STROKE & COVID
A NURSING PERSPECTIVE

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BARROW
Neurological Institute

Stroke and COVID: A Nursing Perspective

Stroke Volume and Community Awareness

Tiffany Sheehan PhD RN SCRN FAHA

Dignity Health.
St. Joseph's Hospital and Medical Center

Disclosures

- None

What we know…..

- A clear association reported between cerebrovascular disease and COVID 19
- Co-existing stroke + COVID 19 negatively influence patient outcomes
- Stroke care has been disrupted by the COVID-19 pandemic worldwide

(Tsivgoulis et al., 2020)

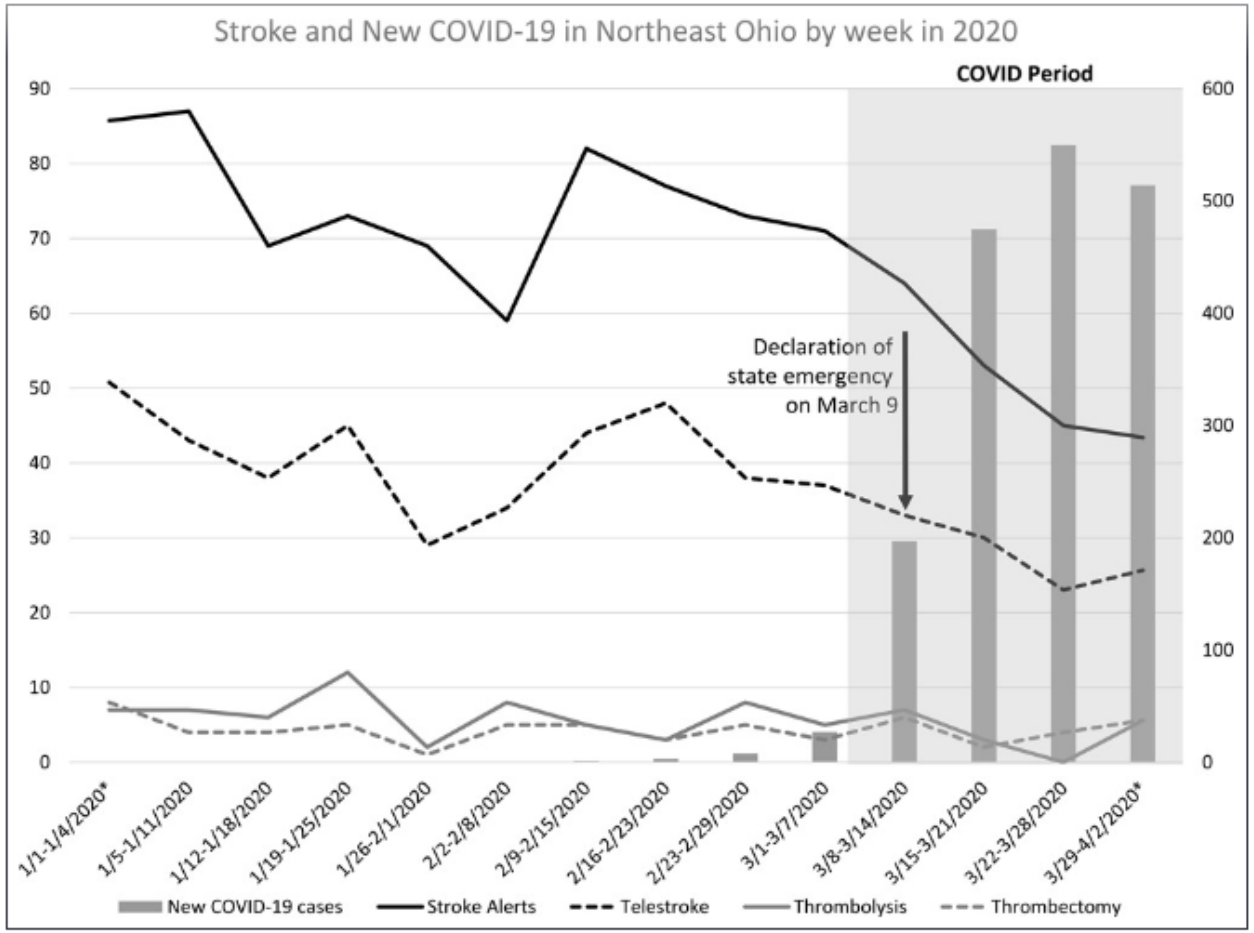
Early Observations

- Across the nation, hospitals have reported ~30-40% decrease in the volume of patients presenting with stroke
- Decrease in reperfusion therapies(Tsivgoulis et al., 2020)
- TIA and minor stroke symptoms staying home for fear of contracting the virus (Diegoli et al., 2020)
- Increased time from LKW to hospital arrival and time from arrival to imaging (Ghanchi et al., 2020)

