DEPARTMENT OF VETERANS AFFAIRS

Office of Health Informatics (OHI)

Clinical Informatics and Data Management Office (CIDMO)

COVID-19 Patient Clinical Workflows

17 April 2020

Version 1.0

The following clinical workflows have been created to establish an initial baseline for COVID-19 patient care from patient outreach through discharge and follow-up. These workflows serve to identify the needs for health data and standards, informatics tools, and any gaps in current tools. VHA's COVID-19 Response Plan and national guidelines were used as a starting point and stakeholder interviews were conducted to build out each workflow.

Subject Matter Expert (SME) insights and contributions have been critical in the development of these workflows. Their time and dedication to this effort does not go unnoticed.

This will be a living document to be regularly updated as processes and guidelines evolve in the future.

Revision History

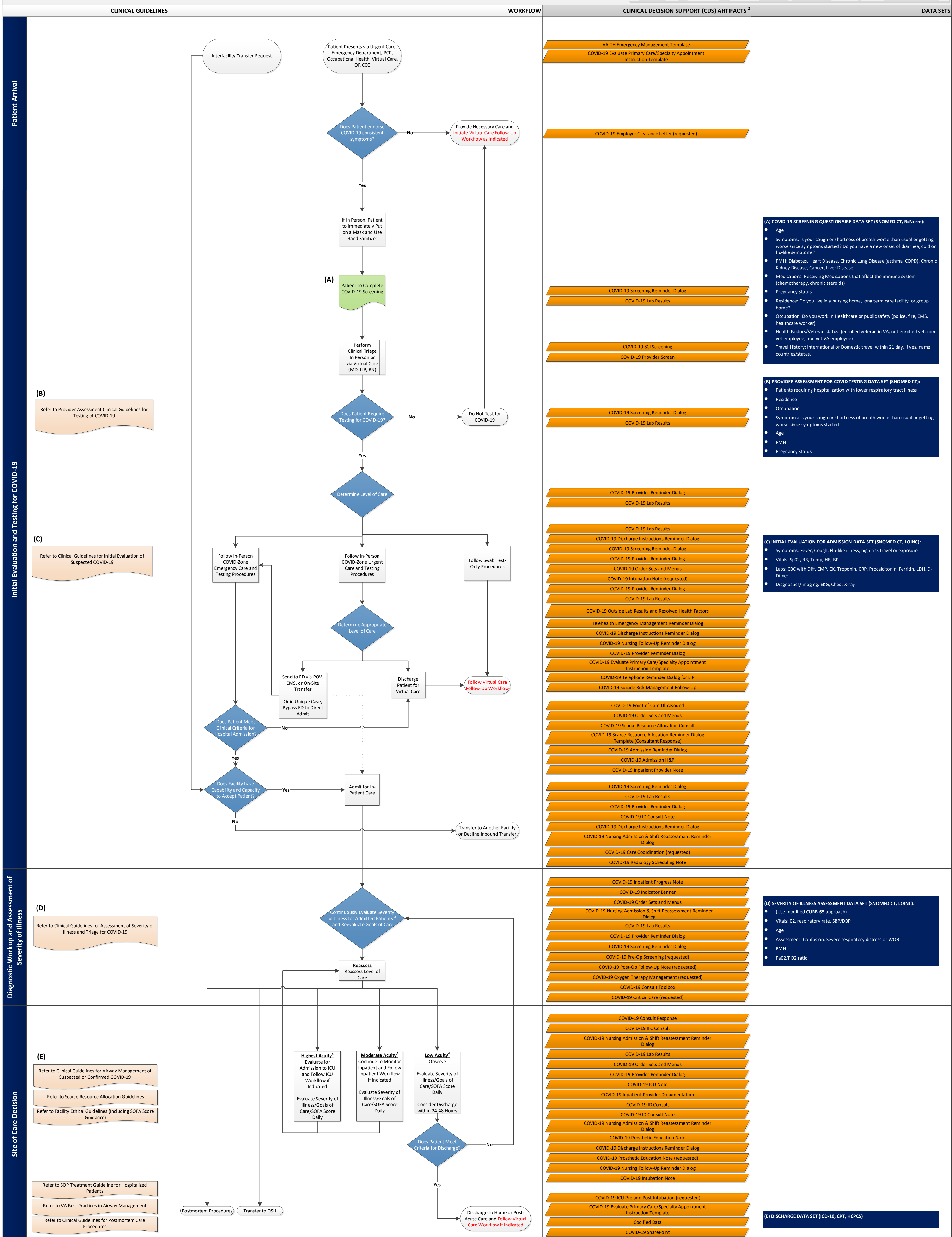| Date	Workflow Title	Description of Change	Author
04/24/2020	All Workflows	Updated workflows to include updated and developed Clinical Decision Support Artifacts.	Ediger, Mark; Klineman, Madeline

Place latest revisions at top of table.

The Revision History pertains only to changes in the content of the document or any updates made after distribution. It does not apply to the formatting of the template.

Add additional rows if necessary.

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Department of Veterans Affairs (VA) Veterans Health Administration (VHA) COVID-19 End-to-End Patient Workflow[1]

Legend: Start / End · Clinical Guidelines · Patient Screening Questionnaire · Process · Subprocess · Decision Point · Clinical Decision Support Artifact

CLINICAL GUIDELINES	WORKFLOW	CLINICAL DECISION SUPPORT (CDS) ARTIFACTS [2]	DATA SETS

Patient Arrival

Interfacility Transfer Request

Patient Presents via Urgent Care, Emergency Department, PCP, Occupational Health, Virtual Care, OR CCC

Does Patient endorse COVID-19 consistent symptoms?
- No → Provide Necessary Care and Initiate Virtual Care Follow-Up Workflow as Indicated
- Yes ↓

CDS Artifacts:
- VA-TH Emergency Management Template
- COVID-19 Evaluate Primary Care/Specialty Appointment Instruction Template
- COVID-19 Employer Clearance Letter (requested)

Initial Evaluation and Testing for COVID-19

If In Person, Patient to Immediately Put on a Mask and Use Hand Sanitizer

(A) Patient to Complete COVID-19 Screening

Perform Clinical Triage In Person or via Virtual Care (MD, LIP, RN)

(B) Refer to Provider Assessment Clinical Guidelines for Testing of COVID-19

Does Patient Require Testing for COVID-19?
- No → Do Not Test for COVID-19
- Yes ↓

Determine Level of Care

(C) Refer to Clinical Guidelines for Initial Evaluation of Suspected COVID-19

- Follow In-Person COVID-Zone Emergency Care and Testing Procedures
- Follow In-Person COVID-Zone Urgent Care and Testing Procedures
- Follow Swab Test-Only Procedures

Determine Appropriate Level of Care

- Send to ED via POV, EMS, or On-Site Transfer — Or in Unique Case, Bypass ED to Direct Admit
- Discharge Patient for Virtual Care → Follow Virtual Care Follow-Up Workflow

Does Patient Meet Clinical Criteria for Hospital Admission?
- No
- Yes ↓

Does Facility have Capability and Capacity to Accept Patient?
- Yes → Admit for In-Patient Care
- No → Transfer to Another Facility or Decline Inbound Transfer

CDS Artifacts:
- COVID-19 Screening Reminder Dialog
- COVID-19 Lab Results
- COVID-19 SCI Screening
- COVID-19 Provider Screen
- COVID-19 Screening Reminder Dialog
- COVID-19 Lab Results
- COVID-19 Provider Reminder Dialog
- COVID-19 Lab Results
- COVID-19 Lab Results
- COVID-19 Discharge Instructions Reminder Dialog
- COVID-19 Screening Reminder Dialog
- COVID-19 Provider Reminder Dialog
- COVID-19 Order Sets and Menus
- COVID-19 Intubation Note (requested)
- COVID-19 Provider Reminder Dialog
- COVID-19 Lab Results
- COVID-19 Outside Lab Results and Resolved Health Factors
- Telehealth Emergency Management Reminder Dialog
- COVID-19 Discharge Instructions Reminder Dialog
- COVID-19 Nursing Follow-Up Reminder Dialog
- COVID-19 Provider Reminder Dialog
- COVID-19 Evaluate Primary Care/Specialty Appointment Instruction Template
- COVID-19 Telephone Reminder Dialog for LIP
- COVID-19 Suicide Risk Management Follow-Up
- COVID-19 Point of Care Ultrasound
- COVID-19 Order Sets and Menus
- COVID-19 Scarce Resource Allocation Consult
- COVID-19 Scarce Resource Allocation Reminder Dialog Template (Consultant Response)
- COVID-19 Admission Reminder Dialog
- COVID-19 Admission H&P
- COVID-19 Inpatient Provider Note
- COVID-19 Screening Reminder Dialog
- COVID-19 Lab Results
- COVID-19 Provider Reminder Dialog
- COVID-19 ID Consult Note
- COVID-19 Discharge Instructions Reminder Dialog
- COVID-19 Nursing Admission & Shift Reassessment Reminder Dialog
- COVID-19 Care Coordination (requested)
- COVID-19 Radiology Scheduling Note

Diagnostic Workup and Assessment of Severity of Illness

(D) Refer to Clinical Guidelines for Assessment of Severity of Illness and Triage for COVID-19

Continuously Evaluate Severity of Illness for Admitted Patients[3] and Reevaluate Goals of Care

Reassess Reassess Level of Care

CDS Artifacts:
- COVID-19 Inpatient Progress Note
- COVID-19 Indicator Banner
- COVID-19 Order Sets and Menus
- COVID-19 Nursing Admission & Shift Reassessment Reminder Dialog
- COVID-19 Lab Results
- COVID-19 Provider Reminder Dialog
- COVID-19 Screening Reminder Dialog
- COVID-19 Pre-Op Screening (requested)
- COVID-19 Post-Op Follow-Up Note (requested)
- COVID-19 Oxygen Therapy Management (requested)
- COVID-19 Consult Toolbox
- COVID-19 Critical Care (requested)

Site of Care Decision

(E)
- Refer to Clinical Guidelines for Airway Management of Suspected or Confirmed COVID-19
- Refer to Scarce Resource Allocation Guidelines
- Refer to Facility Ethical Guidelines (Including SOFA Score Guidance)

Highest Acuity[4] — Evaluate for Admission to ICU and Follow ICU Workflow if Indicated. Evaluate Severity of Illness/Goals of Care/SOFA Score Daily

Moderate Acuity[4] — Continue to Monitor Inpatient and Follow Inpatient Workflow if Indicated. Evaluate Severity of Illness/Goals of Care/SOFA Score Daily

Low Acuity[4] — Observe. Evaluate Severity of Illness/Goals of Care/SOFA Score Daily. Consider Discharge within 24-48 Hours

Does Patient Meet Criteria for Discharge?
- No
- Yes → Discharge to Home or Post-Acute Care and Follow Virtual Care Workflow if Indicated

- Refer to SOP Treatment Guideline for Hospitalized Patients
- Refer to VA Best Practices in Airway Management
- Refer to Clinical Guidelines for Postmortem Care Procedures

