COVID-19 Updates, April 20,2020

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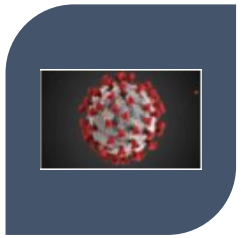


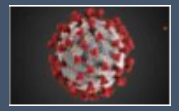
VIROLOGY

EPIDEMIOLOGY

CLINICAL MANIFESTATIONS

INFECTION CONTROL

TREATMENT



Virology:
Is SARS-CoV-2 a Natural Virus or Man-made?

- "**It is improbable** that SARS-CoV-2 emerged through laboratory manipulation of a related SARS-CoV-like coronavirus."
  - "If genetic manipulation had been performed, one of the several reverse-genetic systems available for betacoronaviruses would probably have been used. **However, the genetic data irrefutably show that SARS- CoV-2 is not derived from any previously used virus backbone**.
- "Instead, we propose two scenarios that can plausibly explain the origin of SARS-CoV-2"
  - Natural selection in an animal host before zoonotic transfer
  - Natural selection in humans following zoonotic transfer.

Theories of SARS-CoV-2 origins: NATuRe MediCiNe | VOL 26 | ApriL 2020 | 450–455 | www.nature.com/naturemedicine

Infection Control:
AHA guidance for CPR in the COVID Era

Interim Guidance for Basic and Advanced Life Support in Adults, Children, and Neonates With Suspected or Confirmed COVID-19: From the Emergency Cardiovascular Care Committee and Get With the Guidelines®-Resuscitation Adult and Pediatric Task Forces of the American Heart Association in Collaboration with the American Academy of Pediatrics, American Association for Respiratory Care, American College of Emergency Physicians, The Society of Critical Care Anesthesiologists, and American Society of Anesthesiologists: Supporting Organizations: American Association of Critical Care Nurses and National EMS Physicians

Dana P. Edelson, Comilla Sasson ✉, Paul S. Chan, Dianne L. Atkins, Khalid Aziz, Lance B. Becker, Robert A. Berg, Steven M. Bradley, Steven C. Brooks, Adam Cheng, Marilyn Escobedo, Gustavo E. Flores, Saket Girotra, Antony Hsu, Beena D. Kamath-Rayne, Henry C. Lee , Rebecca E. Lehotzky, Mary E. Mancini, Raina M. Merchant, Vinay M. Nadkarni, Ashish R. Panchal, ... See all authors

Originally published 9 Apr 2020 | https://doi.org/10.1161/CIRCULATIONAHA.120.047463 | Circulation. ;0:null

- All rescuers should don personal protective equipment (PPE) before entering a scene to protect against both airborne and droplet particles.
- Personnel on the scene should be limited only to those essential for patient care.
- Rescuers should consider replacing manual chest compressions with mechanical CPR for patients who meet the manufacturer's height and weight criteria.
- COVID-19 status should be communicated to any new providers before arrival on the scene or when transferring the patient to a second setting.

The administration of CPR involves performing numerous aerosol-generating procedures, including chest compressions, positive pressure ventilation and establishment of an advanced airway, During those procedures, viral particles can remain suspended in the air with a half-life of approximately 1 hour and be inhaled by those nearby

Treatment: Clinical Benefit of Remdesivir in Rhesus Macaques Infected with SARS-CoV-2

- **Methods:**
  - A macaque model of SARS-CoV-2 infection was used . **Two groups of six rhesus macaques** were infected with SARS-CoV-2 and treated with intravenous remdesivir or an equal volume of vehicle solution once daily.
- **Results:**
  - **Animals treate**d with remdesivir
    - **Did not show signs of respiratory disease** and had reduced pulmonary infiltrates on radiographs.
    - Had significantly **reduced virus titers** in bronchoalveolar lavages
    - lung viral loads at necropsy (on day 7 after inoculation) were significantly lower and there was a **clear reduction in damage to the lung tissue**.
- **Conclusions:** Therapeutic remdesivir treatment initiated early during infection has a clear clinical benefit in SARS-CoV-2-infected rhesus macaques. These data support early remdesivir treatment initiation in COVID-19 patients to prevent progression to severe pneumonia.