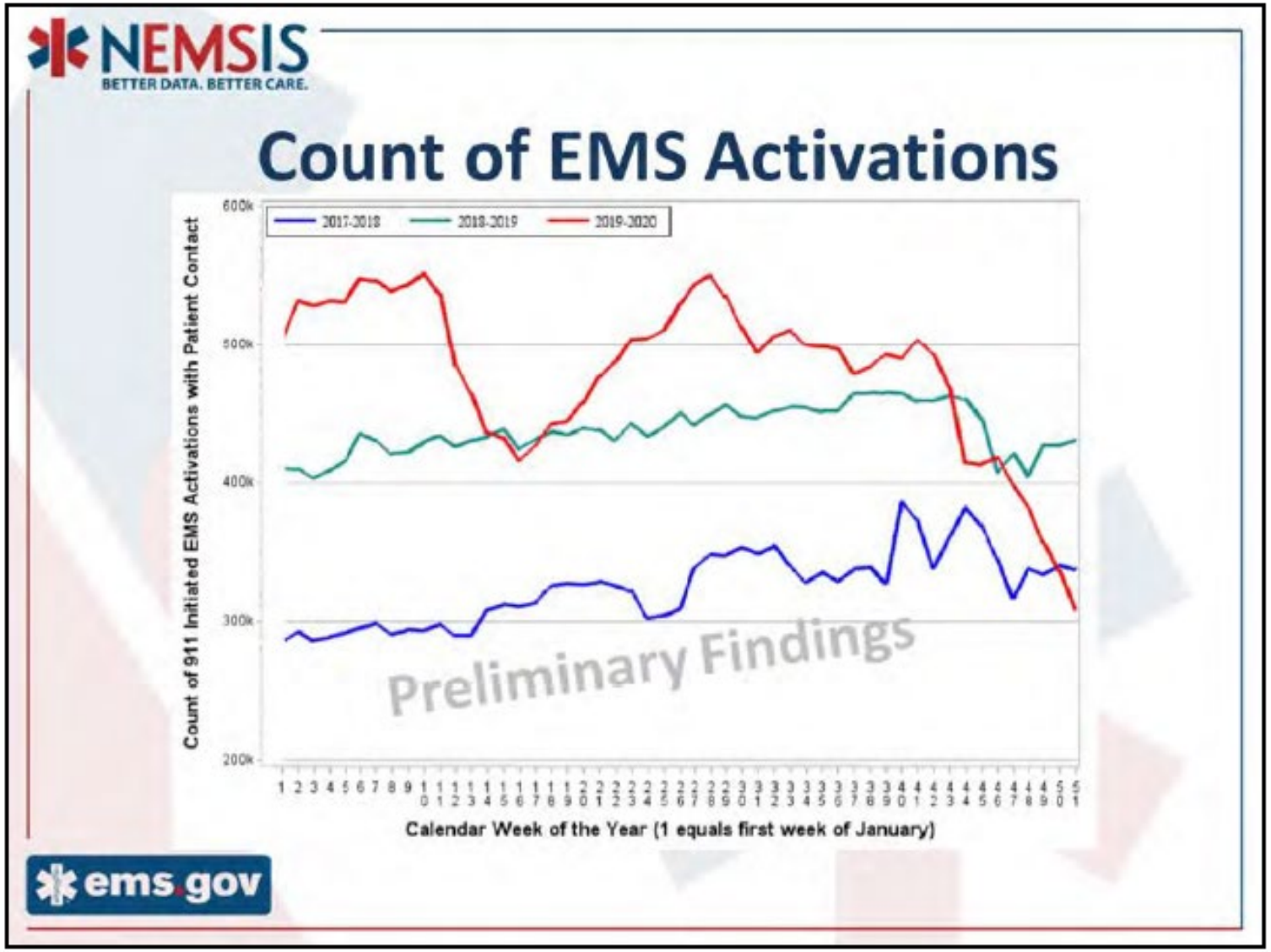
Early Observations: GWTG Stroke Registry

- Reported decreased stroke patient volume when compared with previous year
- Quality measures remain very close to pre-pandemic thresholds:
  - Door In Door Out
  - Door to Needle
  - Door to Puncture

Early Observations: Stroke Alert Activations



(Uchino et. al, 2020)


NEMSIS
BETTER DATA. BETTER CARE.
Count of EMS Activations
2017-2018
2018-2019
2019-2020
Count of 911 Initiated EMS Activations with Patient Contact
600k
500k
400k
300k
200k
Preliminary Findings
Calendar Week of the Year (1 equals first week of January)
ems.gov

(Mann, N.C., 2020)

Where have all the stroke patients gone????


ARIZONA
STAY-AT-HOME
ORDER

Community Thought Process

"But the people on TV said stay home!"

"The hospitals are all overwhelmed and won't be able to care for me"

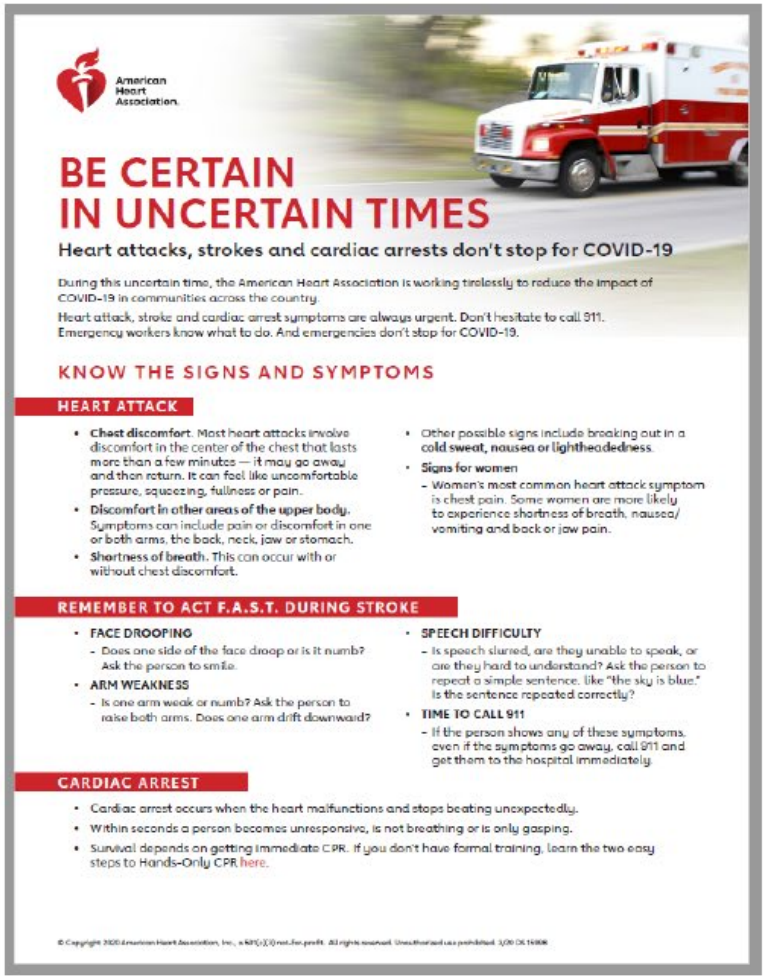
"Not enough PPE to keep me protected"

