistula (to-from) **(Aorta-LVOT, Aorta-LA, etc)**
Regurgitation Grade **(nil, trace/trivial, mild, mild to moderate, moderate, moderate to severe, severe)**
Perivalvular component Y,N, N/A **Paravalvular 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)**
Stenosis – peak gradient (m/s)
Stenosis – valve area (cm2)

Did additional echos change antibiotics? Y,N, N/A

Did additional echos change surgical decision ? Y/N/NA

*12. Other Imaging

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

If Y, drop-downs PET-FDG, cardiac MRI, CT cardiac/aortogram, other (free text)

(PET only) If Y were recommended/standardized PET scan protocols for IE followed? (eg diet)Y,N,N/A

Drop-downs for each “yes”

Aortic valve involvement? N, Y, N/A, **Mitral valve** involvement?N,Y,N/A, **Pulmonary valve** involvement?N,Y,N/A, **Tricuspid valve** involvement?N,Y,N/A

If Y to any please describe (free text)

TAVI present ? Y,N, N/A

If Y ? infected on PET Y,N, N/A

If Y? reactive change around TAVI ? Y,N, N/A

Pacemaker pocket infection on PET? Y,N,N/A

CD wire infection on PET? Y,N, N/A

Any other areas involved on imaging? Y,N, N/A

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)

*13. Current Episode Antibiotics

Drop-down for each antibiotic

*Effective treatment antibiotic name: (drop-downs)

*Route IV, IM, oral

*Dose used for majority of time (dose over 24 hours)

*Start Date effective antibiotic

*End date effective antibiotic

*was TDM performed? Y,N, N/A

*If Y to TDM drug, did it result in dose change? Y,N, N/A

(free text details)

Reason for ceasing antibiotic: planned, ADR, optimization, other.

If ADR: drop-downs : toxicity, diarrhoea, allergy, marrow, neausea, ARF, other (free text)

14. IE complications at admission

Embolism at admission Y,N, N/A

If Y : drop-downs. CNS, liver, spleen, lungs, 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 percutaneous (date), open surgery (date).

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

If Y, date.

Cardiac complications. If Y, drop=downs

Heart Failure, Conduction abnormalities, Valve failure, Sepsis, Other

If Y to conduction abnormalities

Drop-downs: 1HB, 2HB, 3HB, 4 RBBB, 5 LBBB, other (free text)

Immunological markers IE

Osler, Petechiae, Janeway, Splinters, Retinal, other (free text),

*** Aneurysms Y,N,N/A**

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

** Any procedure on abscesses- open or percutaneous, date.*

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

Embolism, aneurysm rupture, septic state. Free text how diagnosed.

15. CNS datafields

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 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 before the current illness : ……

4) If Antibiotics were administered before the occurrence of cerebral complications, duration of antibiotics prior is (in days) : ……

5) If ischemic stroke is the event, was there evidence of large vessel occlusion

□ yes □ no

6) Occluded vessel (check one):

□ M1 MCA □ M2 MCA □ Tandem □ Intracranial ICA □ vertebrobasilar □ extracranial / others

7) ASPECT score on imaging if available: ……..

8) Core estimation if CTP is used ‘‘ml’’: ……

9) Penumbra size if CTP is used ‘’ml’’: …..

10) NIHSS score when CNS event occurred: ……

11) Neurological symptoms:
□ Focal □ Global □ Asymptomatic

12) Nature (combination can be selected):
□ encephalopathy □ seizure □ isolated limb weakness/numbness □ hemiparesis/hemi sensory loss □ cortical symptoms e.g. dysphasia , hemianopia

13) Treatment for ischemic stroke :

□ IVT □ EVT □IVT+EVT □ none

14) If EVT performed, the technique used is :

□ Aspiration □ Stent retriever □ combination aspiration/SR □ Balloon guide +SR

17) If treatment was provided:

Onset to imaging ‘’minutes’’:…….
Onset to groin puncture ‘’minutes’’ :…….
Onset to IVT – if applicable - ‘’minutes’’: …..