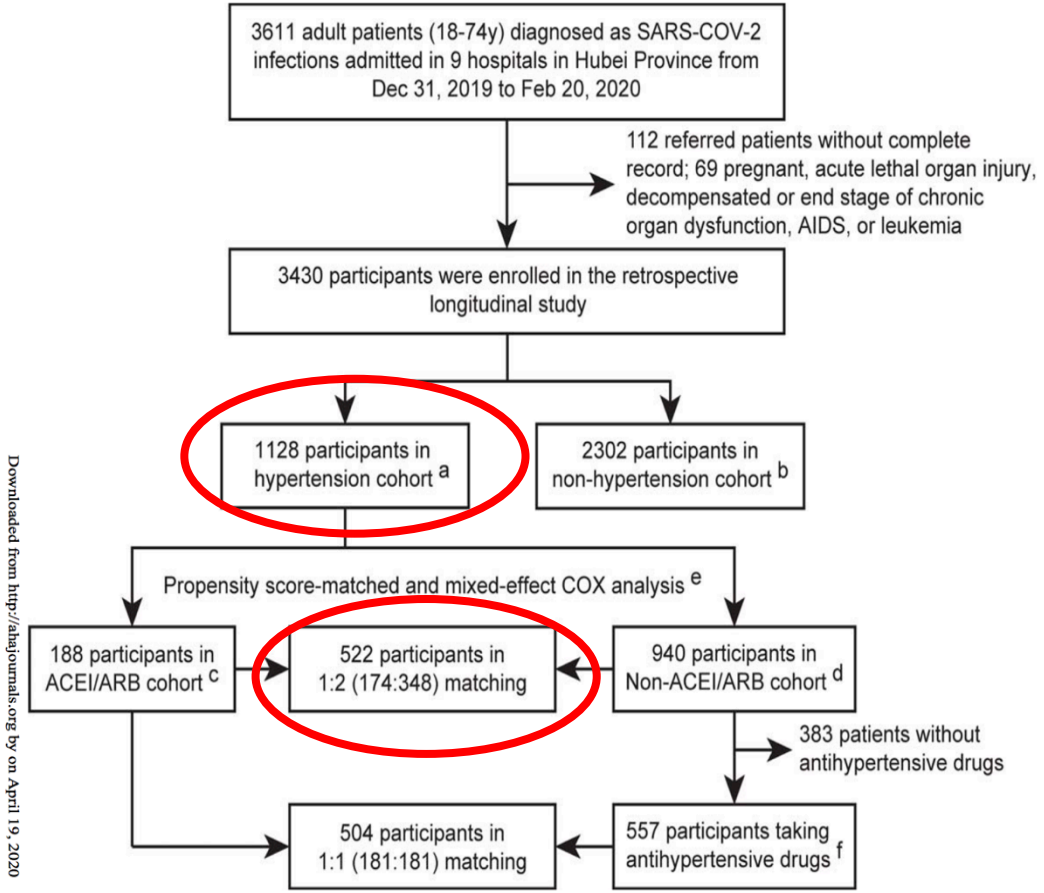
Respiratory disease and virus shedding in rhesus macaques inoculated with SARS-CoV-2

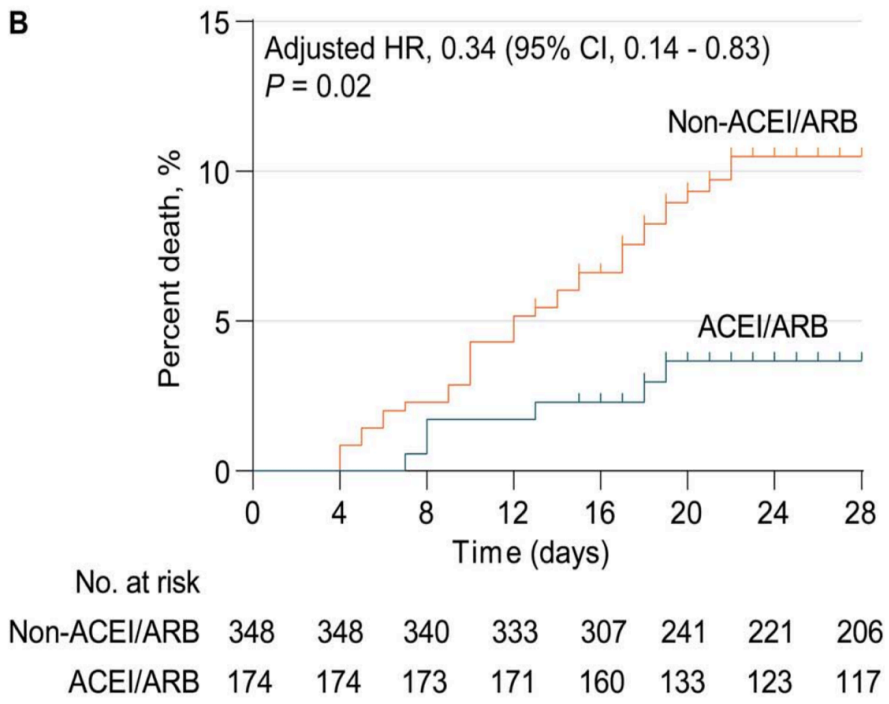
Vincent J. Munster, Friederike Feldmann, Brandi N. Williamson, Neeltje van Doremalen, Lizzette Pérez-Pérez, Jonathan Schulz, Kimberly Meade-White, Atsushi Okumura, Julie Callison, Beniah Brumbaugh, Victoria A. Avanzato, Rebecca Rosenke, Patrick W. Hanley, Greg Saturday, Dana Scott, Elizabeth R. Fischer, Emmie de Wit