Postmortem Procedures · Transfer to OSH

CDS Artifacts:
- COVID-19 Consult Response
- COVID-19 IFC Consult
- COVID-19 Nursing Admission & Shift Reassessment Reminder Dialog
- COVID-19 Lab Results
- COVID-19 Order Sets and Menus
- COVID-19 Provider Reminder Dialog
- COVID-19 ICU Note
- COVID-19 Inpatient Provider Documentation
- COVID-19 ID Consult
- COVID-19 ID Consult Note
- COVID-19 Nursing Admission & Shift Reassessment Reminder Dialog
- COVID-19 Prosthetic Education Note
- COVID-19 Discharge Instructions Reminder Dialog
- COVID-19 Prosthetic Education Note (requested)
- COVID-19 Nursing Follow-Up Reminder Dialog
- COVID-19 Intubation Note
- COVID-19 ICU Pre and Post Intubation (requested)
- COVID-19 Evaluate Primary Care/Specialty Appointment Instruction Template
- Codified Data
- COVID-19 SharePoint

Data Sets

(A) COVID-19 SCREENING QUESTIONNAIRE DATA SET (SNOMED CT, RxNorm):
- Age
- Symptoms: Is your cough or shortness of breath worse than usual or getting worse since symptoms started? Do you have a new onset of diarrhea, cold or flu-like symptoms?
- PMH: Diabetes, Heart Disease, Chronic Lung Disease (asthma, COPD), Chronic Kidney Disease, Cancer, Liver Disease
- Medications: Receiving Medications that affect the immune system (chemotherapy, chronic steroids)
- Pregnancy Status
- Residence: Do you live in a nursing home, long term care facility, or group home?
- Occupation: Do you work in Healthcare or public safety (police, fire, EMS, healthcare worker)
- Health Factors/Veteran status: (enrolled veteran in VA, not enrolled vet, non vet employee, non vet VA employee)
- Travel History: International or Domestic travel within 21 day. If yes, name countries/states.

(B) PROVIDER ASSESSMENT FOR COVID TESTING DATA SET (SNOMED CT):
- Patients requiring hospitalization with lower respiratory tract illness
- Residence
- Occupation
- Symptoms: Is your cough or shortness of breath worse since symptoms started
- Age
- PMH
- Pregnancy Status

(C) INITIAL EVALUATION FOR ADMISSION DATA SET (SNOMED CT, LOINC):
- Symptoms: Fever, Cough, Flu-like illness, high risk travel or exposure
- Vitals: SpO2, RR, Temp, HR, BP
- Labs: CBC with Diff, CMP, CK, Troponin, CRP, Procalcitonin, Ferritin, LDH, D-Dimer
- Diagnostics/Imaging: EKG, Chest X-ray

(D) SEVERITY OF ILLNESS ASSESSMENT DATA SET (SNOMED CT, LOINC):
- (Use modified CURB-65 approach)
- Vitals: O2, respiratory rate, SBP/DBP
- Age
- Assessment: Confusion, Severe respiratory distress or WOB
- PMH
- PaO2/FiO2 ratio

(E) DISCHARGE DATA SET (ICD-10, CPT, HCPCS)
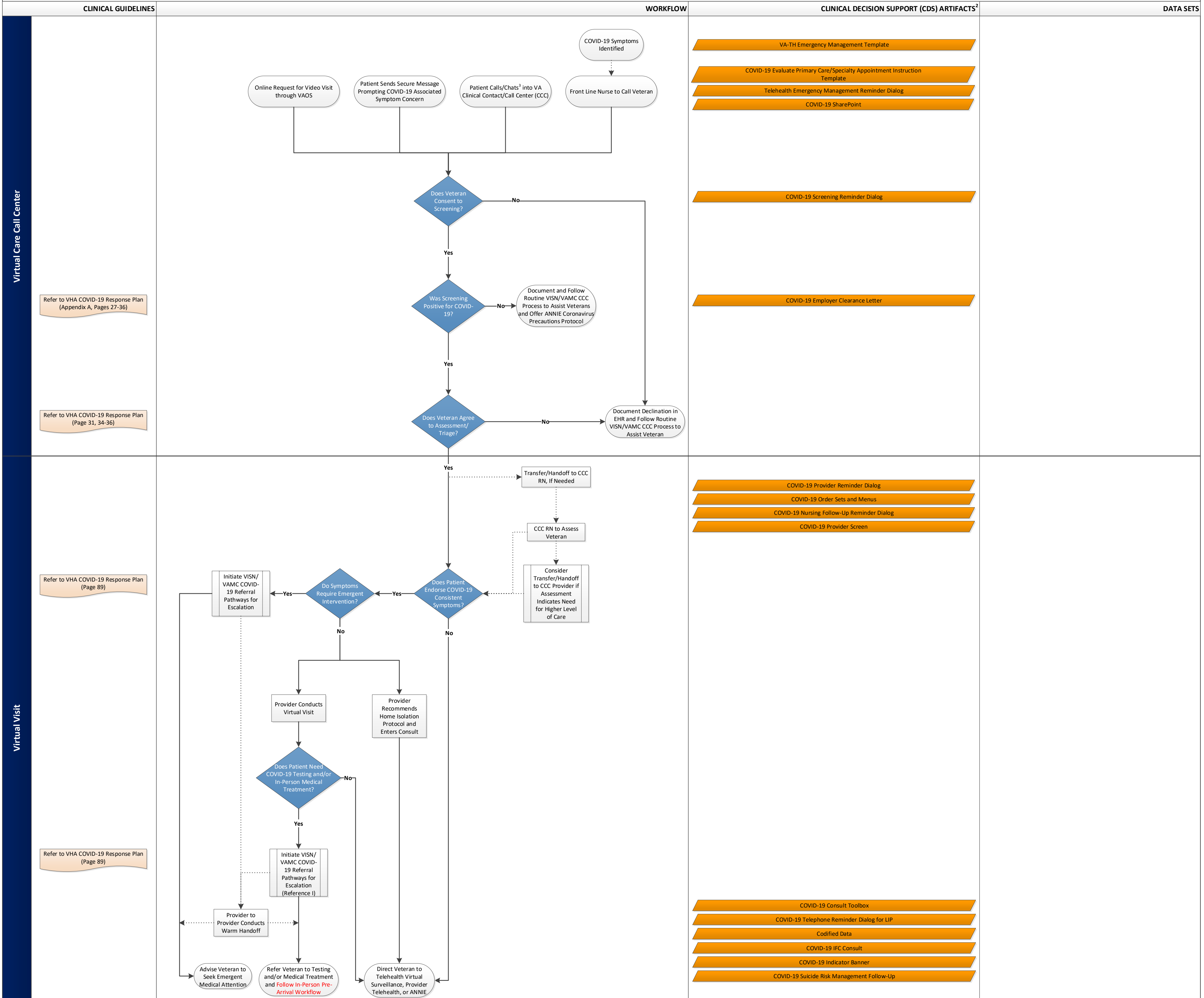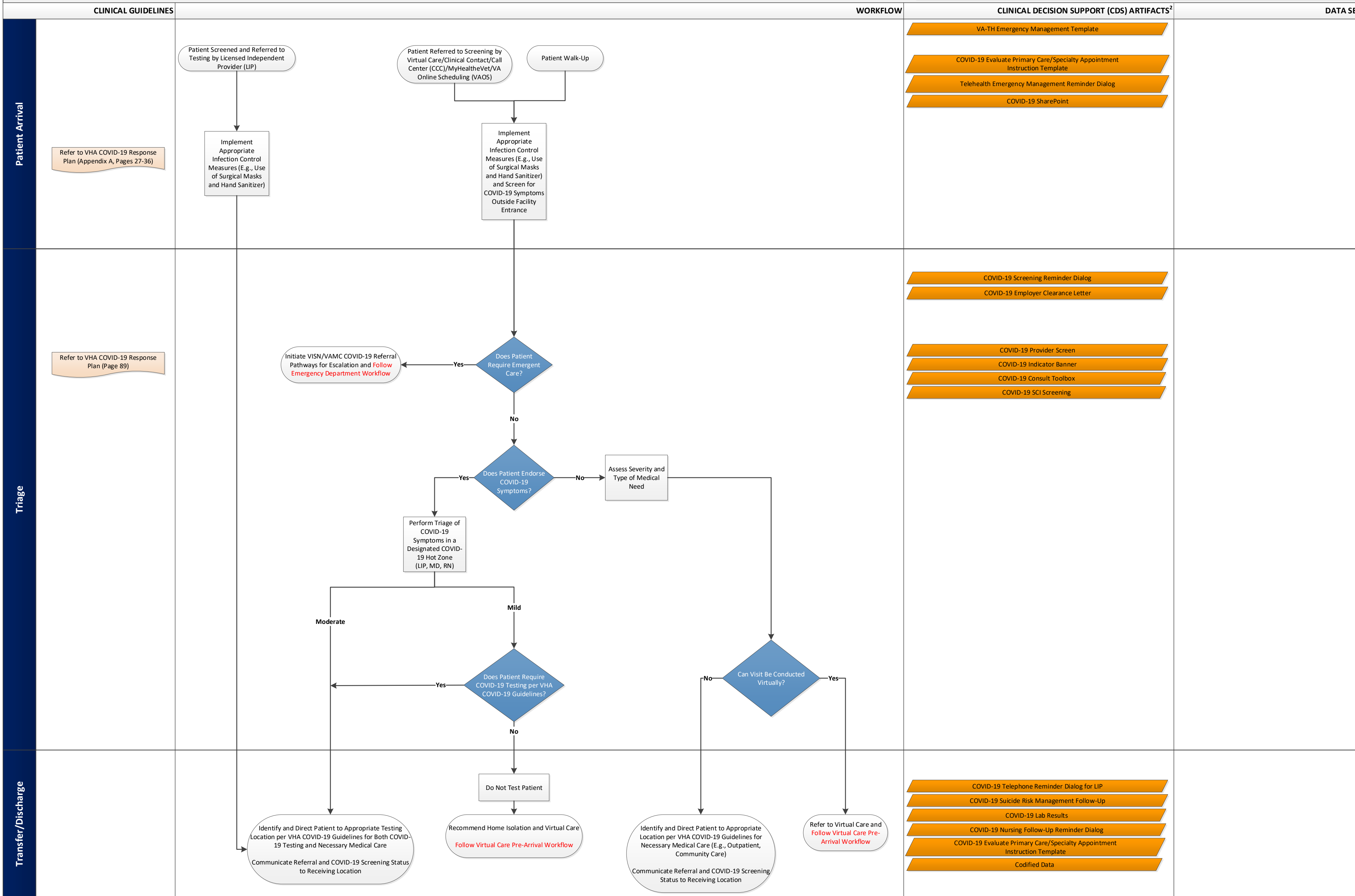

ENDNOTES
1. Clinical recommendations are to be applied along with consideration of bedside clinical judgement.
2. Refer to the COVID-19 SharePoint Page to access a repository of all clinical reminder dialogs and related materials, developed or under development.
3. Continuously evaluate patient to ensure alignment to the appropriate level of care. Patients will progress through lower levels of care prior to discharge. If demand exceeds capacity then guidelines will need to be in place for allocation of scarce resources.
4. For deciding on Low, Moderate, Severe, or Highest Risk Disease, providers will need to refer to specific assessment for severity of illness and triage document.

