COVID-19: Implications for Pharmacists - Round 4

Toby Trujillo, PharmD, FCCP, FAHA, BCPS AQ-Cardiology
Associate Professor - Skaggs School of Pharmacy and Pharmaceutical Sciences
Clinical Specialist - Anticoagulation/Cardiology
Co-chair, Anticoagulation Subcommittee UC Health
University of Colorado Hospital

May 20, 2020
Disclosure Statement – No Financial Relationships to Disclose

Toby Trujillo

I have no relevant financial relationships with commercial interests pertaining to the content presented in this program.
Objectives

-describe the risk of thromboembolic disease during active COVID-19 infection and the impact on morbidity and mortality.

—Appraise current available evidence on the role of anticoagulation in preventing thromboembolism and improving outcomes in hospitalized COVID-19 patients.

—Explain the potential benefit of extended VTE prophylaxis post discharge in patients recently hospitalized for COVID-19.
SARS-CoV-2
(Severe Acute Respiratory Syndrome Coronavirus 2)

Coronavirus Disease 2019 (COVID-19)
- Binds to ACE-2 receptor (alveolar cells, cardiac myocytes, vascular endothelium)
- Common Presenting Symptoms
  - Fever (98%), Cough (76%), Dyspnea (55%), myalgias/fatigue (44%)
- Respiratory tract infection – viral pneumonia
- Other findings
  - Acute kidney Injury (30%)
  - Liver dysfunction (29%)
  - Cardiac Complications (23%)
    - Acute cardiac injury, arrhythmia, acute stroke
    - Coagulation Abnormalities/Hypercoaguability

<table>
<thead>
<tr>
<th>Classification</th>
<th>Criteria</th>
<th>Estimated Percentage of COVID-19 Positive Patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mild</td>
<td>No pneumonia; uncomplicated upper respiratory infection</td>
<td>80%</td>
</tr>
<tr>
<td>Moderate</td>
<td>Mild pneumonia</td>
<td>13.8%</td>
</tr>
<tr>
<td>Severe</td>
<td>Severe pneumonia with respiratory rate &gt; 30 bpm, severe respiratory distress or SpO2 ≤ 90% on room air</td>
<td></td>
</tr>
<tr>
<td>Critical</td>
<td>ARDS⁹; severe cardiac complications⁸; sepsis or septic shock</td>
<td>6.1%</td>
</tr>
</tbody>
</table>
Hypercoagulability in COVID-19

Most consistent hemostatic abnormalities

▪ Mild thrombocytopenia
▪ Increased D-dimer
  • Associated with higher risk mechanical ventilation, ICU admission, death
▪ More severe disease – higher mortality (progression during hospitalization)
  • Prolongation of the prothrombin time (PT)
  • Prolongation of the thrombin time (TT)
  • Prolongation of activated partial thromboplastin time (aPTT)
  • More likely to meet criteria by ISTH for disseminated intravascular coagulation (DIC)

Unclear if these are specific effects of SARS-CoV-2 or cytokine storm that precipitates onset of Systemic Inflammatory Response Syndrome (SIRs) that are observed in other viral diseases
Hypercoagulability in COVID-19

- Exact etiology of this phenomenon is unclear
  - Some suggest thrombo-inflammation
    - Microvascular thrombosis in the setting of significant inflammatory changes on post-mortem pathology reports

- Increased incidence of VTE in COVID-19 pts with severe disease who are admitted to the ICU
  - Some groups are reporting VTE incidence as high as 27% in pts who are placed on standard VTE prophylaxis with LMWH
    - Standard failure rate of VTE prophylaxis in the ICU setting is 7-8%

Pulmonary Micro-thrombosis in Covid-19

Autopsy Findings and Venous Thromboembolism in Patients With COVID-19: A Prospective Cohort Study

Dominic Wichmann, MD *; Jan-Peter Sperhake, MD *; Marc Lütgehetmann, MD; Stefan Steurer, MD; Carolin Edler, MD; Axel Heinemann, MD; Fabian Heinrich; Herbert Mushumba, MD; Inga Kniep, MD; Ann Sophie Schröder, MD; Christoph Burdelski, MD; Geraldine de Heer, MD; Axel Nierhaus, MD; Daniel Frings, MD; Susanne Pfefferle, MD; Heinrich Becker, MD; Hanns Bredereke-Wiedling, MD; Andreas de Weerth, MD; Hans-Richard Paschen, MD; Sara Sheikhzadeh-Eggers, MD; Axel Stang, MD; Stefan Schmiedel, MD; Carsten Bokemeyer, MD; Marylyn M. Addo, MD, PhD; Martin Aepfelbacher, MD; Klaus Pötschel, MD‡; Stefan Kluge, MD†