doi: https://doi.org/10.1101/2020.03.21.001628

Treatment:

Association of Inpatient Use of Angiotensin Converting Enzyme Inhibitors and Angiotensin II Receptor Blockers with Mortality Among Patients With Hypertension Hospitalized WithCOVID-19





In hospital use of ACEI/ARB is associated reduced 28-day all-cause mortality of COVID-19 compared to non-ACEI/ARB group in patients with hypertension

Treatment:

Association of Inpatient Use of Angiotensin Converting Enzyme Inhibitors and Angiotensin II Receptor Blockers with Mortality Among Patients With Hypertension Hospitalized WithCOVID-19

- HTN is the most common comorbidity of the COVID-19 and had been suggested to be associated with increased mortality.
- ACEIs and ARBs are first-line medications for a large proportion of patients with hypertension.
- Use of ACEI/ARB is a major concern for clinicians in treating COVID-19 patients with hypertension because of the potential effect of ACEI/ARB on increasing the expression of ACE2, the binding receptor and entry point of the coronavirus.
- The incidence of the 28-day all-cause death among patients who had inpatient treatment with ACEI/ARB is significant lower compared with ACEI/ARB non-users, based on the analysis of 1128 hospitalized COVID-19 patients with hypertension.
- After matching and adjusting variables may interfering the effect of ACEI/ARB, in-hospital use of ACEI/ARB still exhibits remarkable association with reduced all-cause mortality of COVID-19 patients with hypertension.

These findings clearly support recently published recommendations regarding continuation of ACEI or ARB among patients with co-existing hypertension and COVID-19.

COVID-19:
The test has been done – now what?

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Outline

- Context of the Nurse Monitoring Program for suspected COVID-19 patients
- Process review:
  - COVID-19 Nurse Monitoring Program established in Cherokee Nation
- Managing COVID-19 positive individuals in the outpatient setting

