Michigan TAVR POCMA Review Form

The purpose of this document is to assist Structural Heart Teams with a review of their TAVR mortalities. The goal is to first identify not only the seminal event that ultimately led to the mortality but also all subsequent "missed opportunities" to prevent the patient's death. The intent of this process is to thoroughly review those mortalities post discharge where the available information permits. Another key goal of this review process is to identify any measures planned or implemented at your hospital to prevent future similar mortalities. We are asking for a succinct summary (on this form) if your site identifies findings, while using the POCMA review form, that may benefit the quality of care across Michigan and would be beneficial to share at a MISHC TAVR Meeting. **This form is not required by the STS/ACC TVT Registry; it is intended to be a resource for MISHC participants.**

Record ID #	DOS	STS Risk Score
Surgeon	DOD	Incremental Risk Score
Cardiologist	Age	Urgent conversion to open: Y / N

Procedures (1) _____ (2) _____

Incremental Risk (Circle):

Home O2	Liver disease	pHTN	Anemia	Mobility Impairment
COPD	Hx of CVA/TIA	Severe LV Diastolic Dysfunction	Hostile Mediastinum	BMI < 21
Nocturnal BiPap/CPap	BNP >/= 550	Frailty	Porcelain Aorta	Malnutrition

Cause of Death (Circle):

Cardiac	Renal	Infection	Pulmonary	Other
Neurologic	Vascular	Valvular	Unknown	

CASE SUMMARY:

Seminal Event and Mortality Avoidable? Yes, No How?

_____
_____
_____

Measures planned or implemented at your hospital to prevent future similar mortalities:

_____
_____
_____

MISHC
Michigan Structural Heart Consortium

PHASE OF CARE MORTALITY ANALYSIS (POCMA)

Please circle all phase and subcategory options determined to have a process improvement opportunity

Pre-Procedure Phase:

Cardiac risk factors

- Cardiogenic Shock
- NYHA Class/Recent Tx
- Conduction Defect
- Myocardial Viability
- RV Function
- Non-Aortic Valve Disease
- Pulmonary HTN

Non-cardiac risk factors

- Prior CVA/TIA/Carotids
- PAD • COPD
- RF on HD
- Liver Disease
- Malignancy

Patient evaluation

- Frailty/Independence
- ID Occult Disease(s)

Judgement

- Timing of Procedure
- Risk > Benefit

Patient preparation

- Optimal Pre-Imaging/Tests
- 2 Surgeon Evaluation
- Patient Education

Other: _____

Intra-Procedure Phase:

Anesthesia

- Technical (lines, TEE, ET)
- Assessing/Tx of decompensation
- Judgement

Echo

- Technical/Valve Assessment
- Judgement

Surgeon/Int. Cardiologist

- Technical (access, deployment)
- Assessment of valve
- Inotropic Support
- Judgement
- Mechanical Support

Adverse Event (specify):

- Valve Malposition/Embolization
- Aortic/Annular Dissection
- CVA • MI
- Perforation/Tamponade
- Vascular/Bleeding Complication
- Access Event/Apical/Aortic
- Severe AI/MR
- Conduction Disturbance

Other. _____

PACU/ICU Phase/Post-Procedure Phase:

Hemodynamic Management

- Inotrope management
- Line management

Pharmacologic Management

- Antiplatelet
- Anticoagulant
- Other: _____

Dysrhythmia (atrial/ventricular)

- PM/ICD

Respiratory care

- Extubation (in OR)
- O2 Saturation

Infection/Sepsis

DVT/PE Prophylaxis

Early Ambulation

Surveillance/Recognition/Tx of Decompensation

Multi-System Organ Failure

Failure to Thrive

Adverse Event (specify):

- CVA • MI
- Unplanned Surgery (Cardiac/Vascular)
- Conduction Disturbance
- Vascular/Bleeding Complication
- Moderate/Severe AI/MR
- Transfusion
- AV Re-Intervention
- Lower Extremity Ischemia

Other: _____

Discharge Phase:

Appropriate Disposition

Pharmacologic Details

Adequate instruction and safety network

Assess Fall Risk

Long Term Advanced Directive

Catastrophic Event

- Found unresponsive cause of death unknown

Readmission:

_____

Other:

_____

Post-Discharge Phase:

Cardiac Event

- Conduction Disturbance
- Severe AI/MI
- MI • Bleeding Event
- Valve Thrombosis
- Endocarditis

Non-cardiac Event

- CVA • COPD
- Acute Kidney Injury
- Lower Extremity Ischemia
- Liver Disease
- Malignancy

Judgement

- Risk > Benefit

Patient evaluation

- Frailty/Independence
- Occult Disease(s)

Appropriate Disposition

Patient Preparation

- Patient/Family Education

Pharmacologic

- Antiplatelet
- Anticoagulant
- Other: _____

Long Term Advanced Directive

Catastrophic Event

- Fall Risk
- Found unresponsive
- Cause of death unknown

Readmission:

_____

_____

Other: _____

_____

Risk Assessment Side-by-Side

Incremental Risks

Age-Independent Risk Factors	Incremental Risk Increase
BNP ≥ 550 pg/ml	3%
Prohibitive Chest Wall (Deformity)	5%
Severe LV Diastolic Dysfunction	4%
Prior Stroke/TIA	3%
FEV1 < 750	20%
FEV1 750 - 100	5%
Home (Supplemental) Oxygen	5%
Nocturnal BiPAP/CPAP	2%
Liver Disease - Child-Pugh A	5%
Liver Disease - Child-Pugh B	7%
Liver Disease - Child-Pugh C	25%
Hostile Mediastinum	15%
pHTN: Systolic 60-80 mmHg	5%
pHTN: Systolic >80 mmHg	15%
Aorta Calcification: Porcelain	20%
Aorta Calcification: Severe	3%
Frailty: 5 meter walk time > 6 seconds, Grip strength < 16 kg, *or* both	3%
Total 1:	

Age Dependent Risk Factors	< 80	80-90	>90
BMI < 21	4%	5%	6%
Albumin < 3.3	4%	5%	7%
Wheelchair Bound	7%	8%	10%
Does Not Live Independently	5%	6%	9%
Total 2:			

Total Incremental Risk: (Total 1 + Total 2)	

Risk Assessment - Supplemental Information

Child-Pugh Score

Risk Factor	1 Point	2 Points	3 Points
Total Bilirubin (µmol/L)	< 34	34 - 50	> 50
Serum Albumin (g/L)	> 35	28 - 35	< 28
Prothrombrin Time & INR	< 1.70	1.71 - 2.30	> 2.30
Ascites	None	Mild	Mod. - Sev.
Hepatic Encephalopathy	None	Grade I-II (or surpressed with medication)	Grade III-IV (or refractory)
Total Points:	5 - 6	7 - 9	10 - 15
Child-Pugh Classification	**Class A**	**Class B**	**Class C**

Frailty Ranges

Grip Strength

Men		*Women*	
BMI	Cutoff for Grip Strength (Kg)	BMI	Cutoff for Grip Strength (Kg)
≤ 24	≤ 29	≤ 23	≤ 17
24.1 - 26	≤ 30	23.1 - 26	≤ 17.3
26.1 - 28	≤ 30	26.1 - 29	≤ 18
> 28	≤ 32	> 29	≤ 21

5MWT

Men		*Women*	
Height (cm)	Cutoff Time to Walk 15 feet	Height (cm)	Cutoff Time to Walk 15 feet
≤ 173	≥ 7 Seconds	≤ 159	≥ 7 Seconds
> 173	≥ 6 Seconds	> 159	≥ 6 Seconds

Additional Definitions

Term	Definition
Activities of Daily Living	Normal range for ADLs is 5/6 or 6/6
Porcelain Aorta	Severe atherosclerosis of the aorta. Calcification may be severe and diffuse, causing an eggshell appearance seen on chest X-ray or CT