Academic hospital in Hamburg, Germany (n=12)

• Consecutive autopsies with fatal COVID-19 infection (mandated by state)
• DVT in 7/12 patients; fatal PE in 4
• VTE had not been suspected antemortem
Incidence of thrombotic complications in critically ill ICU patients with COVID-19

F.A. Klok\textsuperscript{a,*,} , M.J.H.A. Kruip\textsuperscript{b} , N.J.M. van der Meer\textsuperscript{c} , M.S. Arbous\textsuperscript{d} , D.A.M.P.J. Gomers\textsuperscript{e} , K.M. Kant\textsuperscript{f} , F.H.J. Kaptein\textsuperscript{a} , J. van Paassen\textsuperscript{d} , M.A.M. Stals\textsuperscript{a} , M.V. Huisman\textsuperscript{a,1} , H. Endeman\textsuperscript{e,1}

3 Dutch ICUs (n=184)

- All given LMWH proph.
- 31% thrombosis by d15
- 25 PE (28% subseg’l)
- 3 DVT, 3 ATE
- ↑PT(>3s) ↑PTT(>5s)

Klok et al. \textit{Thromb Res} 2020 Apr 10 [Epub ahead of print]
Confirmation of the high cumulative incidence of thrombotic complications in critically ill ICU patients with COVID-19: An updated analysis

F.A. Klok\textsuperscript{b,*}, M.J.H.A. Kuip\textsuperscript{b}, N.J.M. van der Meer\textsuperscript{c,d}, M.S. Arbous\textsuperscript{e}, D. Gomers\textsuperscript{f}, K.M. Kant\textsuperscript{g}, F.H.J. Kaptein\textsuperscript{a}, J. van Paassen\textsuperscript{a}, M.A.M. Stals\textsuperscript{a}, M.V. Huism\textsuperscript{a,1}, H. Endeman\textsuperscript{f,1}

3 Dutch ICUs (n=184)

• Updated data (7→14d)
• 57% thrombosis by d25
• 65 PE (29% subseg’l)
• 3 DVT, 7 ATE (5 CVA’s)
• HR 0.29 if adm. AC

What is this graph reminiscent of?

Anticoagulation Considerations for COVID-19

- Should all patients receive “standard” doses of VTE prophylaxis with anticoagulation?
  - Risk for under-dosing due to body weight as well as pro-inflammatory proteins

- Should all patients receive “intensified” or “escalated” doses of VTE prophylaxis?

- Should some or all patients be empirically treated with therapeutic anticoagulation?
  - IV UFH to therapeutic aPTT of Xa
  - Therapeutic LMWH

- Is there a role for tPA in severely ill patients?

- *Drinking from a firehose – daily multiple articles published*
Clinical Evidence for Anticoagulation in COVID-19

- Retrospective case series in 449 consecutive pts with severe COVID-19 at 1 hospital from Jan 1 – Feb 13, 2020

- Exclusion criteria:
  - Bleeding diathesis
  - Hospital stay < 7 days
  - Lack of data regarding coagulation parameters or anticoagulation medications
  - Age < 18 yo

- 1786 pts were screened
  - 261 pts did not meet the definition of severe COVID-19 disease
  - 76 pts met exclusion criteria
Clinical Evidence for Anticoagulation in COVID-19

Patients:

- 286 M (67.3%); 181 F (36.3%)
- Average age: 65.1 yo
  - 272 pts (60.6%) had a comorbidity
    - HTN: 177 (39.4%)
    - Diabetes: 93 (20.7%)
    - Heart diseases: 41 (9.1%)

- 99 pts (22%) received heparin (also included LMWHs) for at least 7 days
  - 94 pts received enoxaparin 40-60mg/day
  - 5 pts received unfractionated heparin 10,000 –15,000 units/day
  - No other anticoagulants were used

- 97 pts (21.6%) met SIC (sepsis-induced coagulopathy) criteria (SIC score ≥ 4)
  - SIC scores based on: Platelet counts, PT-INR, and SOFA score