Contact Tracing vs. Clinical Nurse Monitoring

Contact Tracing

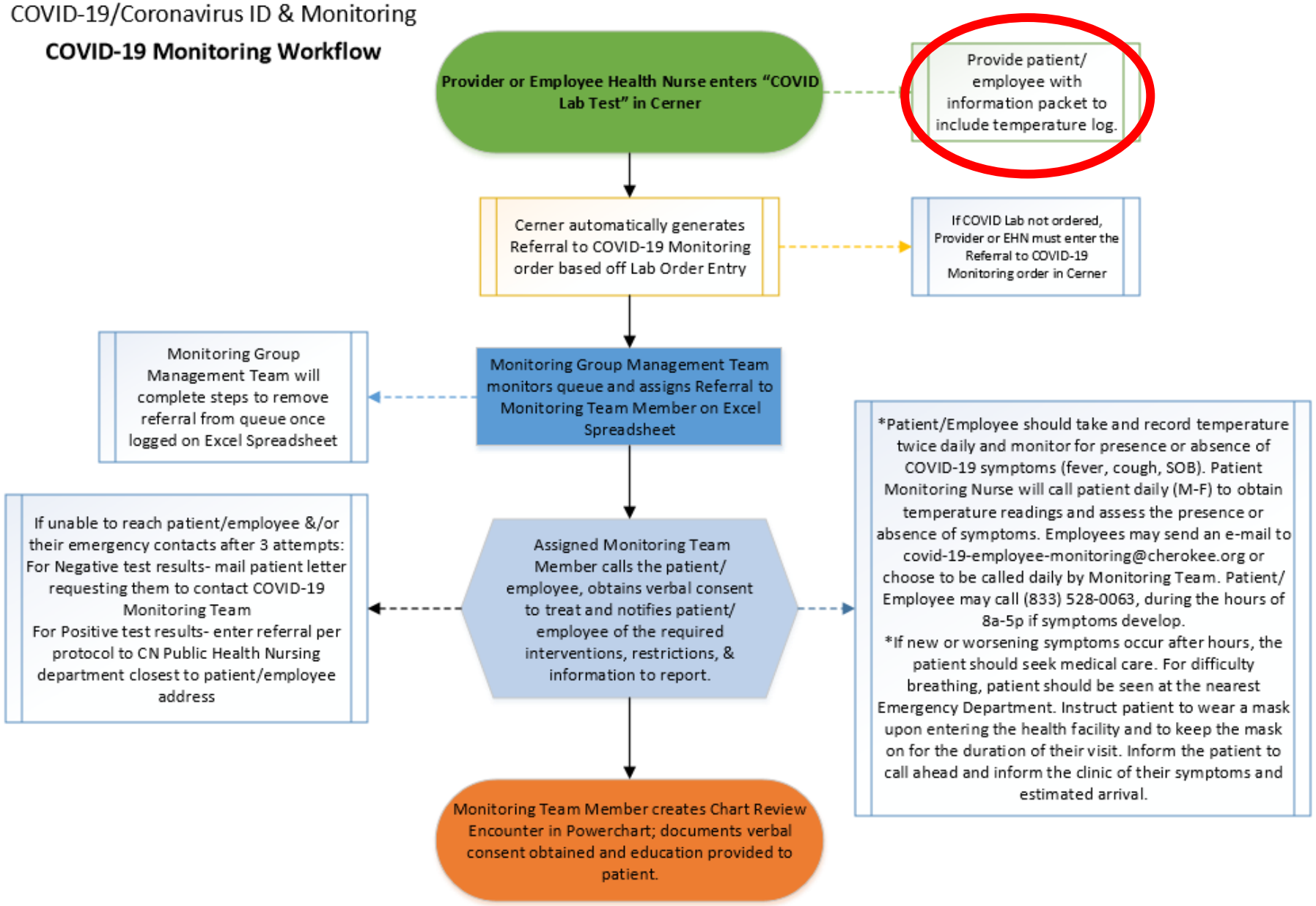
- Reviewed previously by Dr. Ashley Comiford
- Process begins at the point of positive result
  - Syndromic contact tracing not currently being done
- Contacts who are asymptomatic are quarantined; Contacts who are symptomatic are referred for testing
- Public Health program – non-clinical service

Nurse Monitoring

- Reviewing today
- Process begins at the point of testing
- Duration of monitoring depends on resolution of symptoms and results of test
  - Test result times vary from 1-9 days
- Clinical service – separate from contact tracing

Cherokee Nation Health Services
COVID-19/Coronavirus ID & Monitoring

COVID-19 Monitoring Workflow



Patient Education Packet – Cover Sheet

- Handout given to the patient:
  - Within 24-48 hours you will be contacted by the Cherokee Nation COVID-19 Monitoring Team to begin follow-up telephone monitoring.
  - Please remain isolated in your home until released by a Cherokee Nation COVID-19 Monitoring Team Member.
  - For new or worsening fever, cough, or shortness of breath you should seek medical care. If you experience difficulty breathing, go to your nearest emergency department. When visiting any health facility please wear a mask for the entire duration of your visit. If seeking medical care at a Cherokee Nation health facility, please call BEFORE arriving to inform the staff of your symptoms and estimated time of arrival.
  - If you have questions or need to speak to a Monitoring Team Member, please call 1-833-XXX-XXXX.

Other included information

10 ways to manage respiratory symptoms at home

If you have fever, cough, or shortness of breath, call your healthcare provider. They may tell you to manage your care from home. Follow these tips:

1. **Stay home** from work, school, and away from other public places. If you must go out, avoid using any kind of public transportation, ridesharing, or taxis.
2. **Monitor your symptoms** carefully. If your symptoms get worse, call your healthcare provider immediately.
3. **Get rest and stay hydrated.**
4. If you have a medical appointment, **call the healthcare provider** ahead of time and tell them that you have or may have COVID-19.
5. For medical emergencies, call 911 and **notify the dispatch personnel** that you have or may have COVID-19.
6. **Cover your cough and sneezes.**
7. **Wash your hands often** with soap and water for at least 20 seconds or clean your hands with an alcohol-based hand sanitizer that contains at least 60% alcohol.
8. As much as possible, **stay** in a specific room and **away from other people** in your home. Also, you should use a separate bathroom, if available. If you need to be around other people in or outside of the home, wear a facemask.
9. **Avoid sharing personal items** with other people in your household, like dishes, towels, and bedding.
10. **Clean all surfaces** that are touched often, like counters, tabletops, and doorknobs. Use household cleaning sprays or wipes according to the label instructions.

