This guidance should not supersede clinical judgment. Should be used in conjunction with latest evidence and patient-specific characteristics

COAGULOPATHY IN PATIENTS INFECTED WITH COVID-19
- Severe cases of COVID-19 result in a cytokine storm, systemic inflammatory response and coagulopathy. COVID coagulopathy is more prothrombotic than hemorrhagic and is thought to be a result of an uncontrolled immunothrombotic response.
- Common findings: significantly increased D-dimer level, modest decrease in platelet count & PT prolongation and fibrinogen on the upper limit of normal

LABORATORY MONITORING:
- Admission: Follow COVID – 19 order set, additional labs based upon physician discretion

THERAPEUTIC ANTICOAGULATION PRIOR TO ADMISSION
- Continue prior to admission medication, if no contraindications (note: the combination of dexamethasone and DOAC should be avoided due to concern of reduced concentrations of DOAC due to combined CYP3A4 and P-glycoprotein induction)
- Consider switching to enoxaparin or heparin for anti-inflammatory effect

VTE PROPHYLAXIS (see page 2 for recommendations)
- All highly-suspected or confirmed COVID-19 patients should receive pharmacologic VTE prophylaxis unless contraindicated (e.g., PLT <25, active bleeding)
- If unable to use pharmacologic prophylaxis, SCDs are recommended

BLEEDING RISK ASSESSMENT: If patient is on antiplatelet therapy ensure appropriate indication. Consider using the Improve Bleed Risk Assessment

VTE TREATMENT FOR CONFIRMED OR HIGH SUSPICION OF VTE IN ABSENCE OF TESTING (see page 2 for recommendations)
- For high VTE suspicion recommend early confirmatory testing (doppler or CTPE) while respiratory status allows for transportation. Later testing may result in negative results
- Use of heparins (LMWH, UFH) recommended due to anti-inflammatory effect
- Patients with confirmed new VTE, treat for 3 months with re-evaluation at 3 months for duration of therapy

EMPIRIC ANTICOAGULATION FOR COAGULOPATHY (see page 2 for recommendations)
- D-dimer in isolation should NOT define COVID induced coagulopathy
- Consider empiric anticoagulation when D-dimer > 2500ng/ml & on 6L O₂ or with 50% increase in O₂ requirements over 24 hrs or persistent clotting of lines/devices/filters despite appropriate VTE prophylaxis
- The intensity of anticoagulation should be based on the assessment of bleeding risk. For low bleeding risk: consider using a therapeutic dosing strategy, for high bleeding risk: consider using an intermediate dosing strategy
- After 5 days: reassess O₂ requirements, CRP, D-dimer and bleed risk to determine continuation, escalation or de-escalation

DISCHARGE VTE PROPHYLAXIS
- Patients with moderate to severe COVID disease with prolonged hospital stay may be at increased risk for VTE post discharge and should be educated on signs and symptoms of DVT/PE
- A VTE risk assessment should be performed at discharge and include an evaluation of VTE risk versus bleed risk (decision must be individualized)
- It is not recommended to use D-dimer alone to determine the need to provide VTE prevention therapy
- Therapeutic anticoagulation is not recommended in the absence of PE/DVT. In patients with a high suspicion and diagnostic testing could not be performed (every effort should be made prior to discharge) individualize the decision to prescribe therapeutic anticoagulation with appropriate follow up
- A recent COVID-19 illness ALONE should not alter the approach for VTE prevention in those undergoing elective surgery
**BMI < 40 kg/m²**
- **CrCl ≥ 30 mL/min:** Enoxaparin 40 mg q24h
- **CrCl < 30 mL/min:** UFH 7,500 units q12h (preferred in RRT) or enoxaparin 30 mg q24h

**BMI ≥ 40 kg/m²**
- **CrCl ≥ 30 mL/min:** Enoxaparin 40 mg q12h
- **CrCl < 30 mL/min:** UFH 7,500 units q12h (preferred in RRT) or enoxaparin 40 mg q24h

**Special Populations**
- weight <50 kg: UFH 5,000 units q12h
- Heparin allergy: Fondaparinux 2.5mg q24h

**Additional Considerations**
- SCD recommended in patients with contraindications to pharmacologic prophylaxis
- Consider addition of SCD to pharmacologic prophylaxis

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**Empiric Anticoagulation Considerations:**
- At least 7 days since symptom onset
- D-dimer > 2,500 ng/mL
- 6L O₂ or 50% increase in O₂ needs over 24hs
- Persistent clotting: lines/devices/filters despite VTE prophylaxis

**Based upon bleed risk, intermediate or therapeutic anticoagulation may be considered**

**Early diagnostic testing for PE & DVT recommended if high clinical suspicion**

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**Intermediate Dosing: High Bleed Risk**

**Therapeutic Dosing: Low Bleed Risk**

**Day 5 Assessment**
- Complete diagnostic testing if possible and not done
- Assess: O₂, D-dimer, CRP, and bleed risk

**Therapeutic options at day 5**
- Continue current regimen
- Decrease to prophylaxis dosing
- Escalate to therapeutic dosing if bleed risk decreased & condition warrants

**Select one therapeutic option below**

**CrCl ≥ 30 mL/min:**
- Enoxaparin 1.5 mg/kg/day (wt ≤ 100 kg)
- Enoxaparin 1 mg/kg q 12 h (wt > 100 kg)
- UFH infusion: ACS protocol

**CrCl < 30 mL/min:**
- Enoxaparin: 1 mg/kg/day (no RRT)
- UFH infusion: ACS protocol
- Enoxaparin: 0.7 mg/kg/day* (RRT/wt ≤ 100 kg)

**Day 5 Assessment**
- Complete diagnostic testing if not done
- Assess: O₂, D-dimer, CRP, and bleed risk

**Therapeutic options at day 5**
- Continue current regimen
- Decrease to intermediate dosing

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**Post Discharge VTE Prophylaxis:** Consider VTE prevention for up to 30 days with: reduced ambulation with additional VTE risk factors, appropriate scheduled follow up to assess ambulation & duration, a favorable risk-benefit profile for anticoagulant use is present & the decision has been discussed with patient/family

<table>
<thead>
<tr>
<th>Recommended Agents</th>
<th>Consult care management</th>
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<tbody>
<tr>
<td><strong>CrCl ≥ 30 mL/min</strong></td>
<td>Enoxaparin 40mg SQ daily, apixaban* 2.5mg BID, rivaroxaban+ 10mg daily</td>
</tr>
<tr>
<td><strong>CrCl &lt; 30 mL/min</strong></td>
<td>Enoxaparin 30mg SQ daily, apixaban* 2.5mg BID</td>
</tr>
</tbody>
</table>

*check enoxaparin trough anti-Xa to assess for accumulation over time; ^for prolonged interruption ensure VTE prevention is provided