"I will be alone at the hospital"

"If I go to the hospital I might get COVID"

"I'm scared so I'll take my chances at home"

Community Awareness



American Heart Association.

BE CERTAIN IN UNCERTAIN TIMES

Heart attacks, strokes and cardiac arrests don't stop for COVID-19

During this uncertain time, the American Heart Association is working tirelessly to reduce the impact of COVID-19 in communities across the country.

Heart attack, stroke and cardiac arrest symptoms are always urgent. Don't hesitate to call 911. Emergency workers know what to do. And emergencies don't stop for COVID-19.

KNOW THE SIGNS AND SYMPTOMS

HEART ATTACK

- **Chest discomfort.** Most heart attacks involve discomfort in the center of the chest that lasts more than a few minutes — it may go away and then return. It can feel like uncomfortable pressure, squeezing, fullness or pain.
- **Discomfort in other areas of the upper body.** Symptoms can include pain or discomfort in one or both arms, the back, neck, jaw or stomach.
- **Shortness of breath.** This can occur with or without chest discomfort.
- Other possible signs include breaking out in a **cold sweat, nausea or lightheadedness.**
- **Signs for women**
  - Women's most common heart attack symptom is chest pain. Some women are more likely to experience shortness of breath, nausea/vomiting and back or jaw pain.

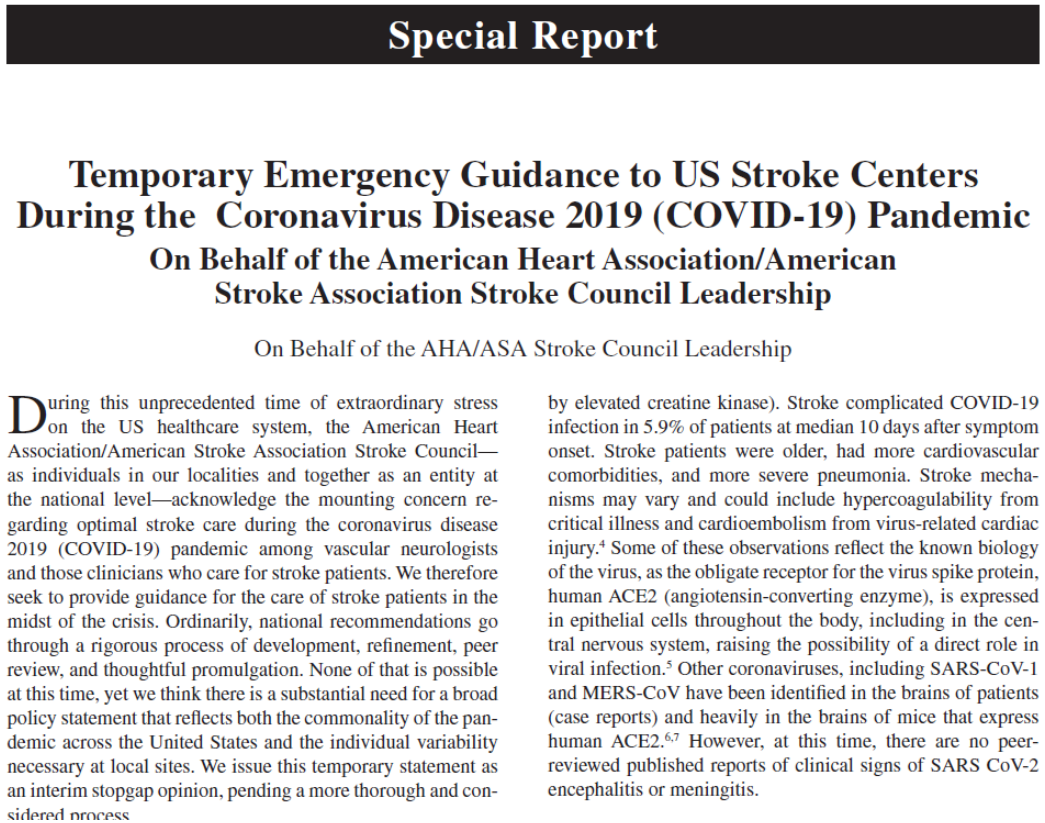
REMEMBER TO ACT F.A.S.T. DURING STROKE

- **FACE DROOPING**
  - Does one side of the face droop or is it numb? Ask the person to smile.
- **ARM WEAKNESS**
  - Is one arm weak or numb? Ask the person to raise both arms. Does one arm drift downward?
- **SPEECH DIFFICULTY**
  - Is speech slurred, are they unable to speak, or are they hard to understand? Ask the person to repeat a simple sentence, like "the sky is blue." Is the sentence repeated correctly?
- **TIME TO CALL 911**
  - If the person shows any of these symptoms, even if the symptoms go away, call 911 and get them to the hospital immediately.

CARDIAC ARREST

- Cardiac arrest occurs when the heart malfunctions and stops beating unexpectedly.
- Within seconds a person becomes unresponsive, is not breathing or is only gasping.
- Survival depends on getting immediate CPR. If you don't have formal training, learn the two easy steps to Hands-Only CPR here.