CDC

For more information: **www.cdc.gov/COVID19**

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Infection Control Cleaning Tips

Thorough hand washing is considered the most important single factor in preventing the spread of infection. Hand washing should be done:

- After coughing, sneezing, wiping of nose/eyes/mouth, use of restroom
- After contact with unclean equipment, supplies and/or work areas,
- Before and after eating

Clean and Disinfect high-touch areas often:
(e.g., sinks, counters, ledges, window sills, desktops, bedside tabletops, cabinet handles)

- The surfaces should be drenched with the diluted disinfectant and then left wet for the contact time recommended by the manufacturer.
- The surfaces should be wiped dry after the contact time.
- Clean cloths should be used for each room. Cleaning cloth should be rinsed frequently and replaced when soiled.

If the "bucket method" is used, the solution should be changed if the solution becomes visibly soiled.

Waste baskets or containers are clean inside and out and free of dust, litter or stains.

Clean and disinfect walls on a regular basis, spot cleaning as needed

Clean light switches, door knobs, and any other handle including sinks

Clean and disinfect bathrooms often with a focus on high touch areas

Clean Telephones:
Apply a small amount of cleaning solution to a cleaning cloth and clean hand-set, cradle, button or dial area. Clean the telephone ear and mouthpiece. Wipe and dry the cord and untwist if necessary