REFERENCES
I. WHO: Clinical management of severe acute respiratory infection (SARI) when COVID-19 disease is suspected: Interim Guidance.
II. Murthy et al. Care of the Critically Ill Patients with COVID-19. JAMA 2020-03-11.
III. Zhou et al. Clinical course and Risk Factors for Mortality of Adult Inpatients with Covid-19 in Wuhan, China: a Retrospective Cohort Study. Lancet https://doi.org/10.1016/50140-6736(20)30566-3.
IV. Veterans Health Administration (VHA) - Office of Emergency Management. COVID-19 Response Plan, Incident-specific Annex to the VHA High Consequence Infection (HCI) Base Plan. Version 1.6, 23 March 2020.
V. VHA Business Architecture Process Models.

Department of Veterans Affairs (VA) Veterans Health Administration (VHA) COVID-19 Virtual Care Patient Pre-Arrival Workflow[1]

Legend: Start / End | Clinical Guidelines | Patient Screening Questionnaire | Process | Subprocess | Decision Point | Clinical Decision Support Artifact

CLINICAL GUIDELINES	WORKFLOW	CLINICAL DECISION SUPPORT (CDS) ARTIFACTS[2]	DATA SETS

Virtual Care Call Center

COVID-19 Symptoms Identified

Online Request for Video Visit through VAOS

Patient Sends Secure Message Prompting COVID-19 Associated Symptom Concern

Patient Calls/Chats[3] into VA Clinical Contact/Call Center (CCC)

Front Line Nurse to Call Veteran

Does Veteran Consent to Screening? — No

Refer to VHA COVID-19 Response Plan (Appendix A, Pages 27-36)

Was Screening Positive for COVID-19? — No → Document and Follow Routine VISN/VAMC CCC Process to Assist Veterans and Offer ANNIE Coronavirus Precautions Protocol

Yes

Refer to VHA COVID-19 Response Plan (Page 31, 34-36)

Does Veteran Agree to Assessment/Triage? — No → Document Declination in EHR and Follow Routine VISN/VAMC CCC Process to Assist Veteran

CDS Artifacts (Call Center section):
- VA-TH Emergency Management Template
- COVID-19 Evaluate Primary Care/Specialty Appointment Instruction Template
- Telehealth Emergency Management Reminder Dialog
- COVID-19 SharePoint
- COVID-19 Screening Reminder Dialog
- COVID-19 Employer Clearance Letter

Virtual Visit

Yes → Transfer/Handoff to CCC RN, If Needed

CCC RN to Assess Veteran

Consider Transfer/Handoff to CCC Provider if Assessment Indicates Need for Higher Level of Care

Refer to VHA COVID-19 Response Plan (Page 89)

Initiate VISN/VAMC COVID-19 Referral Pathways for Escalation

Do Symptoms Require Emergent Intervention? — Yes → Initiate VISN/VAMC COVID-19 Referral Pathways for Escalation

Does Patient Endorse COVID-19 Consistent Symptoms? — Yes / No

No → Provider Conducts Virtual Visit

Provider Recommends Home Isolation Protocol and Enters Consult

Does Patient Need COVID-19 Testing and/or In-Person Medical Treatment? — No / Yes

Refer to VHA COVID-19 Response Plan (Page 89)

Initiate VISN/VAMC COVID-19 Referral Pathways for Escalation (Reference I)

Provider to Provider Conducts Warm Handoff

Advise Veteran to Seek Emergent Medical Attention

Refer Veteran to Testing and/or Medical Treatment and Follow In-Person Pre-Arrival Workflow

Direct Veteran to Telehealth Virtual Surveillance, Provider Telehealth, or ANNIE

CDS Artifacts (Virtual Visit section):
- COVID-19 Provider Reminder Dialog
- COVID-19 Order Sets and Menus
- COVID-19 Nursing Follow-Up Reminder Dialog
- COVID-19 Provider Screen
- COVID-19 Consult Toolbox
- COVID-19 Telephone Reminder Dialog for LIP
- Codified Data
- COVID-19 IFC Consult
- COVID-19 Indicator Banner
- COVID-19 Suicide Risk Management Follow-Up

ENDNOTES
1. Clinical recommendations are to be applied along with consideration of bedside clinical judgement.
2. Refer to the COVID-19 SharePoint Page to access a repository of all clinical reminder dialogs and related materials, developed or under development.
3. Chat only available in VISNs 8 and 23.

REFERENCES
I. Clinical Contact/Call Center (CCC) Coronavirus Diseases 2019 (COVID-19) Pathway. 3 April 2020.
II. Veterans Health Administration (VHA) - Office of Emergency Management. COVID-19 Response Plan, Incident-specific Annex to the VHA High Consequence Infection (HCI) Base Plan. Version 1.6, 23 March 2020.
III. Clinical Subject Matter Expert Interviews
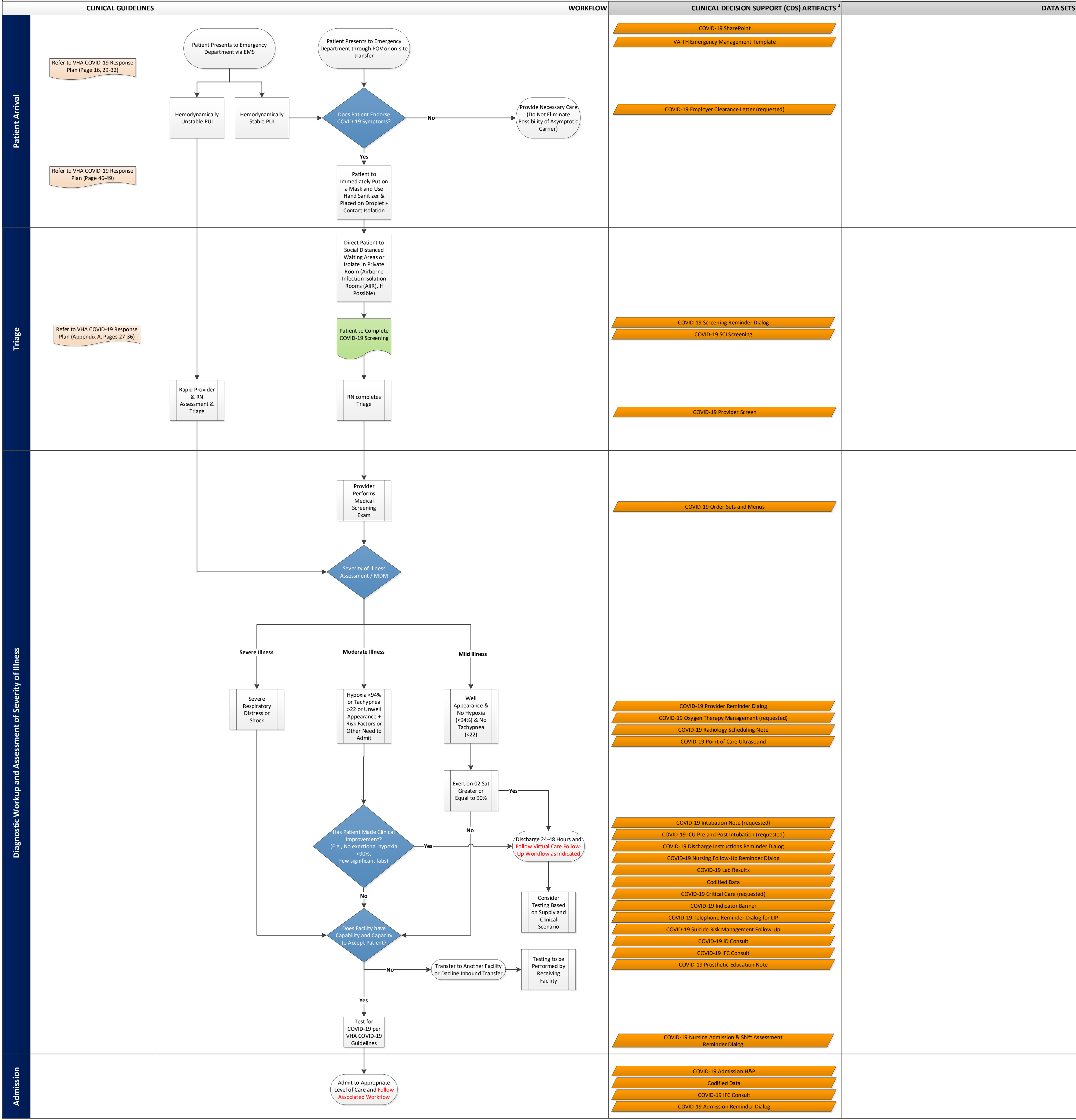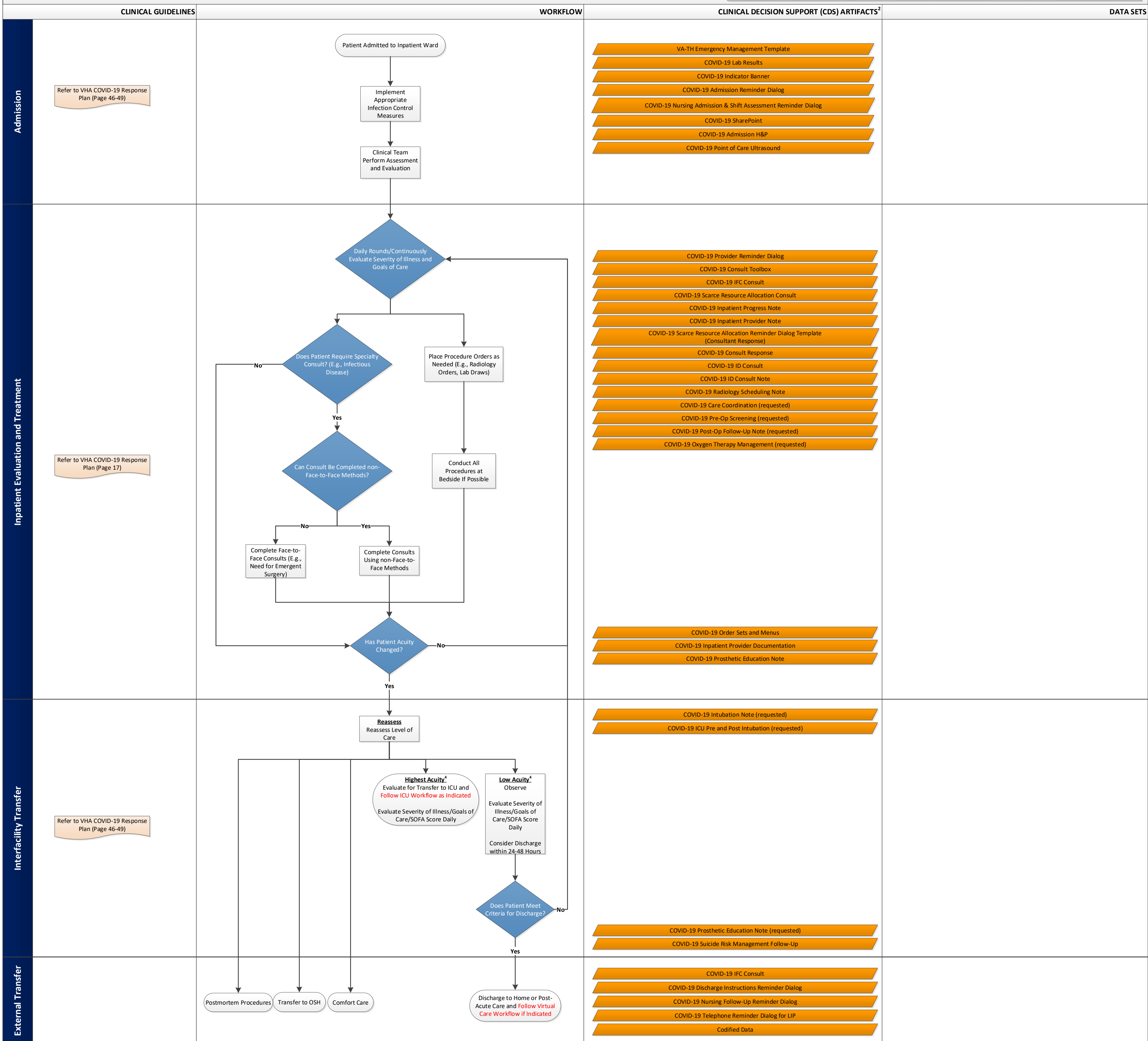IV. VHA Business Architecture Process Models.