Results

▪ 134 pts (29.8%) had died at the end of the study period
  ▪ There was no difference in 28-day mortality between pts that received heparin/LMWH and those who didn’t:
    ▪ 30.3% vs 29.7% (p=0.910)

▪ In pts with a SIC score ≥ 4, heparin/LMWH treatment was associated with a lower 28-day mortality rate compared to those who did not receive heparin/LMWH:
  ▪ 40% vs 64.2% (p=0.029)

▪ In pts with D-dimer > 3.0 μg/mL (6x ULN), heparin/LMWH treatment was associated with a lower 28-day mortality compared to those who did not receive heparin/LMWH:
  ▪ 32.8% vs 52.4% (p=0.017)
Clinical Evidence for Anticoagulation in COVID-19

Limitations:

- Retrospective case series (observational study)
  - Endpoints not predefined
  - Cutoffs for SIC score and D-dimer levels were identified retrospectively, based on when they reached statistical significance

- Hypothesis generating only
  - Relatively small N
    - Those who received heparin/LMWH
    - Those who met SIC/D-Dimer cutoff criteria

- No discussion of bleeding rates
- No discussion of COVID-19 directed therapies

Clinical Evidence for Anticoagulation in COVID-19

- Observational cohort study in 2,773 hospitalized pts with COVID-19 within a single health-system between March 14th and April 11th, 2020
- No inclusion/exclusion criteria set
- Cox proportional hazards model used to evaluate the effect of treatment-dose anticoagulation on in-hospital mortality
  - Anticoagulation included any form of anticoagulation (oral, subq, IV)
  - Statistical adjustments made for:
    - Age
    - Sex
    - Ethnicity
    - BMI
    - HTN
    - Heart failure
    - Atrial fibrillation
    - Type 2 diabetes
    - Anticoagulation use prior to hospital admission

Paranjpe, et al. *Journal of the American College of Cardiology.* 2020; DOI: https://doi.org/10.1016/j.jacc.2020.05.001
Clinical Evidence for Anticoagulation in COVID-19

**Results**

- 786 (28%) received anticoagulation during hospital admission
- Median hospital length of stay: 5 days (Interquartile range: 3-8 days)
- Median time from hospitalization to initiation of anticoagulation: 2 days (IQR: 0-5 days)
- Median duration of anticoagulation therapy: 3 days (IQR: 2-7 days)
- In hospital mortality rate
  - 22.5% with a median survival of 21 days in pts on anticoagulation vs 22.8% with a median survival of 14 days in pts who did not receive anticoagulation
- In pts who required mechanical ventilation
  - In hospital mortality was 29.1% with a median survival of 21 days in those who received anticoagulation vs 62.7% with a median survival of 9 days in those who did not
Clinical Evidence for Anticoagulation in COVID-19

A

All Patients (N= 2773)

Survival Probability

Days Since Admission

No in-hospital anticoagulation

Received treatment-dose anticoagulation during hospitalization

Yes

No

B

Patients Requiring Mechanical Ventilation (N= 395)

Survival Probability

Days Since Admission

In-hospital Anticoagulation

Number at Risk

Yes

No

Skaggs School of Pharmacy and Pharmaceutical Sciences

Paranjpe, et al. Journal of the American College of Cardiology. 2020; DOI: https://doi.org/10.1016/j.jacc.2020.05.001
Clinical Evidence for Anticoagulation in COVID-19

Results

- In a multivariate proportional hazards model, longer duration of anticoagulation was associated with a reduced risk of mortality
  - Adjusted HR: 0.86/day (95% CI: 0.82 – 0.89; p < 0.001)
- Bleeding
  - 3% (n=24) of pts who received anticoagulation had a bleeding event vs 1.9% (n=38) of those who did not receive anticoagulation

Limitations

- Observational study
  - Cohort population not well defined
  - Comorbidities (controlled for through statistical analysis)
  - COVID-19 disease status
  - Other COVID-19 directed therapies

- Multiple anticoagulation therapies included
  - Doses unknown – described as “treatment”
- Endpoints not predefined
- Hypothesis generating only
Resources for Thromboembolic Risk, Use of Anticoagulation in COVID-19

- Emergence of Institutional Antithrombotic Protocols for Coronavirus 2019. doi:10.1002/rth2.12358