18) Outcome of EVT if performed :

□ TICI 0 □ TICI 1 □ TICI 2a □ TICI 2b □ TICI 2c □ TICI 3

19) Retrieved embolus sent for histopathology:
□ yes □ no

20) Organism isolated from the retrieved embolus:

□ yes □ no

21)If Haemorrhagic transformation occurred and evident on CT scan:
□ prior to treatment of embolic stroke □ after treatment of embolic stroke

22)Severity of haemorrhagic transformation on CT scan :

□ HI 1 □ HI 2 □ PH 1 □ PH 2

23)If cerebral complication is ICH related to IE , management is :

□ supportive □ surgery

24)If MRI is done, findings include '' combination can be selected" :
□ Ischemic infarction (IS) □ Intracranial haemorrhage (ICH) □ Microhemorrhages (MH) □ Subarachnoid haemorrhage (SAH) □ haemorrhagic transformation of ischemic infarct (HT) □ Abscess formation □ not done

25)Did the MRI impact on management including time of surgery:

□ yes □ no □ unclear

26)NIHSS on discharge : …… score 0- 34……..

mRS on follow up in 3 months : …score 0- 6……

16.* MDT

Was an MDT part of management Y,N, N/A?

If *F Y , date*

Recommendations

Diagnostic Y,N, N/A

If Y Echo, CT, WSC, PET-FDG, MRI, other

Was diagnosis changed? Y,N, N/A

Pharmacologic therapy change? Y,N, N/A

Surgical recommendations Y,N, N/A

Were recommendations followed ? Y, N, N/A

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

17. 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

septic shock

myocardial abscess/pseudoaneurysm/fistula/prosthetic dehiscence/new AVB

severe/worsening valvular regurgitation

vegetation size/mobility

organism (eg VRE, filamentous fungus)

other (free text)

Has patient undergone surgery or PPM extraction during current hospitalization? N,Y, N/A

If Y date

Surgical scores (input at least one)

(ANZ) STS

(ANZ) Euroscore 2

(DK) ASA 1 to 6

***Reasons for non-surgery**

Prognosis good without surgery

Patient or NOK 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**

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?

Kidney disease and unsuitable ineligible/refusing RRT

Lungs- malignancy or severer CLD

Liver- Child C or malignancy

GIT malignancy

Dementia

(ANZ) other malignancy

(ANZ) severe/end-stage neurodegenerative disease

Other (free text)

Actual Surgery.

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
    - Aortic Valve Surgery
        - 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
  - 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, N/A
- If Y, free text.

*date CTS 1st consulted

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

Return to theatre Y,N, N/A

(significant) bleeding after surgery ? Y,N, N/A

Blood transfusión and amount

18. *ICU specific

Did patient go to ICU? N, Y, N/A

If Y then below fields all open up.

Mechanical support N/Y/NA

*VAD (dates if known) also single or biVAD (type/model if known)

*ECMO (dates if known + type ECMO if known)FREE TEXT

* complete repair of IE at surgery or partial repair?

* IABP (dates if known)

Arrythmias

No underlying rhythm

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

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

*ionotropes (dates if known-score not duration) ionotrope 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.

*TPN (dates if known)

*enteral (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 the 4 scales)

Duration of sedation

ICU LOS (+ date admit and discharge)

Reintubation Y,N, N/A

Tracheostomy Y,N, N/A

Time to mobilisation (passive/active)

19 * Histo-pathology

Was histology performed on valve? If Y fields below.

Diagnostic of IE ? Y,N, N/A

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 identified, Other (please specify), Seen on H&E.

Organisms – Fungi: confirmed on microbiology, Not identified, Other (please specify), Seen on H&E, Seen on special staining (Grocott)

Organisms – Other: confirmed on microbiology, Not identified, Other (please specify), Seen on H&E, Seen on special staining.

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).