Department of Veterans Affairs (VA) Veterans Health Administration (VHA) COVID-19 In-Person Pre-Arrival Workflow[1]

Legend: Start / End · Clinical Guidelines · Patient Screening Questionnaire · Process · Subprocess · Decision Point · Clinical Decision Support Artifact

CLINICAL GUIDELINES	WORKFLOW	CLINICAL DECISION SUPPORT (CDS) ARTIFACTS[2]	DATA SETS

Patient Arrival

Refer to VHA COVID-19 Response Plan (Appendix A, Pages 27-36)

Patient Screened and Referred to Testing by Licensed Independent Provider (LIP)

Patient Referred to Screening by Virtual Care/Clinical Contact/Call Center (CCC)/MyHealtheVet/VA Online Scheduling (VAOS)

Patient Walk-Up

Implement Appropriate Infection Control Measures (E.g., Use of Surgical Masks and Hand Sanitizer)

Implement Appropriate Infection Control Measures (E.g., Use of Surgical Masks and Hand Sanitizer) and Screen for COVID-19 Symptoms Outside Facility Entrance

CDS Artifacts:
- VA-TH Emergency Management Template
- COVID-19 Evaluate Primary Care/Specialty Appointment Instruction Template
- Telehealth Emergency Management Reminder Dialog
- COVID-19 SharePoint

Triage

Refer to VHA COVID-19 Response Plan (Page 89)

Initiate VISN/VAMC COVID-19 Referral Pathways for Escalation and Follow Emergency Department Workflow ← **Yes** — Does Patient Require Emergent Care?

No ↓

Does Patient Endorse COVID-19 Symptoms? — **No** → Assess Severity and Type of Medical Need

Yes ↓

Perform Triage of COVID-19 Symptoms in a Designated COVID-19 Hot Zone (LIP, MD, RN)

Moderate / Mild

Does Patient Require COVID-19 Testing per VHA COVID-19 Guidelines?

Can Visit Be Conducted Virtually? — **No** / **Yes**

CDS Artifacts:
- COVID-19 Screening Reminder Dialog
- COVID-19 Employer Clearance Letter
- COVID-19 Provider Screen
- COVID-19 Indicator Banner
- COVID-19 Consult Toolbox
- COVID-19 SCI Screening

Transfer/Discharge

Yes ← (from Does Patient Require COVID-19 Testing)

No ↓ Do Not Test Patient

Identify and Direct Patient to Appropriate Testing Location per VHA COVID-19 Guidelines for Both COVID-19 Testing and Necessary Medical Care

Communicate Referral and COVID-19 Screening Status to Receiving Location

Recommend Home Isolation and Virtual Care

Follow Virtual Care Pre-Arrival Workflow

Identify and Direct Patient to Appropriate Location per VHA COVID-19 Guidelines for Necessary Medical Care (E.g., Outpatient, Community Care)

Communicate Referral and COVID-19 Screening Status to Receiving Location

Refer to Virtual Care and Follow Virtual Care Pre-Arrival Workflow

CDS Artifacts:
- COVID-19 Telephone Reminder Dialog for LIP
- COVID-19 Suicide Risk Management Follow-Up
- COVID-19 Lab Results
- COVID-19 Nursing Follow-Up Reminder Dialog
- COVID-19 Evaluate Primary Care/Specialty Appointment Instruction Template
- Codified Data

ENDNOTES

1. Clinical recommendations are to be applied along with consideration of bedside clinical judgement.
2. Refer to the COVID-19 SharePoint Page to access a repository of all clinical reminder dialogs and related materials, developed or under development.

REFERENCES

I. Veterans Health Administration (VHA) - Office of Emergency Management. COVID-19 Response Plan, Incident-specific Annex to the VHA High Consequence Infection (HCI) Base Plan. Version 1.6, 23 March 2020.
II. Clinical Subject Matter Expert Interviews
III. VHA Business Architecture Process Models.

Department of Veterans Affairs (VA) Veterans Health Administration (VHA) COVID-19 Emergency Department Patient Workflow [1]

Legend: Start / End | Clinical Guidelines | Patient Screening Questionnaire | Process | Subprocess | Decision Point | Clinical Decision Support Artifact

	CLINICAL GUIDELINES	WORKFLOW	CLINICAL DECISION SUPPORT (CDS) ARTIFACTS [2]	DATA SETS
Patient Arrival	Refer to VHA COVID-19 Response Plan (Page 16, 29-32) Refer to VHA COVID-19 Response Plan (Page 46-49)	Patient Presents to Emergency Department via EMS — Patient Presents to Emergency Department through POV or on-site transfer Hemodynamically Unstable PUI — Hemodynamically Stable PUI Does Patient Endorse COVID-19 Symptoms? — No → Provide Necessary Care (Do Not Eliminate Possibility of Asymptotic Carrier) Yes → Patient to Immediately Put on a Mask and Use Hand Sanitizer & Placed on Droplet + Contact Isolation	COVID-19 SharePoint VA-TH Emergency Management Template COVID-19 Employer Clearance Letter (requested)	
Triage	Refer to VHA COVID-19 Response Plan (Appendix A, Pages 27-36)	Direct Patient to Social Distanced Waiting Areas or Isolate in Private Room (Airborne Infection Isolation Rooms (AIIR), If Possible) Patient to Complete COVID-19 Screening Rapid Provider & RN Assessment & Triage — RN completes Triage	COVID-19 Screening Reminder Dialog COVID-19 SCI Screening COVID-19 Provider Screen	
Diagnostic Workup and Assessment of Severity of Illness		Provider Performs Medical Screening Exam Severity of Illness Assessment / MDM **Severe Illness** → Severe Respiratory Distress or Shock **Moderate Illness** → Hypoxia <94% or Tachypnea >22 or Unwell Appearance + Risk Factors or Other Need to Admit **Mild Illness** → Well Appearance & No Hypoxia (<94%) & No Tachypnea (<22) Exertion 02 Sat Greater or Equal to 90% — Yes → No → Has Patient Made Clinical Improvement? (E.g., No exertional hypoxia <90%, Few significant labs) — Yes → Discharge 24-48 Hours and Follow Virtual Care Follow-Up Workflow as Indicated → Consider Testing Based on Supply and Clinical Scenario No → Does Facility have Capability and Capacity to Accept Patient? — No → Transfer to Another Facility or Decline Inbound Transfer → Testing to be Performed by Receiving Facility Yes → Test for COVID-19 per VHA COVID-19 Guidelines	COVID-19 Order Sets and Menus COVID-19 Provider Reminder Dialog COVID-19 Oxygen Therapy Management (requested) COVID-19 Radiology Scheduling Note COVID-19 Point of Care Ultrasound COVID-19 Intubation Note (requested) COVID-19 ICU Pre and Post Intubation (requested) COVID-19 Discharge Instructions Reminder Dialog COVID-19 Nursing Follow-Up Reminder Dialog COVID-19 Lab Results Codified Data COVID-19 Critical Care (requested) COVID-19 Indicator Banner COVID-19 Telephone Reminder Dialog for LIP COVID-19 Suicide Risk Management Follow-Up COVID-19 ID Consult COVID-19 IFC Consult COVID-19 Prosthetic Education Note COVID-19 Nursing Admission & Shift Assessment Reminder Dialog	
Admission		Admit to Appropriate Level of Care and Follow Associated Workflow	COVID-19 Admission H&P Codified Data COVID-19 IFC Consult COVID-19 Admission Reminder Dialog	

ENDNOTES

1. Clinical recommendations are to be applied along with consideration of bedside clinical judgement.
2. Refer to the COVID-19 SharePoint Page to access a repository of all clinical reminder dialogs and related materials, developed or under development.

REFERENCES

I. Veterans Health Administration (VHA) - Office of Emergency Management. COVID-19 Response Plan, Incident-specific Annex to the VHA High Consequence Infection (HCI) Base Plan. Version 1.6, 23 March 2020.
II. Clinical Subject Matter Expert Interviews
III. VHA Business Architecture Process Models.