- COVID-19 and Thrombotic or Thromboembolic Disease: Implications for Prevention, Antithrombotic Therapy, and Follow-up. https://doi.org/10.1016/j.jacc.2020.04.031

- COVID-19 and its implications for thrombosis and anticoagulation. DOI: 10.1182/blood.2020006582

Thromboembolism and Anticoagulant Therapy: Interim Clinical Guidance from the Anticoagulation Forum

Selected Recommendations

- Pharmacologic VTE prophylaxis for all hospitalized non-pregnant patients with confirmed or highly suspected COVID-19, regardless of VTE risk assessment score (e.g. IMPROVE, Padua, Caprini) unless a contraindication exists.

- Non-critically ill hospitalized patients (i.e., *not in an ICU*) with confirmed or highly suspected COVID-19
  - *Standard dose VTE prophylaxis* as per existing societal guidelines for medically ill and surgical hospitalized patients.
  - Dose adjustments for renal function or extremes of weight should follow product labeling and/or institutional protocols.

https://acforum.org/web/
Thromboembolism and Anticoagulant Therapy-Interim Clinical Guidance from the Anticoagulation Forum

**Selected Recommendations**

- Critically ill patients (i.e., in an ICU) with confirmed or highly suspected COVID-19:
  - *Increased doses of VTE prophylaxis*
    - Enoxaparin 40 mg subcutaneous twice daily
    - Enoxaparin 0.5 mg/kg subcutaneous twice daily
    - Heparin 7500 units subcutaneous three times daily
    - Or low-intensity heparin infusion (0.2 – 0.3 anti-Xa/ml)
  - This suggestion is based largely on expert opinion. Dose adjustments for renal function or extremes of weight should follow product labeling and/or institutional protocols.

- We recommend **against using biomarker thresholds**, such as elevated D-dimer, as the sole reason to trigger escalations in anticoagulant dosing outside the setting of a clinical trial.

- For patients that are improving and transferring out of the ICU to the medical ward, **it is reasonable to de-escalate** to standard VTE prophylaxis dosing.

https://acforum.org/web/
Thromboembolism and Anticoagulant Therapy-Interim Clinical Guidance from the Anticoagulation Forum

Selected Recommendations

- We suggest that extended VTE prophylaxis is not necessary for all patients with COVID-19 who are being discharged from the hospital.
  - Multidisciplinary discussion occur at or near the time of discharge to determine if a patient has ongoing VTE risk factors, may benefit from extended posthospital VTE prophylaxis, and has ensured access to VTE prophylactic medications.
- If post-discharge prophylaxis is deemed reasonable:
  - Betrixaban
  - Rivaroxaban
  - Enoxaparin

- LMWH over UFH for the treatment of confirmed or suspected VTE whenever possible in patients with COVID-19.
  - Avoids additional laboratory monitoring, minimizes nursing and phlebotomy exposure, and limits use of personal protective equipment.

https://acforum.org/web/
Thromboembolism and Anticoagulant Therapy - Interim Clinical Guidance from the Anticoagulation Forum

Selected Recommendations

- We recommend using an anti-Xa assay rather than an aPTT to monitor therapeutic UFH in patients with COVID-19 whose aPTT is prolonged at baseline.

- We recommend against use of thrombolytics in patients with COVID-19 outside of a clinical trial setting unless there is another clinical indication for thrombolysis, such as ST elevation myocardial infarction, acute ischemic stroke, or high-risk (massive) PE with hemodynamic compromise.

https://acforum.org/web/
# Anticoagulation Recommendations for Hospitalized COVID-19 Patients

## University of Colorado Hospital / University of Colorado Health Anticoagulation Subcommittee

## Anticoagulation Recommendations for Hospitalized COVID-19 Patients

### Floor Patients

<table>
<thead>
<tr>
<th>D-dimer &lt;1500* AND TEG (MA) ≤ 70°</th>
<th>D-dimer &gt; 1500* OR TEG (MA) &gt; 70°</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Weight &lt;100 kg</strong></td>
<td><strong>Enoxaparin 40 mg QD</strong></td>
</tr>
<tr>
<td><strong>Weight 100-150 kg</strong></td>
<td><strong>Enoxaparin 30 mg BID</strong></td>
</tr>
<tr>
<td><strong>Weight &gt; 150 kg</strong></td>
<td><strong>Enoxaparin 40 mg BID</strong></td>
</tr>
<tr>
<td><strong>AKI (GFR&lt;30 ml/min)#</strong></td>
<td><strong>UFH 5000 U TID</strong></td>
</tr>
</tbody>
</table>