Emergency Guidelines: Stroke Care



Special Report

Temporary Emergency Guidance to US Stroke Centers During the Coronavirus Disease 2019 (COVID-19) Pandemic

On Behalf of the American Heart Association/American Stroke Association Stroke Council Leadership

On Behalf of the AHA/ASA Stroke Council Leadership

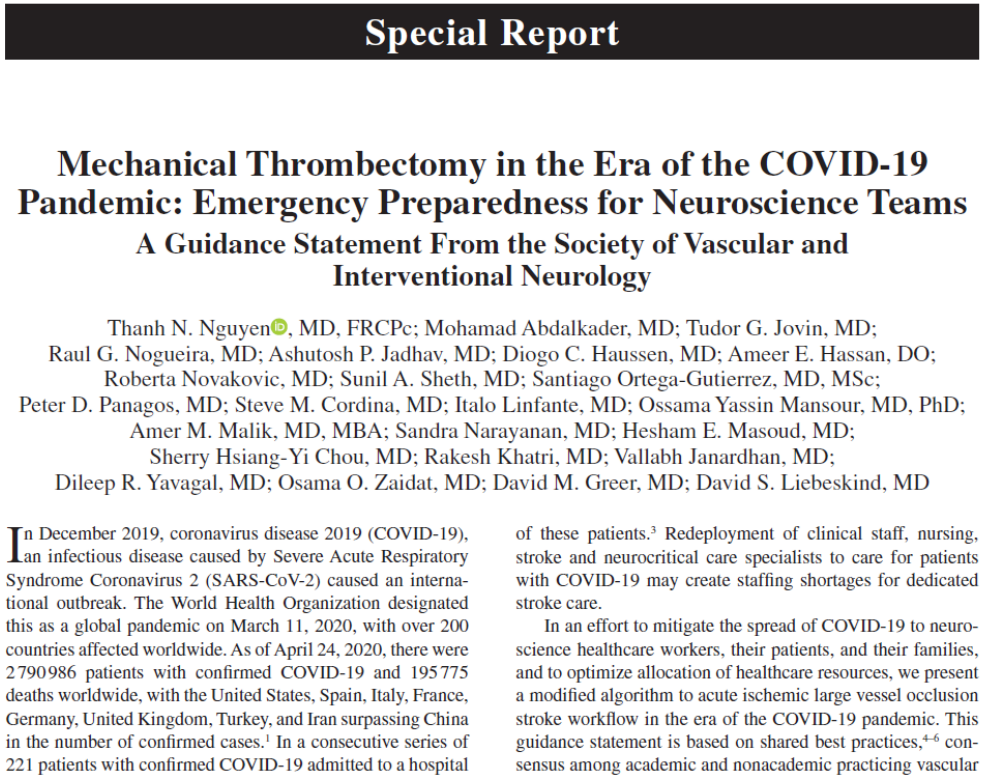
During this unprecedented time of extraordinary stress on the US healthcare system, the American Heart Association/American Stroke Association Stroke Council—as individuals in our localities and together as an entity at the national level—acknowledge the mounting concern regarding optimal stroke care during the coronavirus disease 2019 (COVID-19) pandemic among vascular neurologists and those clinicians who care for stroke patients. We therefore seek to provide guidance for the care of stroke patients in the midst of the crisis. Ordinarily, national recommendations go through a rigorous process of development, refinement, peer review, and thoughtful promulgation. None of that is possible at this time, yet we think there is a substantial need for a broad policy statement that reflects both the commonality of the pandemic across the United States and the individual variability necessary at local sites. We issue this temporary statement as an interim stopgap opinion, pending a more thorough and considered process

by elevated creatine kinase). Stroke complicated COVID-19 infection in 5.9% of patients at median 10 days after symptom onset. Stroke patients were older, had more cardiovascular comorbidities, and more severe pneumonia. Stroke mechanisms may vary and could include hypercoagulability from critical illness and cardioembolism from virus-related cardiac injury.[4] Some of these observations reflect the known biology of the virus, as the obligate receptor for the virus spike protein, human ACE2 (angiotensin-converting enzyme), is expressed in epithelial cells throughout the body, including in the central nervous system, raising the possibility of a direct role in viral infection.[5] Other coronaviruses, including SARS-CoV-1 and MERS-CoV have been identified in the brains of patients (case reports) and heavily in the brains of mice that express human ACE2.[6,7] However, at this time, there are no peer-reviewed published reports of clinical signs of SARS CoV-2 encephalitis or meningitis.

- PPE
- Telemedicine
- Health and Safety
- Teamwork
- **Stroke System of care needed now more than ever**

(AHA/ASA Stroke Council Leadership)

Thrombectomy in the Era of COVID 19



Special Report

Mechanical Thrombectomy in the Era of the COVID-19 Pandemic: Emergency Preparedness for Neuroscience Teams

A Guidance Statement From the Society of Vascular and Interventional Neurology

Thanh N. Nguyen, MD, FRCPc; Mohamad Abdalkader, MD; Tudor G. Jovin, MD; Raul G. Nogueira, MD; Ashutosh P. Jadhav, MD; Diogo C. Haussen, MD; Ameer E. Hassan, DO; Roberta Novakovic, MD; Sunil A. Sheth, MD; Santiago Ortega-Gutierrez, MD, MSc; Peter D. Panagos, MD; Steve M. Cordina, MD; Italo Linfante, MD; Ossama Yassin Mansour, MD, PhD; Amer M. Malik, MD, MBA; Sandra Narayanan, MD; Hesham E. Masoud, MD; Sherry Hsiang-Yi Chou, MD; Rakesh Khatri, MD; Vallabh Janardhan, MD; Dileep R. Yavagal, MD; Osama O. Zaidat, MD; David M. Greer, MD; David S. Liebeskind, MD