Department of Veterans Affairs (VA) Veterans Health Administration (VHA) COVID-19 Inpatient Patient Workflow[1]

Legend: Start / End | Clinical Guidelines | Patient Screening Questionnaire | Process | Subprocess | Decision Point | Clinical Decision Support Artifact

CLINICAL GUIDELINES	WORKFLOW	CLINICAL DECISION SUPPORT (CDS) ARTIFACTS[2]	DATA SETS

Admission

Refer to VHA COVID-19 Response Plan (Page 46-49)

- Patient Admitted to Inpatient Ward
- Implement Appropriate Infection Control Measures
- Clinical Team Perform Assessment and Evaluation

CDS Artifacts:
- VA-TH Emergency Management Template
- COVID-19 Lab Results
- COVID-19 Indicator Banner
- COVID-19 Admission Reminder Dialog
- COVID-19 Nursing Admission & Shift Assessment Reminder Dialog
- COVID-19 SharePoint
- COVID-19 Admission H&P
- COVID-19 Point of Care Ultrasound

Inpatient Evaluation and Treatment

Refer to VHA COVID-19 Response Plan (Page 17)

- Daily Rounds/Continuously Evaluate Severity of Illness and Goals of Care
- Does Patient Require Specialty Consult? (E.g., Infectious Disease)
  - No →
  - Yes → Can Consult Be Completed non-Face-to-Face Methods?
    - No → Complete Face-to-Face Consults (E.g., Need for Emergent Surgery)
    - Yes → Complete Consults Using non-Face-to-Face Methods
- Place Procedure Orders as Needed (E.g., Radiology Orders, Lab Draws)
- Conduct All Procedures at Bedside If Possible
- Has Patient Acuity Changed?
  - No →
  - Yes →

CDS Artifacts:
- COVID-19 Provider Reminder Dialog
- COVID-19 Consult Toolbox
- COVID-19 IFC Consult
- COVID-19 Scarce Resource Allocation Consult
- COVID-19 Inpatient Progress Note
- COVID-19 Inpatient Provider Note
- COVID-19 Scarce Resource Allocation Reminder Dialog Template (Consultant Response)
- COVID-19 Consult Response
- COVID-19 ID Consult
- COVID-19 ID Consult Note
- COVID-19 Radiology Scheduling Note
- COVID-19 Care Coordination (requested)
- COVID-19 Pre-Op Screening (requested)
- COVID-19 Post-Op Follow-Up Note (requested)
- COVID-19 Oxygen Therapy Management (requested)

- COVID-19 Order Sets and Menus
- COVID-19 Inpatient Provider Documentation
- COVID-19 Prosthetic Education Note

Interfacility Transfer

Refer to VHA COVID-19 Response Plan (Page 46-49)

- **Reassess** Reassess Level of Care
  - **Highest Acuity[4]** Evaluate for Transfer to ICU and Follow ICU Workflow as Indicated. Evaluate Severity of Illness/Goals of Care/SOFA Score Daily
  - **Low Acuity[4]** Observe. Evaluate Severity of Illness/Goals of Care/SOFA Score Daily. Consider Discharge within 24-48 Hours
    - Does Patient Meet Criteria for Discharge?
      - No →
      - Yes →

CDS Artifacts:
- COVID-19 Intubation Note (requested)
- COVID-19 ICU Pre and Post Intubation (requested)

- COVID-19 Prosthetic Education Note (requested)
- COVID-19 Suicide Risk Management Follow-Up

External Transfer

- Postmortem Procedures
- Transfer to OSH
- Comfort Care
- Discharge to Home or Post-Acute Care and Follow Virtual Care Workflow if Indicated

CDS Artifacts:
- COVID-19 IFC Consult
- COVID-19 Discharge Instructions Reminder Dialog
- COVID-19 Nursing Follow-Up Reminder Dialog
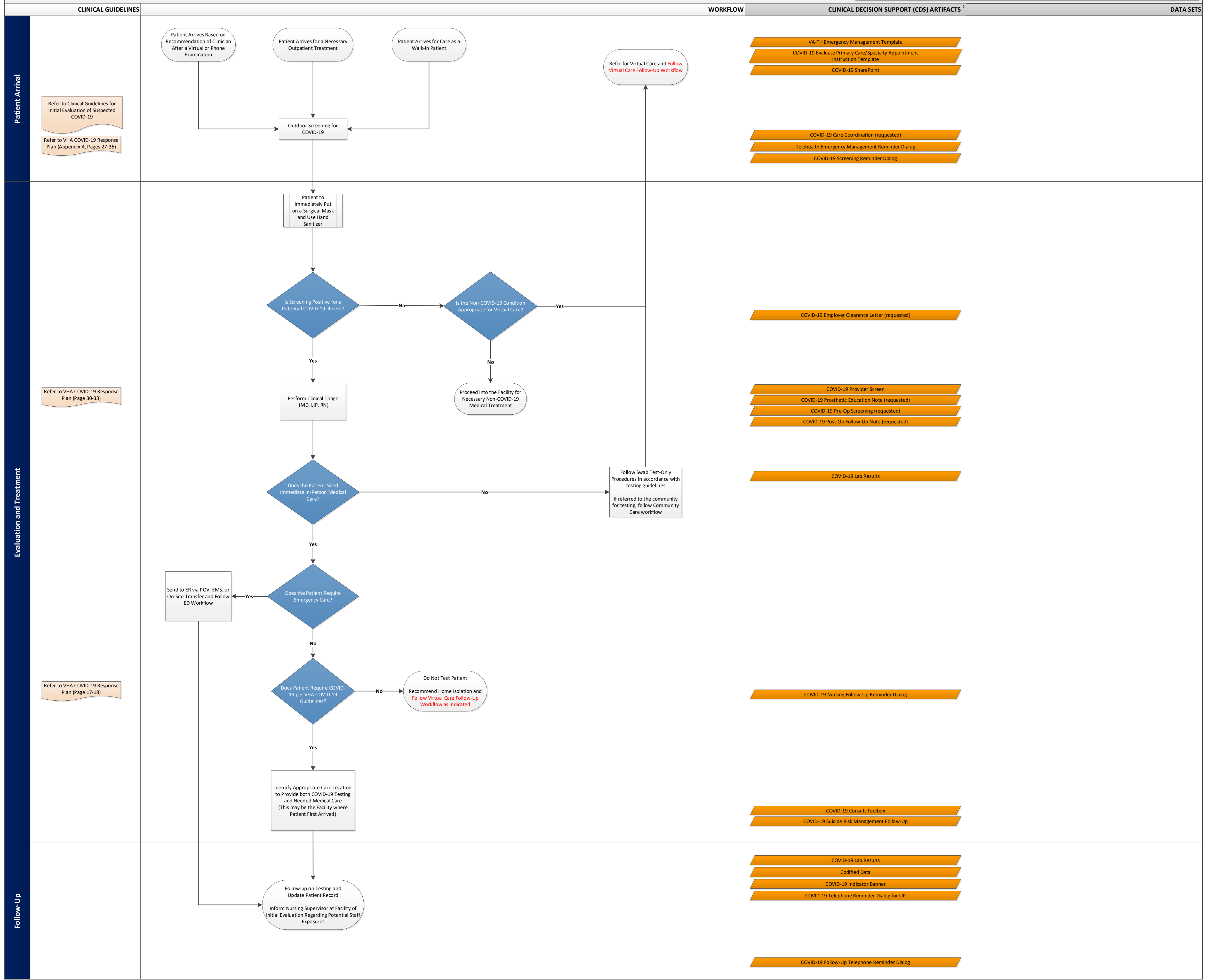- COVID-19 Telephone Reminder Dialog for LIP
- Codified Data

ENDNOTES
1. Clinical recommendations are to be applied along with consideration of bedside clinical judgement.
2. Refer to the COVID-19 SharePoint Page to access a repository of all clinical reminder dialogs and related materials, developed or under development.

REFERENCES
I. Veterans Health Administration (VHA) - Office of Emergency Management. COVID-19 Response Plan, Incident-specific Annex to the VHA High Consequence Infection (HCI) Base Plan. Version 1.6, 23 March 2020.
II. Clinical Subject Matter Expert Interviews
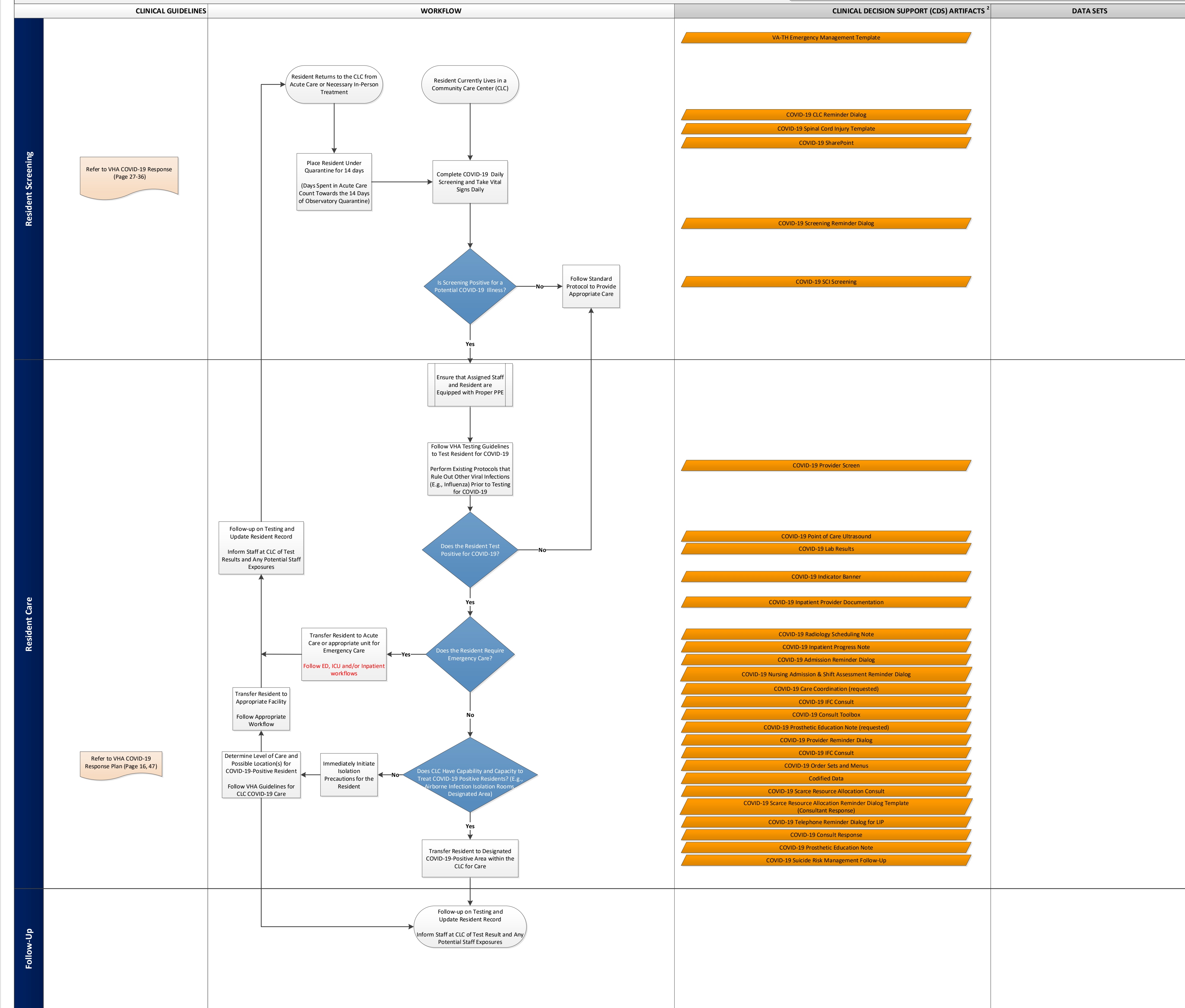III. VHA Business Architecture Process Models.