### ICU Patients

<table>
<thead>
<tr>
<th>D-dimer &lt;1500* AND TEG (MA) ≤ 70°</th>
<th>D-dimer 1500* OR TEG (MA) &gt; 70°</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Weight &lt;100 kg</strong></td>
<td><strong>Enoxaparin 40 mg QD</strong></td>
</tr>
<tr>
<td><strong>Weight 100-150 kg</strong></td>
<td><strong>Enoxaparin 40 mg BID</strong></td>
</tr>
<tr>
<td><strong>Weight &gt; 150 kg</strong></td>
<td><strong>Enoxaparin 60 mg BID</strong></td>
</tr>
<tr>
<td><strong>AKI (GFR&lt;30 ml/min)#</strong></td>
<td><strong>UFH 5000 U TID</strong></td>
</tr>
</tbody>
</table>

*Note: *D-dimer* is a protein that increases in response to tissue injury and inflammation.

# = Only if available, see info below

## Additional Notes

- UFH: Unfractionated Heparin
- QD: Once a Day
- BID: Twice a Day
- AKI: Acute Kidney Injury
- GFR: Glomerular Filtration Rate
ANTICOAGULATION RECOMMENDATIONS FOR HOSPITALIZED COVID-19 PATIENTS

COVID-19 patients with a **history of thromboembolic disease and/or on chronic anticoagulation prior to admit** should continue home anticoagulation regimen if clinically appropriate, or transition to alternative agent (most cases IV UFH) for therapeutic anticoagulation.

COVID-19 patients who develop **new arterial or venous thromboembolic events** should be treated with therapeutic anticoagulation (UFH, LMWH) as standard of practice would dictate.

For high clinical suspicion of new thromboembolic events, consider empiric therapeutic anticoagulation using heparin gtt and order a truncated, lower extremity DVT protocol (POCUS) as a confirmatory test.
# University of Colorado Hospital / University of Colorado Health Anticoagulation Subcommittee

## POST-ACUTE CARE ANTICOAGULATION CONSIDERATIONS FOR COVID-19 INPATIENTS

<table>
<thead>
<tr>
<th>No Discharge Anticoagulation</th>
<th>Post-Acute Care Prophylactic Anticoagulation (Extended Prophylaxis) x 28 days:</th>
<th>Discharge on Therapeutic Anticoagulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Patients who received only regular-intensity prophylaxis throughout hospital stay (see blue highlights in table 2 and 3 below)</td>
<td>Any of the following indicates a patient should be considered for extended VTE prophylaxis. Patients should also have careful evaluation for the risk of bleeding:</td>
<td>• Patients on chronic therapeutic anticoagulation prior to COVID-19 infection</td>
</tr>
<tr>
<td>• Patients who did not receive anticoagulation due to bleeding who have persistent risk factors for bleeding</td>
<td>• Patients who received &quot;intensified&quot; prophylaxis during hospitalization (see yellow highlights in table 2 and 3 below)</td>
<td>• Patients with new VTE, atrial fibrillation, arterial thrombosis or other standard indications for anticoagulation</td>
</tr>
<tr>
<td></td>
<td>• Patients who received therapeutic anticoagulation (typically UFH drip) for &quot;hyperinflammatory state&quot; without clinical suspicion of VTE or thrombosis</td>
<td>• Patient started on empiric therapeutic anticoagulation for clinically-suspected thrombosis (to complete a standard therapeutic course as for a person with proven thrombosis)</td>
</tr>
<tr>
<td></td>
<td>• Patients with additional underlying risk factors for venous thrombosis, e.g.:</td>
<td>• Patients with an IMPROVE risk score ≥ 4 at discharge (2.9% or higher probability of VTE. <a href="https://www.outcomes.unassmed.org/IMPROVE/risk_score/index.html">https://www.outcomes.unassmed.org/IMPROVE/risk_score/index.html</a>) Assess patient for bleeding risk and weigh with potential benefit of extended prophylaxis.</td>
</tr>
<tr>
<td></td>
<td>- active cancer</td>
<td>• Patients with kidney or liver failure, anemia, major surgery in last 6 months, hx of GI or intracranial bleed are at increased risk of bleeding with anticoagulation</td>
</tr>
<tr>
<td></td>
<td>- pregnancy (use LMWH; DOACs contraindicated)</td>
<td>• Individuals with high bleeding risk or recent surgery should be considered for bridging therapy with heparin.</td>
</tr>
<tr>
<td></td>
<td>- comorbid chronic inflammatory or autoimmune condition (e.g. SLE)</td>
<td>• Alternative anticoagulants may be considered for patients with contraindications to conventional anticoagulants.</td>
</tr>
<tr>
<td></td>
<td>- Patients with an IMPROVE risk score ≥ 4 at discharge (2.9% or higher probability of VTE. <a href="https://www.outcomes.unassmed.org/IMPROVE/risk_score/index.html">https://www.outcomes.unassmed.org/IMPROVE/risk_score/index.html</a>) Assess patient for bleeding risk and weigh with potential benefit of extended prophylaxis.</td>
<td></td>
</tr>
</tbody>
</table>
# Post-Acute Care Anticoagulation Considerations for COVID-19 Inpatients

