

Treatment and Referral Guidelines for High-Risk and Intermediate-Risk Pulmonary Embolism in Adult Patients

Box 1. High Risk (massive) Pulmonary Embolism Criteria:

- CARDIAC ARREST;
- Systolic blood pressure (SBP) LESS than 90 mmHg for GREATER than 15 min;
- SBP drop GREATER than 40 mmHg from baseline;
- Vasopressors required;
- Cardiogenic shock;
- Persistent bradycardia heart rate (HR) LESS than 40.

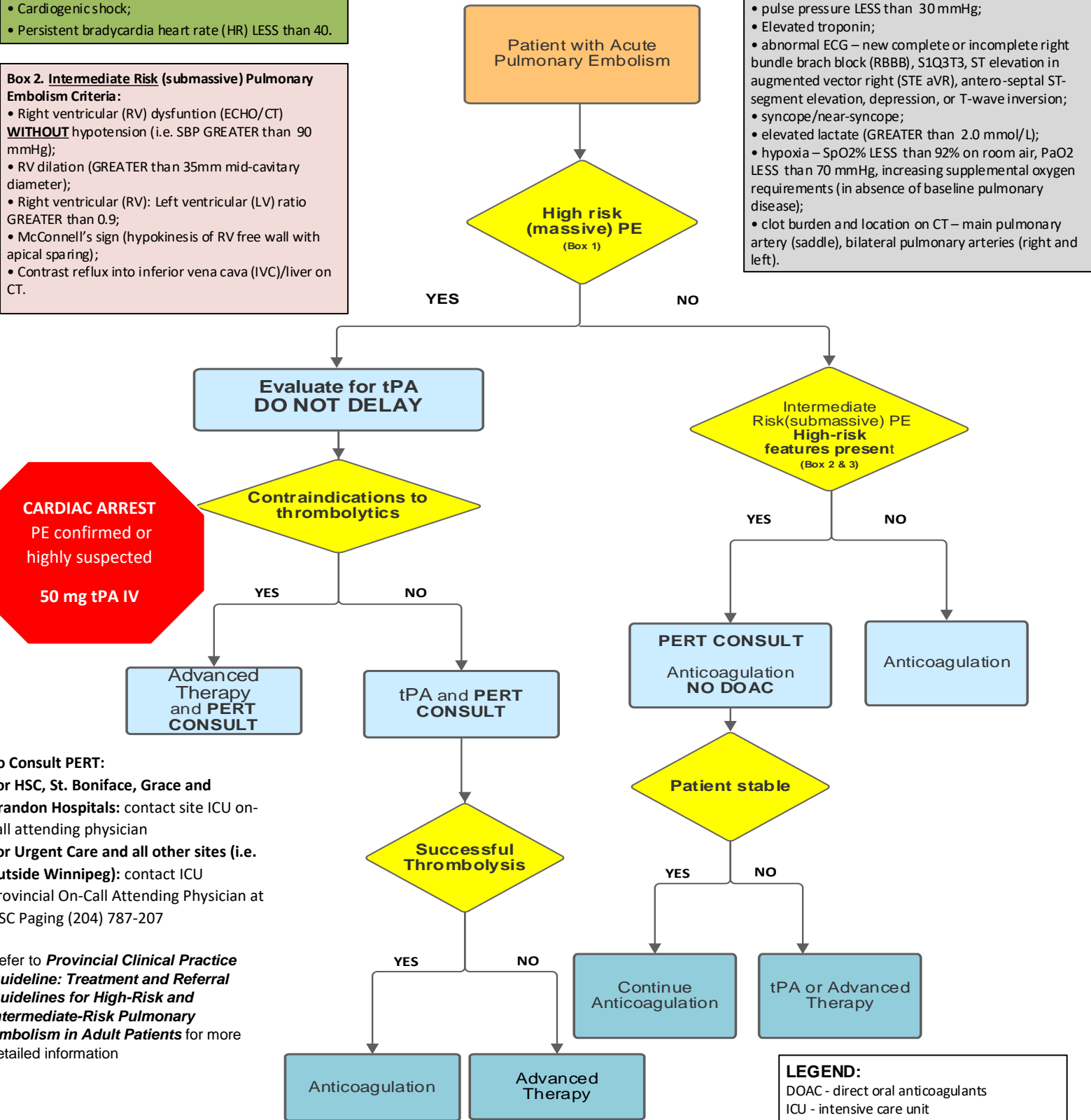
Box 2. Intermediate Risk (submassive) Pulmonary Embolism Criteria:

- Right ventricular (RV) dysfunction (ECHO/CT) **WITHOUT** hypotension (i.e. SBP GREATER than 90 mmHg);
- RV dilation (GREATER than 35mm mid-cavitary diameter);
- Right ventricular (RV): Left ventricular (LV) ratio GREATER than 0.9;
- McConnell's sign (hypokinesia of RV free wall with apical sparing);
- Contrast reflux into inferior vena cava (IVC)/liver on CT.

Box 3. Intermediate Risk (submassive) Pulmonary Embolism With High-Risk Features Criteria:

RV dysfunction as in Box 2 **PLUS ANY** of the following:

- shock index (HR/SBP) GREATER than 1;
- SBP LESS than 100 mmHg (but GREATER than 90 mmHg);
- HR GREATER than 110 beats per minute (bpm);
- pulse pressure LESS than 30 mmHg;
- Elevated troponin;
- abnormal ECG – new complete or incomplete right bundle branch block (RBBB), S1Q3T3, ST elevation in augmented vector right (STE aVR), antero-septal ST-segment elevation, depression, or T-wave inversion;
- syncope/near-syncope;
- elevated lactate (GREATER than 2.0 mmol/L);
- hypoxia – SpO2% LESS than 92% on room air, PaO2 LESS than 70 mmHg, increasing supplemental oxygen requirements (in absence of baseline pulmonary disease);
- clot burden and location on CT – main pulmonary artery (saddle), bilateral pulmonary arteries (right and left).



To Consult PERT:
 For HSC, St. Boniface, Grace and Brandon Hospitals: contact site ICU on-call attending physician
 For Urgent Care and all other sites (i.e. outside Winnipeg): contact ICU Provincial On-Call Attending Physician at HSC Paging (204) 787-207

Refer to *Provincial Clinical Practice Guideline: Treatment and Referral Guidelines for High-Risk and Intermediate-Risk Pulmonary Embolism in Adult Patients* for more detailed information

LEGEND:
 DOAC - direct oral anticoagulants
 ICU - intensive care unit
 PE - pulmonary embolism
 PERT - Pulmonary Embolism Response Team
 tPA- tissue plasminogen activator (Alteplase)