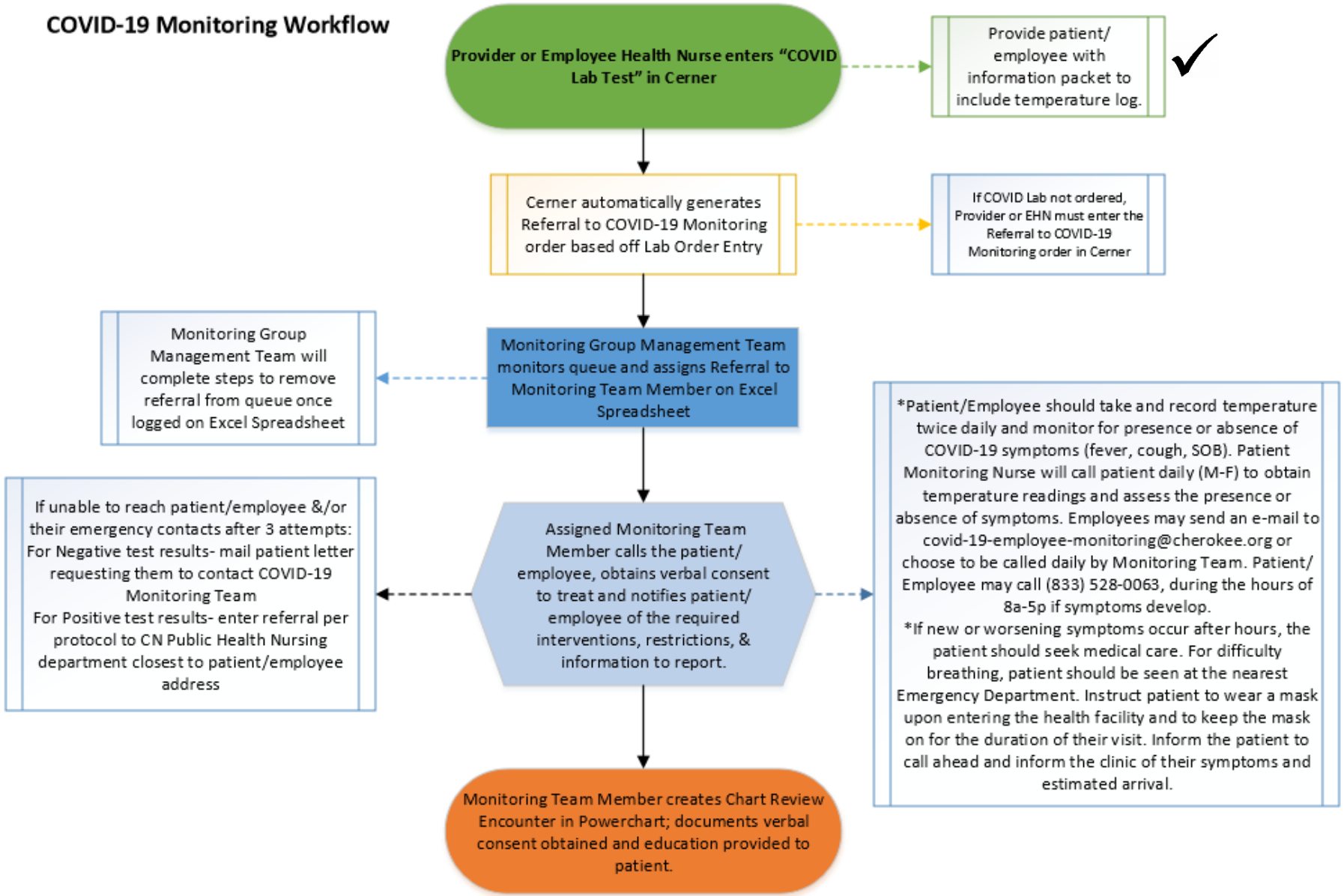
1 of 3

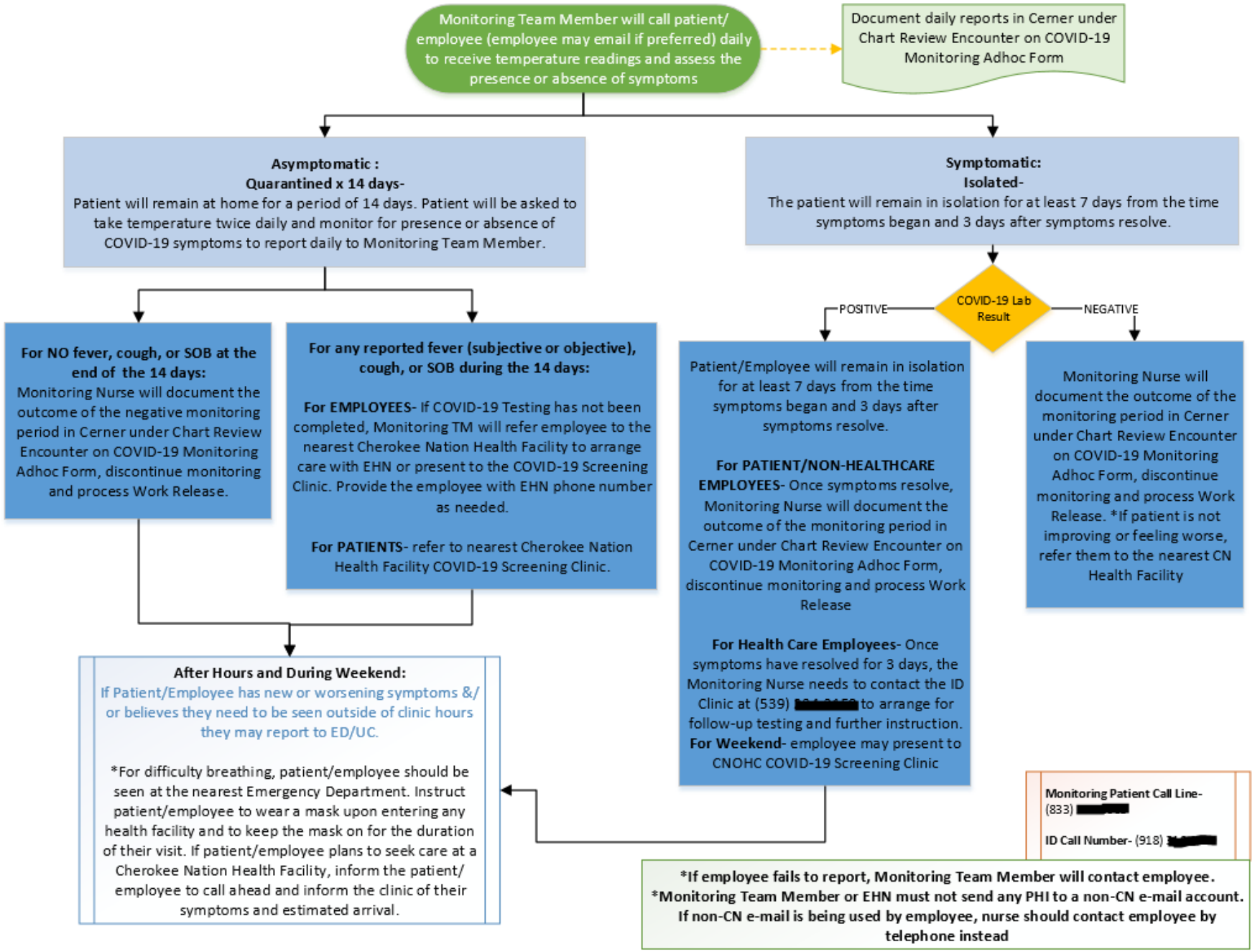
Patient Name		
Start Date		End Date

Day	Morning Temperature	Evening Temperature
Day 1		
Day 2		
Day 3		
Day 4		