Department of Veterans Affairs (VA) Veterans Health Administration (VHA) COVID-19 Intensive Care Unit (ICU) Patient Workflow[1]

| Start / End | Clinical Guidelines | Patient Screening Questionnaire | Process | Subprocess | Decision Point | Clinical Decision Support Artifact |

| CLINICAL GUIDELINES | WORKFLOW | CLINICAL DECISION SUPPORT (CDS) ARTIFACTS[2] | DATA SETS |

Transfer to ICU

WORKFLOW:

- Transfer Process Initiated
- Does ICU Have Capability and Capacity to Accept the Patient? Does Clinical Decision align with Patient Goals of Care? → No → Transfer to Alternative On-site Unit or Transfer to OSH
- Yes
- Will the Unit Accept the Patient? → No → Transfer to Alternative On-site Unit or Transfer to OSH
- Yes
- Provider to Provider and Nurse to Nurse Handoff Is Completed via Telephone
- Receiving Provider Places ICU Admission Order
- Patient Assigned to Appropriate Bed, If Available
- Patient to Wear Surgical Mask, with a Clean Gown and Sheet on Top
- Transport Team to Wear Standard PPE During Transport
- Patient Presents to ICU

CLINICAL GUIDELINES:
- Refer to VHA COVID-19 Response Plan (Page 16)
- Refer to VHA COVID-19 Response Plan (Page 46-49)
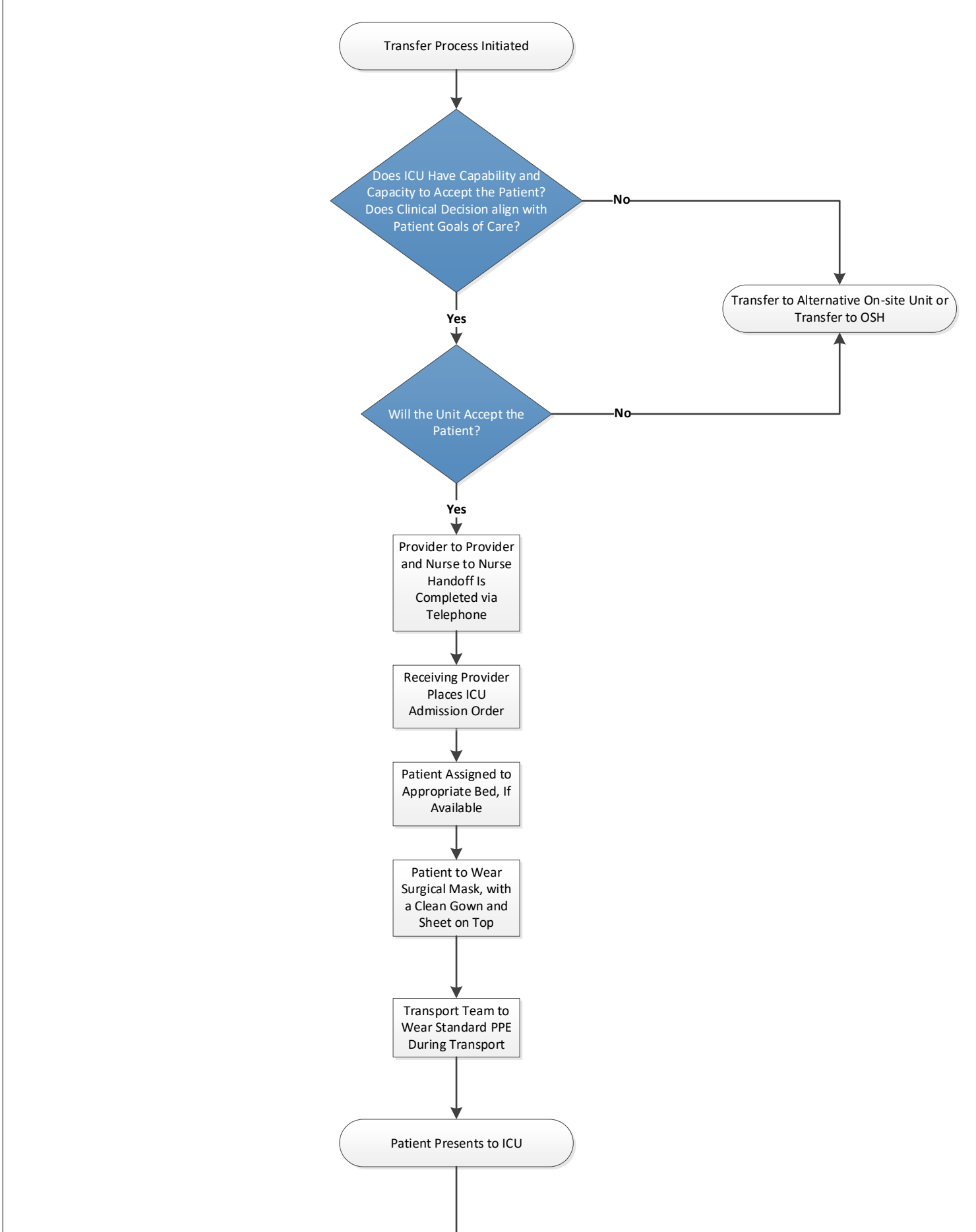
CLINICAL DECISION SUPPORT (CDS) ARTIFACTS:
- VA-TH Emergency Management Template
- COVID-19 Admission Reminder Dialog
- COVID-19 Nursing Admission & Shift Assessment Reminder Dialog
- COVID-19 Outside Lab Results and Resolved Health Factors
- COVID-19 SharePoint
- COVID-19 Admission H&P

ICU Evaluation and Treatment

WORKFLOW:
- Patient Placed on Contact + Droplet Precautions
- Critical Care Team Completes Admission Order Set, Evaluation, and Critical Procedures and Diagnostics
- Daily Rounds/Evaluate Severity of Illness/Goals of Care/SOFA Score Daily.
- Does Patient's Condition and Goals of Care Indicate Transfer from ICU? → No (loops back to Daily Rounds)
- Yes
- **Transfer** Transfer to Appropriate Level of Care

CLINICAL GUIDELINES:
- Refer to Scarce Resource Allocation Guidelines
- Refer to Ethical Guidelines (Including SOFA Score Guidance)
- Refer to VA Best Practices in Airway Management
- Refer to Scarce Resource Allocation Guidelines
- Refer to Ethical Guidelines (Including SOFA Score Guidance)
- Refer to VA Best Practices in Airway Management
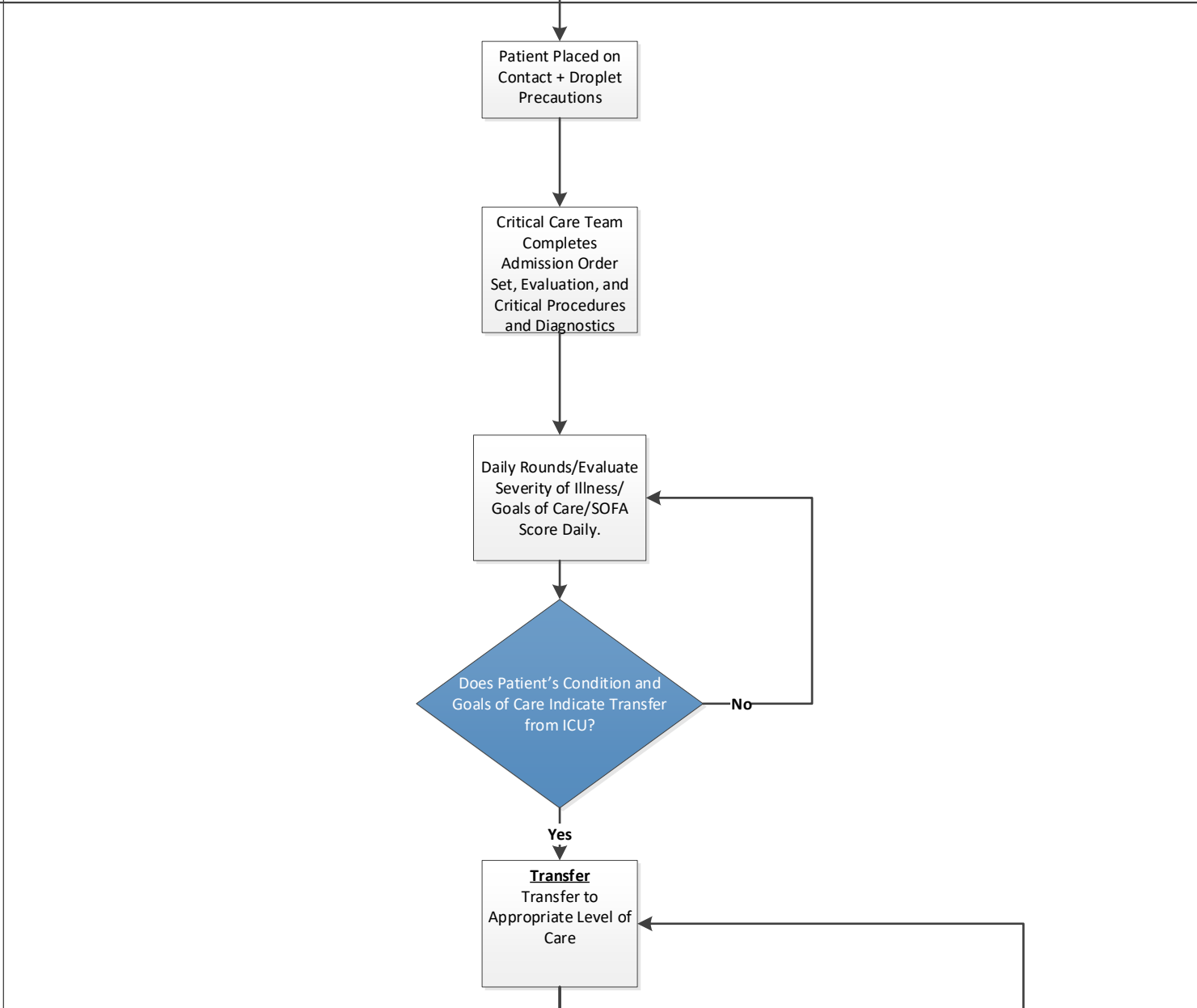
CLINICAL DECISION SUPPORT (CDS) ARTIFACTS:
- COVID-19 Lab Results
- COVID-19 Order Sets and Menus
- COVID-19 Indicator Banner
- COVID-19 Care Coordination (requested)
- COVID-19 Pre-Op Screening (requested)
- COVID-19 Post-Op Follow-Up Note (requested)
- COVID-19 Critical Care (requested)
- COVID-19 Point of Care Ultrasound
- COVID-19 Oxygen Therapy Management (requested)
- COVID-19 Scarce Resource Allocation Consult
- COVID-19 Scarce Resource Allocation Reminder Dialog Template (Consultant Response)
- COVID-19 Intubation Note (requested)
- COVID-19 ICU Pre and Post Intubation (requested)
- COVID-19 Radiology Scheduling Note
- COVID-19 Prosthetic Education Note
- COVID-19 Inpatient Provider Documentation
- COVID-19 Provider Reminder Dialog
- Codified Data