**Table 1 - Options for Consideration for Extended Prophylaxis of VTE in COVID + patients**

*The following options should be considered on a patient by patient basis taking into consideration the strength of clinical data, likelihood of patient adherence, and availability of the agent as well as affordability.*

<table>
<thead>
<tr>
<th>Clinical trial notes</th>
<th>Betrixaban 160 mg load, 80 mg once daily thereafter*</th>
<th>Enoxaparin 40 mg SQ once daily</th>
<th>Rivaroxaban 10 mg orally once daily*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Agent with the best overall efficacy and safety data among listed options for extended prophylaxis in medically ill patients</td>
<td>Reduced the risk of VTE with a concomitant increased risk of bleeding when used for extended prophylaxis compared to placebo</td>
<td>Reduced the risk of VTE with a concomitant increased risk of bleeding when used for extended prophylaxis compared to placebo</td>
</tr>
<tr>
<td>Dose adjustment for organ dysfunction</td>
<td>If CrCl 15 to 29 mL/min: Betrixaban 80 mg load, 40mg once daily for 28 days</td>
<td>If CrCl 15 to 29 mL/min: Enoxaparin 30mg subcut once daily for 28 days</td>
<td>If CrCl &lt; 30 mL/min, do not use, consider other options</td>
</tr>
<tr>
<td></td>
<td>If CrCl &lt; 15 mL/min or AKI/ESRD, consult hematology or pharmacy for other options</td>
<td>If CrCl &lt; 15 mL/min or AKI/ESRD, consult hematology or pharmacy for other options</td>
<td>If CrCl &lt; 15 mL/min or AKI/ESRD, consult hematology or pharmacy for other options</td>
</tr>
</tbody>
</table>

*FDA approved for prevention of VTE in patients hospitalized for medical illness up to 28 days after discharge*
COVID-19 patients have significant hypercoaguability

Observational studies indicate even standard doses of prophylaxis may not be adequate, especially in ICU patients

Available observational studies indicates anticoagulation may improve outcomes. Still undetermined:
- Prophylaxis versus treatment
- Timing of initiation?
- Extended prophylaxis for some or all patients?

Role of antithrombotic therapy in ambulatory COVID-19 positive patients?
- ASA
- Prophylactic doses of anticoagulants
COVID-19: Implications for Pharmacists

Emily Zadvorny, PharmD, BCPS
Executive Director, Colorado Pharmacists Society
Clinical Associate Professor, CU School of Pharmacy

May 20, 2020
Colorado Pharmacists Society-Update
Recent and Future Activities

- Working with Board of Pharmacy on emergency rules for COVID19.
- Ensuring ability of pharmacists in Colorado to TEST and VACCINATE beyond emergency period
- CDPHE collaboration – strategies on how pharmacists can help in state efforts
- Connecting hospital leadership with FDA leaders to gain insight and feedback regarding medication shortages and remdesivir distribution
- Telehealth expansion – pharmacist provision and payment
- Legislative session reconvening May 26th; advocacy for scope/payment
- Annual Meeting: VIRTUAL! June 4-5th; www.copharm.org to register!