Day 5		
Day 6		
Day 7		
Day 8		
Day 9		
Day 10		
Day 11		
Day 12		
Day 13		
Day 14		

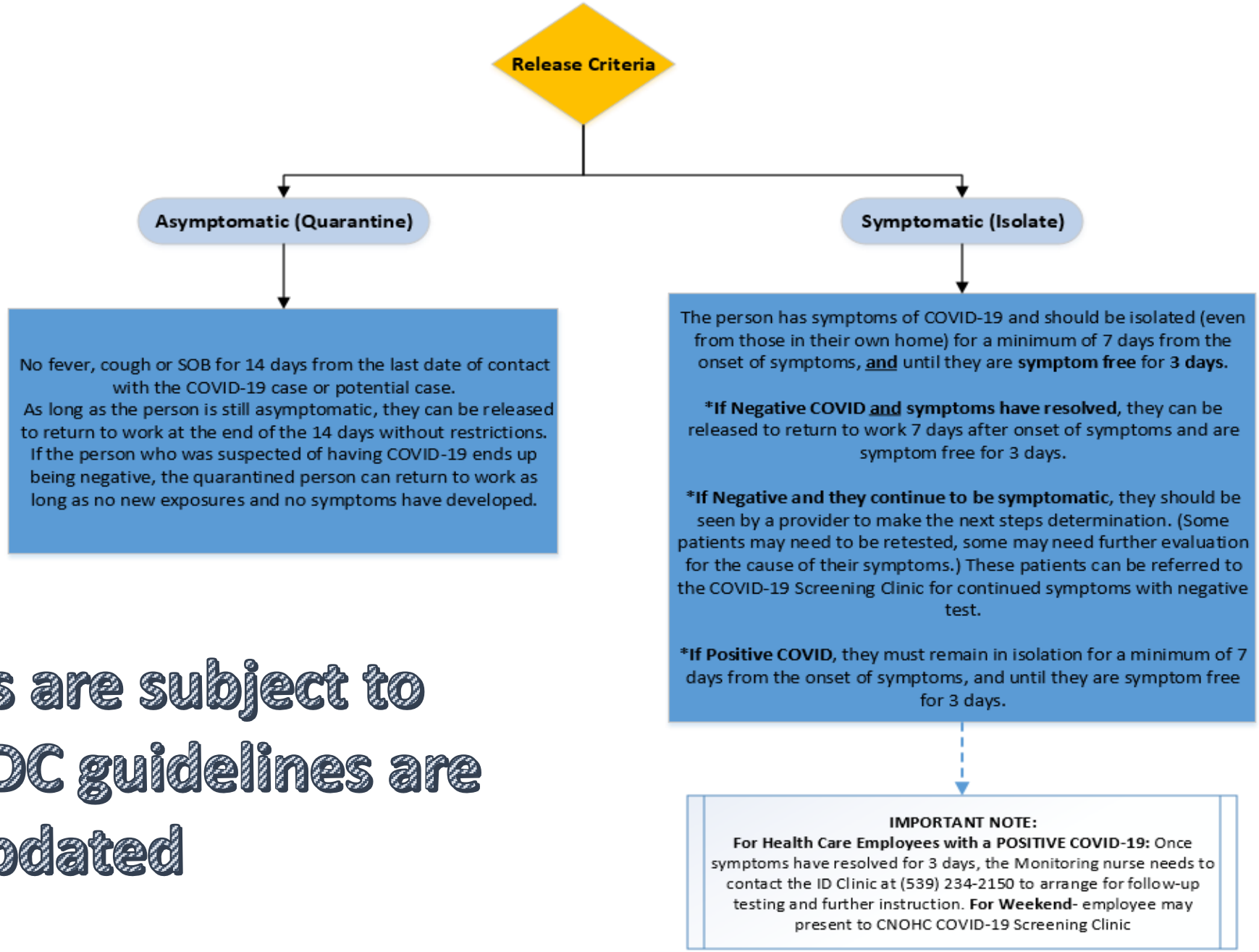
Cherokee Nation Health Services
COVID-19/Coronavirus ID & Monitoring