Transfer from ICU

WORKFLOW:
- **Moderate Acuity[4]** Evaluate for Transfer to Hospital Ward and Follow Inpatient Workflow as Indicated. Evaluate Severity of Illness/Goals of Care/SOFA Score Daily
- **Low Acuity[4]** Observe. Evaluate Severity of Illness/Goals of Care/SOFA Score Daily. Consider Discharge within 24-48 Hours
- Does Patient Meet Criteria for Discharge? → No (loops back)
- Yes
- Postmortem Procedures
- Transfer to OSH
- Comfort Care
- Discharge to Home or Post-Acute Care and Follow Virtual Care Workflow if Indicated

CLINICAL GUIDELINES:
- Refer to Ethical Guidelines (Including SOFA Score Guidance)
- Refer to SOP Treatment Guideline for Hospitalized Patients
- Refer to VA Best Practices in Airway Management
- Follow VHA COVID-19 Response Plan (Page 16-17, 55)
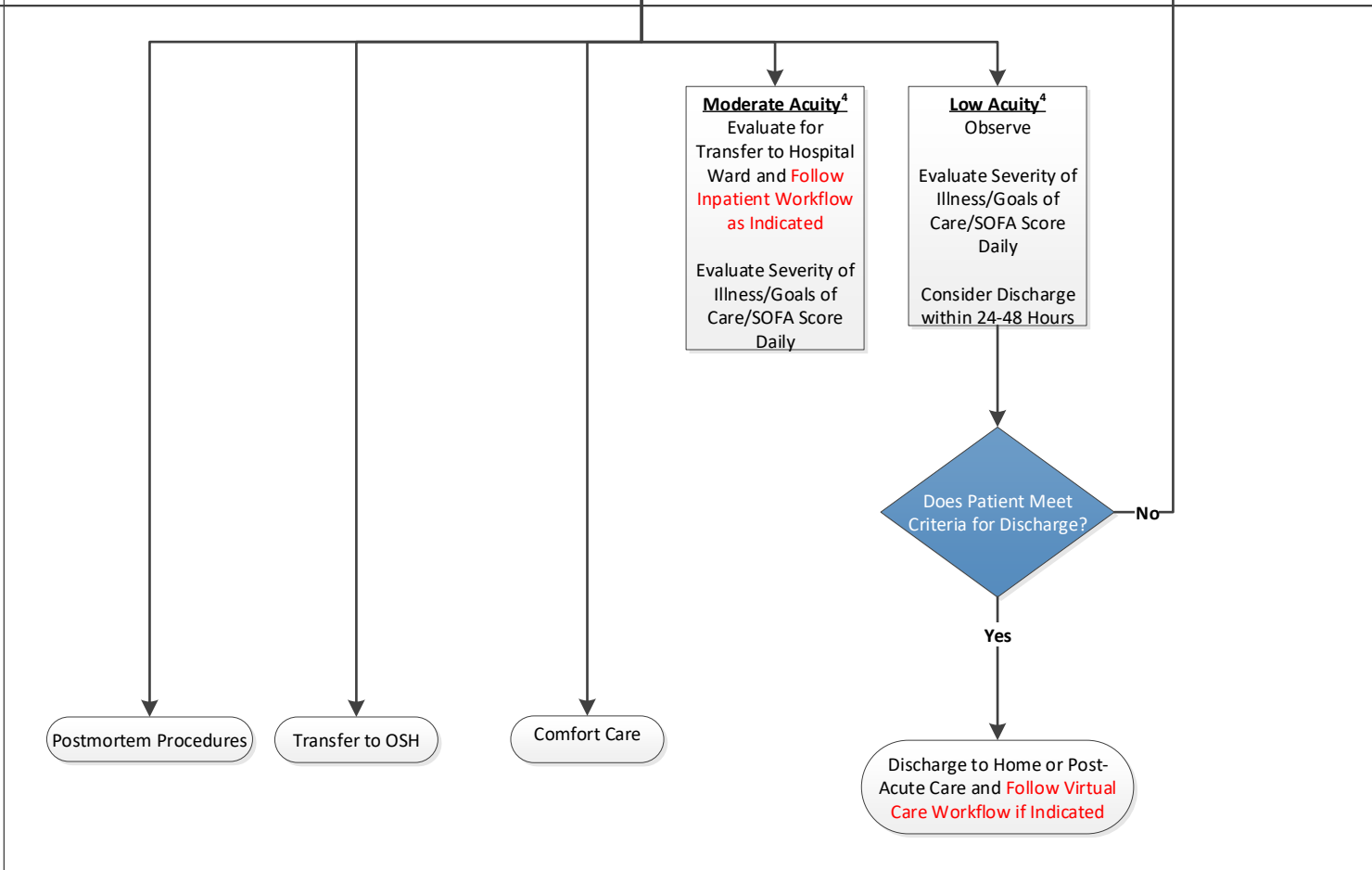
CLINICAL DECISION SUPPORT (CDS) ARTIFACTS:
- COVID-19 Consult Toolbox
- COVID-19 IFC Consult
- COVID-19 Inpatient Progress Note
- COVID-19 ICU Note
- COVID-19 ID Consult
- COVID-19 ID Consult Note
- COVID-19 Consult Response
- COVID-19 Discharge Instructions Reminder Dialog
- COVID-19 Nursing Follow-Up Reminder Dialog
- Codified Data
- COVID-19 Telephone Reminder Dialog for LIP
- COVID-19 Suicide Risk Management Follow-Up

Department of Veterans Affairs (VA) Veterans Health Administration (VHA) COVID-19 Outpatient Care Workflow[1]

| Start / End | Clinical Guidelines | Patient Screening Questionnaire | Process | Subprocess | Decision Point | Clinical Decision Support Artifact |

| CLINICAL GUIDELINES | WORKFLOW | CLINICAL DECISION SUPPORT (CDS) ARTIFACTS [2] | DATA SETS |

Patient Arrival

Patient Arrives Based on Recommendation of Clinician After a Virtual or Phone Examination

Patient Arrives for a Necessary Outpatient Treatment

Patient Arrives for Care as a Walk-in Patient

Refer for Virtual Care and Follow Virtual Care Follow-Up Workflow

Refer to Clinical Guidelines for Initial Evaluation of Suspected COVID-19

Refer to VHA COVID-19 Response Plan (Appendix A, Pages 27-36)

Outdoor Screening for COVID-19

CDS Artifacts:
- VA-TH Emergency Management Template
- COVID-19 Evaluate Primary Care/Specialty Appointment Instruction Template
- COVID-19 SharePoint
- COVID-19 Care Coordination (requested)
- Telehealth Emergency Management Reminder Dialog
- COVID-19 Screening Reminder Dialog

Evaluation and Treatment

Patient to Immediately Put on a Surgical Mask and Use Hand Sanitizer

Is Screening Positive for a Potential COVID-19 Illness? — No → Is the Non-COVID-19 Condition Appropriate for Virtual Care? — Yes →

Is the Non-COVID-19 Condition Appropriate for Virtual Care? — No → Proceed into the Facility for Necessary Non-COVID-19 Medical Treatment

Is Screening Positive for a Potential COVID-19 Illness? — Yes ↓

Refer to VHA COVID-19 Response Plan (Page 30-33)

Perform Clinical Triage (MD, LIP, RN)

CDS Artifacts:
- COVID-19 Employer Clearance Letter (requested)
- COVID-19 Provider Screen
- COVID-19 Prosthetic Education Note (requested)
- COVID-19 Pre-Op Screening (requested)
- COVID-19 Post-Op Follow-Up Note (requested)
- COVID-19 Lab Results

Does the Patient Need Immediate In-Person Medical Care? — No → Follow Swab Test-Only Procedures in accordance with testing guidelines

If referred to the community for testing, follow Community Care workflow

Does the Patient Need Immediate In-Person Medical Care? — Yes ↓

Send to ER via POV, EMS, or On-Site Transfer and Follow ED Workflow ← Yes — Does the Patient Require Emergency Care?

Does the Patient Require Emergency Care? — No ↓

Refer to VHA COVID-19 Response Plan (Page 17-18)

Does Patient Require COVID-19 per VHA COVID-19 Guidelines? — No → Do Not Test Patient

Recommend Home Isolation and Follow Virtual Care Follow-Up Workflow as Indicated

CDS Artifacts:
- COVID-19 Nursing Follow-Up Reminder Dialog

Does Patient Require COVID-19 per VHA COVID-19 Guidelines? — Yes ↓

Identify Appropriate Care Location to Provide both COVID-19 Testing and Needed Medical Care (This may be the Facility where Patient First Arrived)

CDS Artifacts:
- COVID-19 Consult Toolbox
- COVID-19 Suicide Risk Management Follow-Up

Follow-Up

Follow-up on Testing and Update Patient Record

Inform Nursing Supervisor at Facility of Initial Evaluation Regarding Potential Staff Exposures

CDS Artifacts:
- COVID-19 Lab Results
- Codified Data
- COVID-19 Indicator Banner
- COVID-19 Telephone Reminder Dialog for LIP
- COVID-19 Follow-Up Telephone Reminder Dialog

ENDNOTES
1. Clinical recommendations are to be applied along with consideration of bedside clinical judgement.
2. Refer to the COVID-19 SharePoint Page to access a repository of all clinical reminder dialogs and related materials, developed or under development.

REFERENCES
I. Veterans Health Administration (VHA) - Office of Emergency Management. COVID-19 Response Plan, Incident-specific Annex to the VHA High Consequence Infection (HCI) Base Plan. Version 1.6, 23 March 2020.
II. Clinical Subject Matter Expert Interviews.
III. VHA Business Architecture Process Models.

Department of Veterans Affairs (VA) Veterans Health Administration (VHA) COVID-19 Community Care Workflow[1]

| Start / End | Clinical Guidelines | Patient Screening Questionnaire | Process | Subprocess | Decision Point | Clinical Decision Support Artifact |

CLINICAL GUIDELINES	WORKFLOW	CLINICAL DECISION SUPPORT (CDS) ARTIFACTS [2]	DATA SETS

Patient Arrival

- Refer to Clinical Guidelines for Initial Evaluation of Suspected COVID-19

Determination that a Veteran Needs COVID-19 Testing from Ambulatory or Virtual Care

Does a VA Facility in the Veteran's Community have Capacity and Capability to Test the Patient? — Yes → Send Patient to Testing Area / Follow COVID-19 Testing Guidelines

No ↓

CDS Artifacts:
- VA-TH Emergency Management Template
- COVID-19 Provider Screen
- COVID-19 SharePoint
- COVID-19 Consult Toolbox
- COVID-19 Screening Reminder Dialog
- COVID-19 Lab Results

Referral to Community Care Center

- Refer to VHA COVID-19 Response Plan (Page 89)

Complete Referral for Community Care for COVID-19 Testing

Refer to PCP or Virtual Care for Follow-Up and Follow Virtual Care Follow-Up Workflow as Indicated

Follow-Up

Retrieve COVID-19 Test Result

Did the Patient Test Positive for COVID-19?