20. Complications of surgery:

None, CVA, dialysis, delirium, tracheostomy, reopen for bleeding, tamponade, death,

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

21. Focus

Was a focus of infection identified? Y,N, N/A

If Y

Dental, skin, musculoskeletal, thoracic/respiratory tract, GIT, GUT, IVC, dialysis catheter, other.

Details (free text)

Dental procedure within 3 months of diagnosis Y,N, N/A

** If Y Extractions ? Y,N,N/A*

If Y Prophylactic ABs at time? Y,N,N/A

22. Oral therapy

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

If Y date.

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

Y,N,N/A

If Y free text.

23. Patient function during episode

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

Did patient require hoist lift during episode? Y,N, N/A

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

24. ***Duration(s) of episode***

Date patient sleeping at home? (*includes date HITH/OPAT commenced)

Date patient discharged? (includes date of death)***

* Date admission and discharge hospital ward

Date admission and discharge ICU

* Date admission and discharge Rehab

* Date admission and discharge HITH/OPAT

* Duration total hospitalisation (your centre)

25. *Further details at time of discharge

Line infection Y,N,N/A

If Y date

If Y PIVC, PICC, CVC, other, N/A

If Y inpatient or HITH/OPAT?

If Y organism if known.

Line thrombosis Y,N, N/A

If Y, date, DVT, PE

Other nosocomial

VAP, other RTI, UTI, GIH, CDAD, ARF requiring dialysis, ARF (creatinine doubling) not requiring dialysis ,decubitus ulcer, other.

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

Was interventional procedure (scope or surgery) required?

If Y please specify intervention (free text)

If Y date , details (free text)

Other parameters by end of IE episode

Highest CRP

Highest procalcitonin

26. *Interhospital transfers

Any other sites prior to your centre? Y,N, N/A

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

If Y duration if known

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

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, N/A

If Y duration if known.

If Y reason (free text)

If Y ICU stay? Y,N,N/A

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),N/A

Method of transfer from other site back to yours?

Road ambulance, air ambulance, private transfer (no medical escort), N/A

Treatment for this episode at other sites post your centre Y,N, N/A

If Y duration if known

ICU at other sites post transfer (eg CNS event) Y,N,N/A

If Y reason if known (free text)

Any invasive procedures at other sites pos transfer? Y,N, N/A

If Y free text.

Method transfer to other site

Road ambulance, air ambulance, private transfer (no medical escort), N/A

* Total number hospitals admitted to for this episode (includes N/A option)

Total duration hospitalisation (all sites) if known

27.*Final destination of episode (long-term)

Home (self-caring), Home (domiciliary care),Nursing home, Death, N/A

Did patient self-discharge? Y,N, N/A

If Y, reason

Drop-downs: family emergency, work (includes own business), social isolation (far from home), pre-planned travel, other (free text)

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

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

28. (ANZ) Death

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

If Y date

Cause of death if known

Palliated death? Y/N/N/A

If Y date palliation commenced if known.

Was autopsy discussed with family? Y,N, N/A

Was autopsy formed? Y,N,N/A

If Autopsy performed : cause of death

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

Approximate date (free text)

Cause of death if known.

29. Antimicrobials (final)

End antibiotics date

Duration total of effective antibiotics

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

If Y free text

30. *Post Discharge/Follow-Up

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

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

Patient biobanked? Y,N, N/A

Patient participated in research project? (eg RCT) Y,N, N/A

If Y free text

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, N/A

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

*** 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, N/A

Renal function wrt baseline at admission

Liver function wrt baseline at admission

If IVDU is patient still injecting? Y,N, N/A

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

***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, N/A

Other post-discharge events

Bacteraemia same organism within 6 months? Y,N, N/A

If Y date

Was it relapsed IE ? Y,N, N/A

New IE (different organism)

If Y date, organism

Other IE Y,N,N/A

Same organism but no bacteraemia, culture negative details (free text)

Other significant events (eg aneurysm)

Free text with dates if known.

*Cardiac surgery (planned at discharge)

Date, details.

Cardiac surgery (unplanned at episode discharge)

Date, details