COVID-19 Monitoring Workflow




Monitoring Team Member will call patient/ employee (employee may email if preferred) daily to receive temperature readings and assess the presence or absence of symptoms
Document daily reports in Cerner under Chart Review Encounter on COVID-19 Monitoring Adhoc Form
Asymptomatic :
Quarantined x 14 days-
Patient will remain at home for a period of 14 days. Patient will be asked to take temperature twice daily and monitor for presence or absence of COVID-19 symptoms to report daily to Monitoring Team Member.
Symptomatic:
Isolated-
The patient will remain in isolation for at least 7 days from the time symptoms began and 3 days after symptoms resolve.
For NO fever, cough, or SOB at the end of the 14 days:
Monitoring Nurse will document the outcome of the negative monitoring period in Cerner under Chart Review Encounter on COVID-19 Monitoring Adhoc Form, discontinue monitoring and process Work Release.
For any reported fever (subjective or objective), cough, or SOB during the 14 days:
For EMPLOYEES- If COVID-19 Testing has not been completed, Monitoring TM will refer employee to the nearest Cherokee Nation Health Facility to arrange care with EHN or present to the COVID-19 Screening Clinic. Provide the employee with EHN phone number as needed.
For PATIENTS- refer to nearest Cherokee Nation Health Facility COVID-19 Screening Clinic.
COVID-19 Lab Result
POSITIVE
NEGATIVE
Patient/Employee will remain in isolation for at least 7 days from the time symptoms began and 3 days after symptoms resolve.
For PATIENT/NON-HEALTHCARE EMPLOYEES- Once symptoms resolve, Monitoring Nurse will document the outcome of the monitoring period in Cerner under Chart Review Encounter on COVID-19 Monitoring Adhoc Form, discontinue monitoring and process Work Release
For Health Care Employees- Once symptoms have resolved for 3 days, the Monitoring Nurse needs to contact the ID Clinic at (539) [redacted] to arrange for follow-up testing and further instruction.
For Weekend- employee may present to CNOHC COVID-19 Screening Clinic
Monitoring Nurse will document the outcome of the monitoring period in Cerner under Chart Review Encounter on COVID-19 Monitoring Adhoc Form, discontinue monitoring and process Work Release. *If patient is not improving or feeling worse, refer them to the nearest CN Health Facility
After Hours and During Weekend:
If Patient/Employee has new or worsening symptoms &/ or believes they need to be seen outside of clinic hours they may report to ED/UC.
*For difficulty breathing, patient/employee should be seen at the nearest Emergency Department. Instruct patient/employee to wear a mask upon entering any health facility and to keep the mask on for the duration of their visit. If patient/employee plans to seek care at a Cherokee Nation Health Facility, inform the patient/ employee to call ahead and inform the clinic of their symptoms and estimated arrival.
Monitoring Patient Call Line- (833) [redacted]
ID Call Number- (918) [redacted]
*If employee fails to report, Monitoring Team Member will contact employee.
*Monitoring Team Member or EHN must not send any PHI to a non-CN e-mail account. If non-CN e-mail is being used by employee, nurse should contact employee by telephone instead

Release Criteria: "When can I go back to work?"



Workflows are subject to change as CDC guidelines are updated

This has been a HUGE undertaking!

17 - Nurses

17 - Dental Hygienists

6 - Call Line Operators

Over 700 individuals reached

Positive Result Follow-up

- Nurse continues daily contact
- Provider visit
  - With PCP if possible – if not, with ID provider
  - Within 48 hours
  - Telemedicine Preferred
  - Further follow-up depends on patient's status at visit and risk factors for poor outcomes

Acknowledgements

- Process Development
  - Rebecca Shepherd, MSN, RN
  - Roger Montgomery, MD
  - Laura Lundberg, BSN, RN
  - Julie McCandless, BSN, RN
- All 40 of the other team members contacting patients everyday to make sure they feel supported clinically during the course of their illness!