In December 2019, coronavirus disease 2019 (COVID-19), an infectious disease caused by Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) caused an international outbreak. The World Health Organization designated this as a global pandemic on March 11, 2020, with over 200 countries affected worldwide. As of April 24, 2020, there were 2 790 986 patients with confirmed COVID-19 and 195 775 deaths worldwide, with the United States, Spain, Italy, France, Germany, United Kingdom, Turkey, and Iran surpassing China in the number of confirmed cases.[1] In a consecutive series of 221 patients with confirmed COVID-19 admitted to a hospital of these patients.[3] Redeployment of clinical staff, nursing, stroke and neurocritical care specialists to care for patients with COVID-19 may create staffing shortages for dedicated stroke care.

In an effort to mitigate the spread of COVID-19 to neuroscience healthcare workers, their patients, and their families, and to optimize allocation of healthcare resources, we present a modified algorithm to acute ischemic large vessel occlusion stroke workflow in the era of the COVID-19 pandemic. This guidance statement is based on shared best practices,[4–6] consensus among academic and nonacademic practicing vascular

- Prehospital
- Consent and health care proxy
- Airway preparation
- Room preparation
- Intra-procedure
- Neurological Exam, vitals, and access checks
- Post thrombectomy therapy
- Psychosocial
- Post acute care

Chain of Survival for Stroke Patients

Recognition of symptoms

- ED triage and evaluation: COVID tents, reduced response team size, and additional screening requirements
- Use of telemedicine (phone and video)

Timely EMS Response

- Increase sanitation procedures
- PPE procedures
- Mobile stroke units

Transport to Stroke Center

- Depleted hospital resources: beds and staff availability
- Drip and Ship not transferred
- Centralized transfer center (sorting hat of sorts)
- Thrombectomy: advanced imaging, Intubate, if so, where?

Current Surge: Will volume trends continue??

- Will we see an increase of in-hospital stroke alert activations?
- Increase of Stroke + COVID admissions and/or readmissions?
- Will our quality of care be compromised given increased hospital capacity, decreased staff?
- Will we be able to capture pertinent patient safety and program data
  - Stroke coordinators deployed back to the bedside
  - Contingency/Disaster charting

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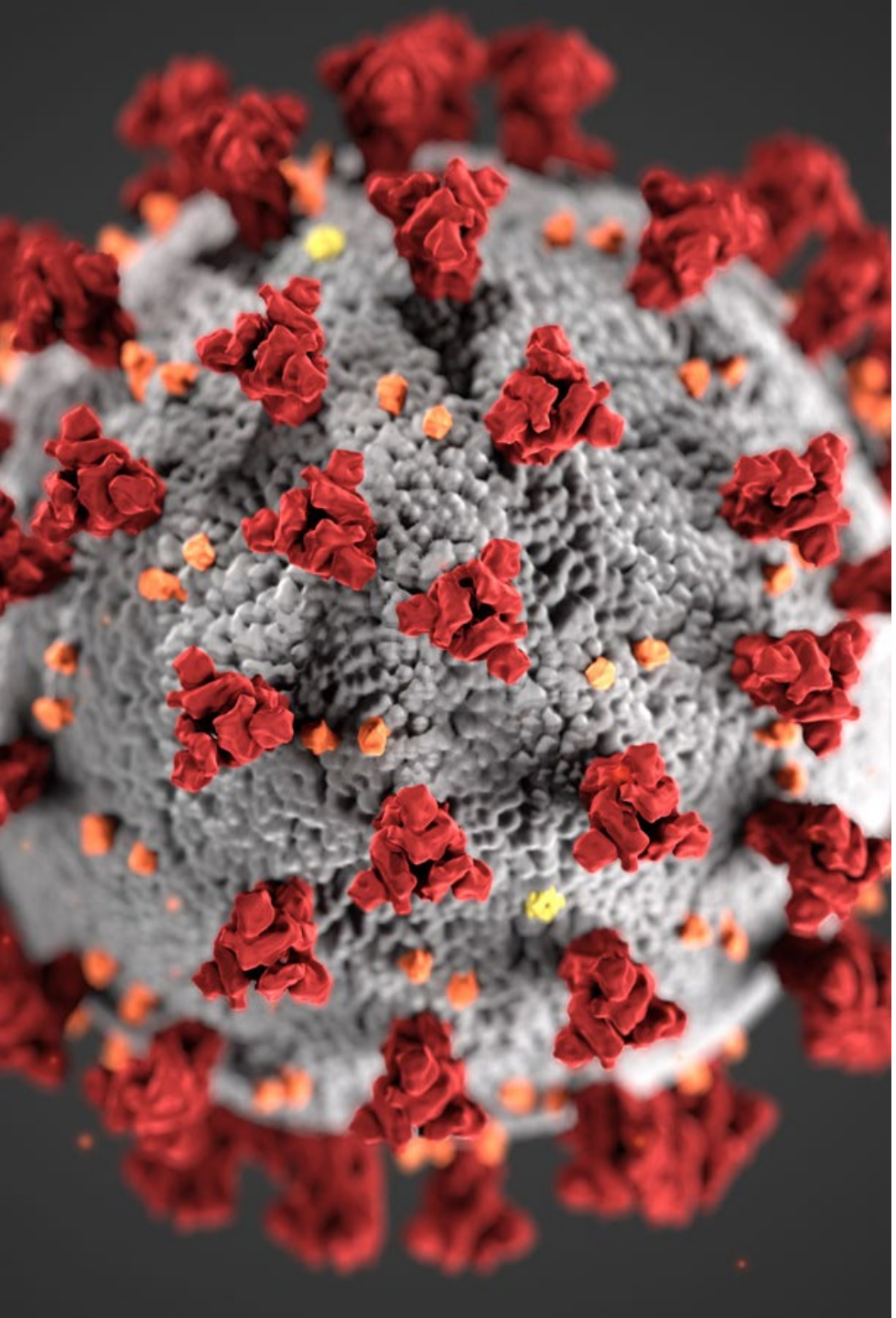
Jennifer Henry, MSN RN CNRN SCRN NVRN-BC