Yes → Update Patient Record and Inform PCP / Inform Nursing Supervisor at Facility of Initial Evaluation regarding Potential Staff Exposures → Receiving Facility to Follow COVID-19 Treatment Guidelines and Outpatient/ Virtual Care Workflows as Indicated

No → Update Patient Record and Inform PCP

CDS Artifacts:
- COVID-19 Lab Results
- COVID-19 Outside Lab Results and Resolved Health Factors
- COVID-19 Suicide Risk Management Follow-Up
- COVID-19 Telephone Reminder Dialog for LIP
- COVID-19 Indicator Banner
- COVID-19 Follow-Up Telephone Reminder Dialog
- COVID-19 Nursing Follow-Up Reminder Dialog
- COVID-19 Evaluate Primary Care/Specialty Appointment Instruction Template
- Codified Data

ENDNOTES

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REFERENCES

I. Veterans Health Administration (VHA) - Office of Emergency Management. COVID-19 Response Plan, Incident-specific Annex to the VHA High Consequence Infection (HCI) Base Plan. Version 1.6, 23 March 2020.
II. Clinical Subject Matter Expert Interviews
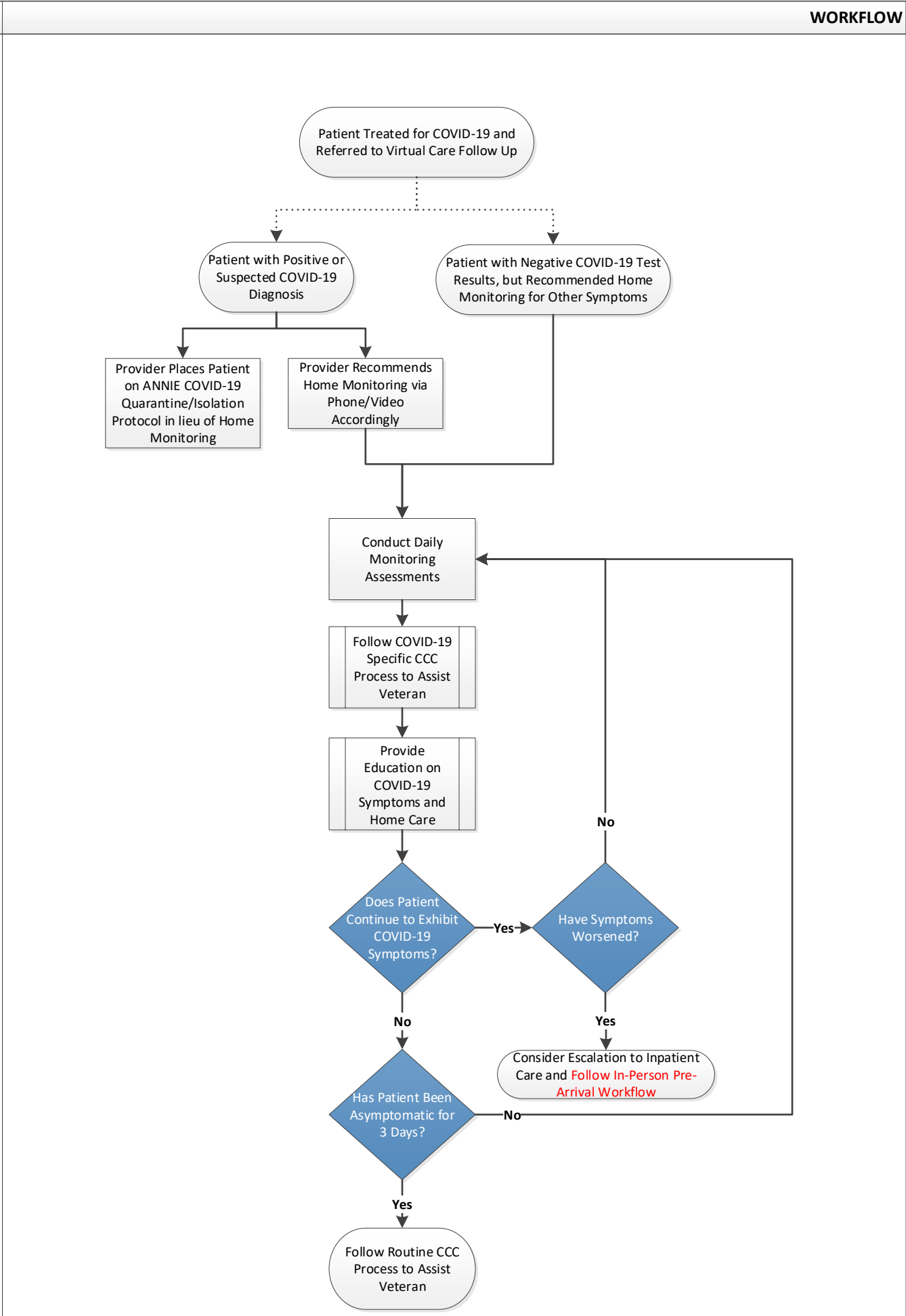III. VHA Business Architecture Process Models.

Department of Veterans Affairs (VA) Veterans Health Administration (VHA) COVID-19 Long-Term Care Workflow[1]

Legend: Start / End | Clinical Guidelines | Patient Screening Questionnaire | Process | Subprocess | Decision Point | Clinical Decision Support Artifact

	CLINICAL GUIDELINES	WORKFLOW	CLINICAL DECISION SUPPORT (CDS) ARTIFACTS [2]	DATA SETS

Resident Screening

Refer to VHA COVID-19 Response (Page 27-36)

Resident Returns to the CLC from Acute Care or Necessary In-Person Treatment

Resident Currently Lives in a Community Care Center (CLC)

Place Resident Under Quarantine for 14 days
(Days Spent in Acute Care Count Towards the 14 Days of Observatory Quarantine)

Complete COVID-19 Daily Screening and Take Vital Signs Daily

Is Screening Positive for a Potential COVID-19 Illness? — No → Follow Standard Protocol to Provide Appropriate Care

Yes

CDS Artifacts:
- VA-TH Emergency Management Template
- COVID-19 CLC Reminder Dialog
- COVID-19 Spinal Cord Injury Template
- COVID-19 SharePoint
- COVID-19 Screening Reminder Dialog
- COVID-19 SCI Screening

Resident Care

Ensure that Assigned Staff and Resident are Equipped with Proper PPE

Follow VHA Testing Guidelines to Test Resident for COVID-19
Perform Existing Protocols that Rule Out Other Viral Infections (E.g., Influenza) Prior to Testing for COVID-19

Does the Resident Test Positive for COVID-19? — No →

Yes

Does the Resident Require Emergency Care? — Yes → Transfer Resident to Acute Care or appropriate unit for Emergency Care — *Follow ED, ICU and/or Inpatient workflows*

No

Transfer Resident to Appropriate Facility
Follow Appropriate Workflow

Follow-up on Testing and Update Resident Record
Inform Staff at CLC of Test Results and Any Potential Staff Exposures

Refer to VHA COVID-19 Response Plan (Page 16, 47)

Does CLC Have Capability and Capacity to Treat COVID-19 Positive Residents? (E.g., Airborne Infection Isolation Rooms, Designated Area) — No → Immediately Initiate Isolation Precautions for the Resident → Determine Level of Care and Possible Location(s) for COVID-19-Positive Resident — Follow VHA Guidelines for CLC COVID-19 Care

Yes

Transfer Resident to Designated COVID-19-Positive Area within the CLC for Care

CDS Artifacts:
- COVID-19 Provider Screen
- COVID-19 Point of Care Ultrasound
- COVID-19 Lab Results
- COVID-19 Indicator Banner
- COVID-19 Inpatient Provider Documentation
- COVID-19 Radiology Scheduling Note
- COVID-19 Inpatient Progress Note
- COVID-19 Admission Reminder Dialog
- COVID-19 Nursing Admission & Shift Assessment Reminder Dialog
- COVID-19 Care Coordination (requested)
- COVID-19 IFC Consult
- COVID-19 Consult Toolbox
- COVID-19 Prosthetic Education Note (requested)
- COVID-19 Provider Reminder Dialog
- COVID-19 IFC Consult
- COVID-19 Order Sets and Menus
- Codified Data
- COVID-19 Scarce Resource Allocation Consult
- COVID-19 Scarce Resource Allocation Reminder Dialog Template (Consultant Response)
- COVID-19 Telephone Reminder Dialog for LIP
- COVID-19 Consult Response
- COVID-19 Prosthetic Education Note
- COVID-19 Suicide Risk Management Follow-Up

Follow-Up

Follow-up on Testing and Update Resident Record
Inform Staff at CLC of Test Result and Any Potential Staff Exposures

ENDNOTES
1. Clinical recommendations are to be applied along with consideration of bedside clinical judgement.
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II. Clinical Subject Matter Expert Interviews
III. VHA Business Architecture Process Models.

Department of Veterans Affairs (VA) Veterans Health Administration (VHA) COVID-19 Virtual Care Patient Follow-Up Workflow[1]

| | Start / End | Clinical Guidelines | Patient Screening Questionnaire | Process | Subprocess | Decision Point | Clinical Decision Support Artifact |

| CLINICAL GUIDELINES | WORKFLOW | CLINICAL DECISION SUPPORT (CDS) ARTIFACTS[2] | DATA SETS |

Virtual Care Follow-Up

Refer to VHA COVID-19 Response Plan (Page 15)

Patient Treated for COVID-19 and Referred to Virtual Care Follow Up

Patient with Positive or Suspected COVID-19 Diagnosis

Patient with Negative COVID-19 Test Results, but Recommended Home Monitoring for Other Symptoms

Provider Places Patient on ANNIE COVID-19 Quarantine/Isolation Protocol in lieu of Home Monitoring

Provider Recommends Home Monitoring via Phone/Video Accordingly

Conduct Daily Monitoring Assessments

Follow COVID-19 Specific CCC Process to Assist Veteran

Provide Education on COVID-19 Symptoms and Home Care

Does Patient Continue to Exhibit COVID-19 Symptoms? — Yes → Have Symptoms Worsened?

No

Yes → Consider Escalation to Inpatient Care and Follow In-Person Pre-Arrival Workflow

Has Patient Been Asymptomatic for 3 Days? — No

Yes → Follow Routine CCC Process to Assist Veteran

COVID-19 Lab Results
COVID-19 Evaluate Primary Care/Specialty Appointment Instruction Template
COVID-19 Indicator Banner
COVID-19 Telephone Reminder Dialog for LIP

COVID-19 Order Sets and Menus
COVID-19 Nursing Follow-Up Reminder Dialog
COVID-19 Suicide Risk Management Follow-Up
Telehealth Emergency Management Reminder Dialog
COVID-19 SharePoint

Codified Data
COVID-19 Provider Reminder Dialog
COVID-19 Provider Screen
COVID-19 Consult Toolbox
COVID-19 IFC Consult
COVID-19 Care Coordination (requested)
COVID-19 Employer Clearance Letter

ENDNOTES
1. Clinical recommendations are to be applied along with consideration of bedside clinical judgement.
2. Refer to the COVID-19 SharePoint Page to access a repository of all clinical reminder dialogs and related materials, developed or under development.

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