Nursing Care Challenges

The University of Tennessee Medical Center

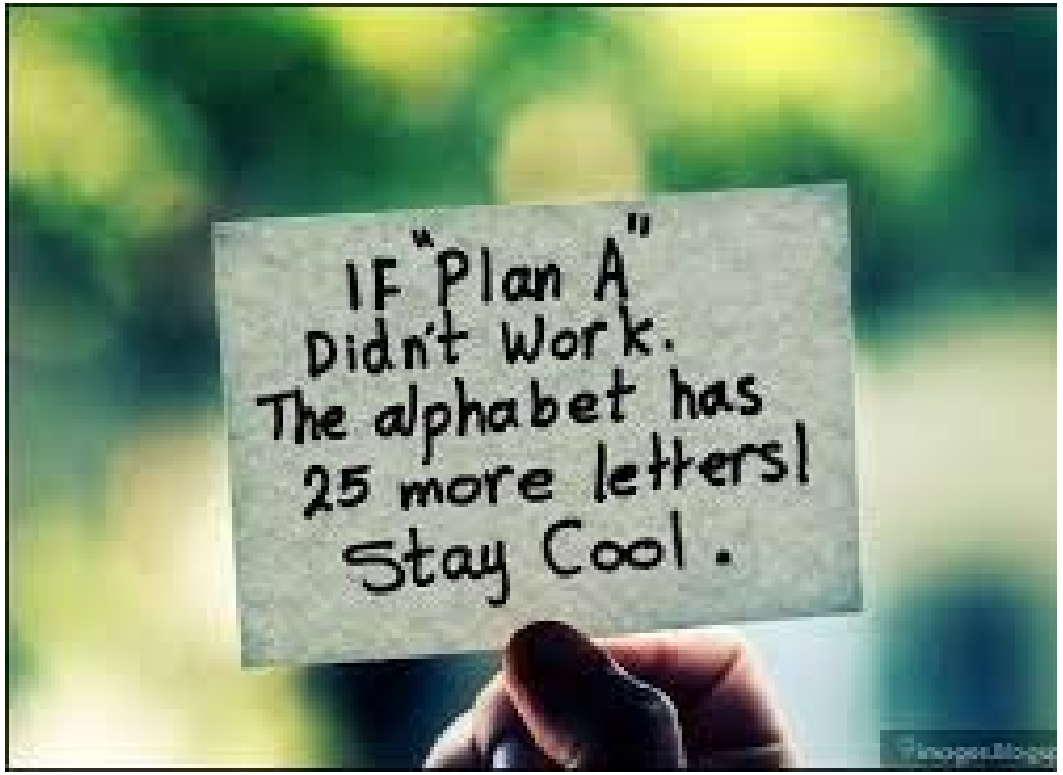
- 669 bed teaching hospital in Knoxville, Tennessee
  - TJC Comprehensive Stroke Center
  - Magnet designated, Level 1 Trauma Center, Comprehensive Cardiac, Advanced Orthopaedic Center
- Serves a 21 county region in eastern Tennessee
- Over 1900 ED Code Stroke activations in 2020



A Variety of “Unprecedented” Challenges

- Code Stroke
- Stroke Nursing Unit
- Discharge and Beyond
- Supporting Our Teams

Everyone had a pandemic plan....but...



"The crisis came with no playbook that accounts for the intensity of the illness or the lack of resources."

(Hossain, 2020)

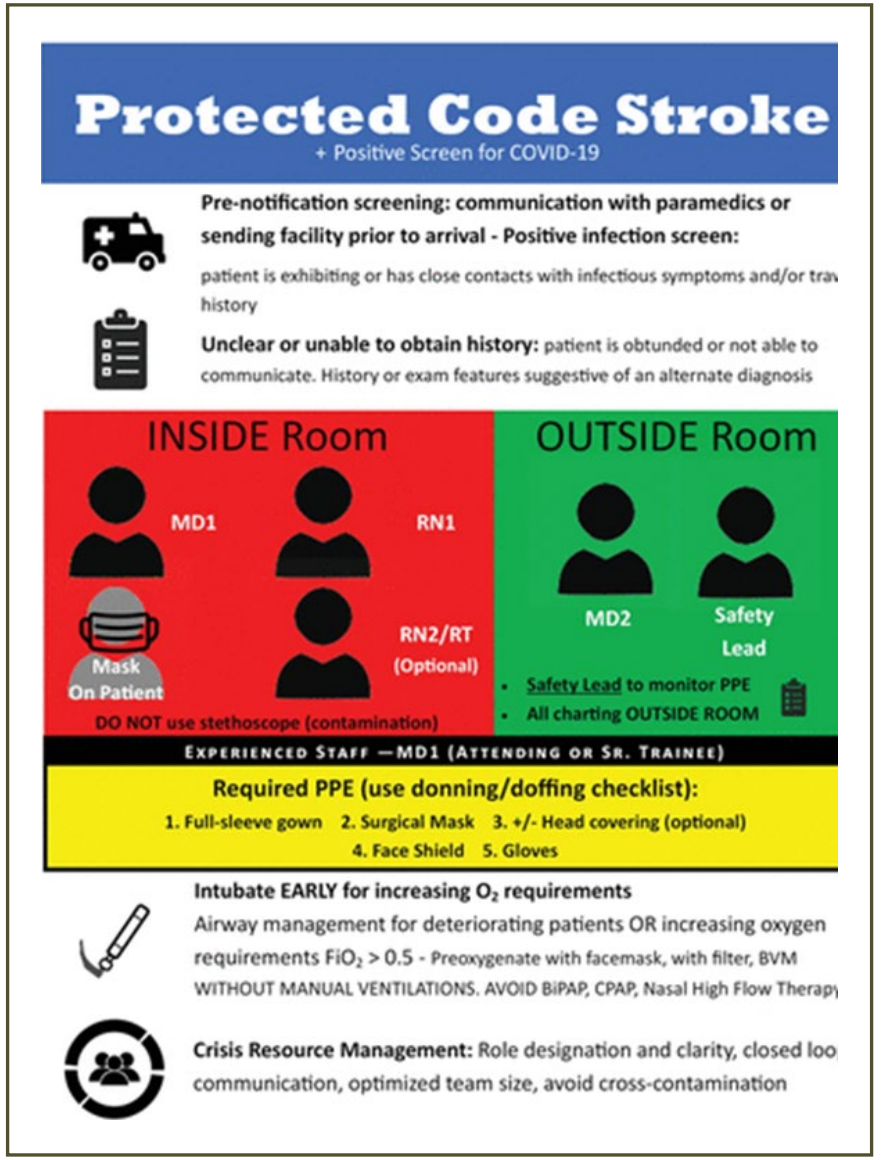
Clinicians' Perception of Practice Changes for Stroke During the COVID-19 Pandemic

- Survey published by Kamdar, et al.
- Respondents from 39 states, 206 surveys
  - 82.5% from CSCs
  - Approximately 50% reported change in transport practices, with a significant reduction in transfers
  - 81% noted overall decrease in volume
  - Actions to limit team member exposure
    - 63.5% report using PPE for all patients
    - 64.5% limit number of practitioners in room
  - 34% felt that outcome or care of acute stroke patients had been impacted by COVID-19

Code Stroke Process Adjustments

- Treat all patients with acute stroke symptoms as COVID suspected or positive
- PPE
- Protected Code Stroke
- Screen prior to evaluation, patients masked
- Testing if available
- Send fewest number of stroke team members possible to evaluate during code stroke and in room for follow up visits

(AHA, 2020;Dafer, 2020; Khosvarani, 2020)



(Image: Khosvarani, 2020)

Code Stroke Process Adjustments

- Adjustments to post thrombolytic monitoring
  - Video technology
  - Altered frequency of monitoring
    - OPTIMIST
- Early transfer out of ICU
- Restricted visitors
- Leverage tele-stroke options to prevent unnecessary transfers
  - Screen for COVID at spoke prior to transfer so that hub teams are prepared upon patient arrival
- Stroke networks, collaboration among facilities
  - Teamwork, unified system of care
- Simulation training
  - ID safety threats and to adjust protocols to mitigate threats
  - Practice relevant tasks such as proper donning and doffing

(AHA, 2020; Dafer, 2020; Faigle, 2020; Kurz, 2020)

Neuro-Interventional Adjustments

- Maximize care for all patients, reduce risk to care providers
  - PPE and enhanced PPE
  - Intubation prior to transport to angio suite in negative pressure room if available
  - Transfer uncomplicated post thrombectomy out of ICU as soon as possible
  - COVID testing if available
  - If multiple suites designate “COVID” room stocked with enhanced PPE
  - Staffing adjustments to separate overlapping skillsets
  - Well trained in donning and doffing techniques

(Chowdhury, 2020; Fraser, 2020)

Stroke Unit Adjustments

- Visitor restrictions
  - Significant struggle for patients, families, and stroke teams
  - Extra effort to reach families initially for history, onset information, treatment options
  - On-going efforts to stay connected during stay
  - Leverage available technology
  - Allowances made for end-of-life care

Discharge and Beyond

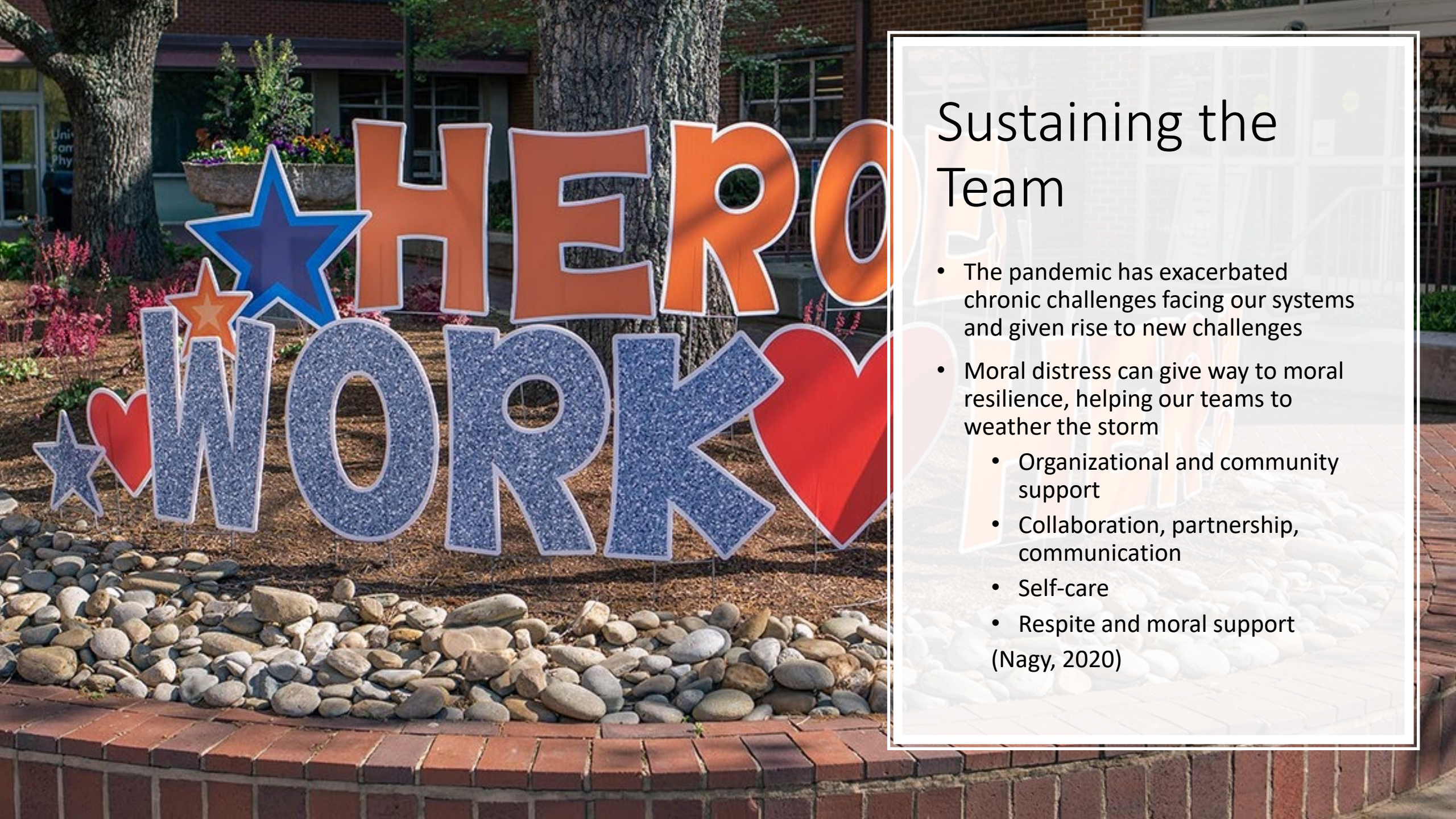
- May need to adjust PT/OT/ST process to ensure consultation not indiscriminate
  - PT/OT/ST approach may need be altered due to changes in discharge destination options
- Stroke DC education challenges
  - Leverage available technologies to reach families, caregivers
- Process for transfer to inpatient rehab, SNF, etc. impacted
  - Testing prior to transfer
  - Delays due to bed availability
  - DC home when medically stable instead of facility
- Follow-up post discharge
  - Telemedicine everything

Team Member Education

Community Education

Part of the Whole

- Surge planning and implementation
  - Resources reassigned to provide care for COVID-19
    - Neuro intensive care units
    - Neuro critical care teams: physicians, NPs/PAs
    - Neuro unit nurses
  - Non-neuro/stroke nurses assigned
  - Stroke patients placed on non-stroke units
  - Innovative models of nursing care
- Other stressors
  - Availability of care
  - Staffing, patient ratios
  - Difficulty connecting with patients and families
  - Continued isolation



Sustaining the Team

- The pandemic has exacerbated chronic challenges facing our systems and given rise to new challenges
- Moral distress can give way to moral resilience, helping our teams to weather the storm
  - Organizational and community support
  - Collaboration, partnership, communication
  - Self-care
  - Respite and moral support

(Nagy, 2020)

For all that you do to ensure our stroke patients get the best care.

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Stroke

Recertification During Covid 19

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Director Medical Operations Neuroscience Service Line
Lehigh Valley Hospital, Allentown PA

A COMPLETE HEALTH NETWORK

Lehigh Valley Health Network

LVH–Cedar Crest


LVH–Muhlenberg


LVH–17th Street

LVH–Hazleton

LVH–Pocono

Lehigh Valley Reilly Children's Hospital


LVH–Schuylkill E. Norwegian Street

LVH–Schuylkill S. Jackson Street


LVHN–Tilghman


Coordinated Health

LVH–Carbon

LVH–Hecktown Oaks

LVHN ExpressCARE

Health Centers


Lehigh Valley Physician Group

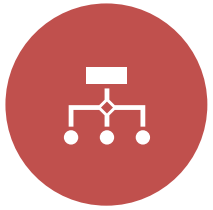
Getting your site survey ready…

What is the latest …

- We are conducting Stroke Reviews both on-site and off-site(virtually)
- The review process itself has not changed, however the off-site process requires pre review submission of documents
- Organizations may postpone their reviews if the impact of COVID is still a burden
- Any questions, the organization may contact their Certification Account Executive.

Doreen Donohue TJC 1/7/21

Need a Plan



ASSEMBLE YOUR “TO DO” LIST

SCHEDULE STAKEHOLDER VIRTUAL GATHERINGS

PRACTICE ELECTRONIC CHART REVIEW SESSIONS

ONLINE PRACTICE SESSIONS FOR OPENING & SYSTEM TRACERS

FEEDBACK, FEEDBACK, FEEDBACK…

MAKE FRIENDS WITH IT/ AV/ REGULATORY TEAM

START EARLY, EXPECT DELAYS, AND REMAIN NIMBLE

Virtual Review

- Zoom healthcare platform
- Technology Test & Shared Drive for documents
  - Ready Date
- Expect a 7 day notice
  - Same Review Agenda w / few modifications
  - *Opening Conference

One Disease, One Day Virtual Review Agenda Template

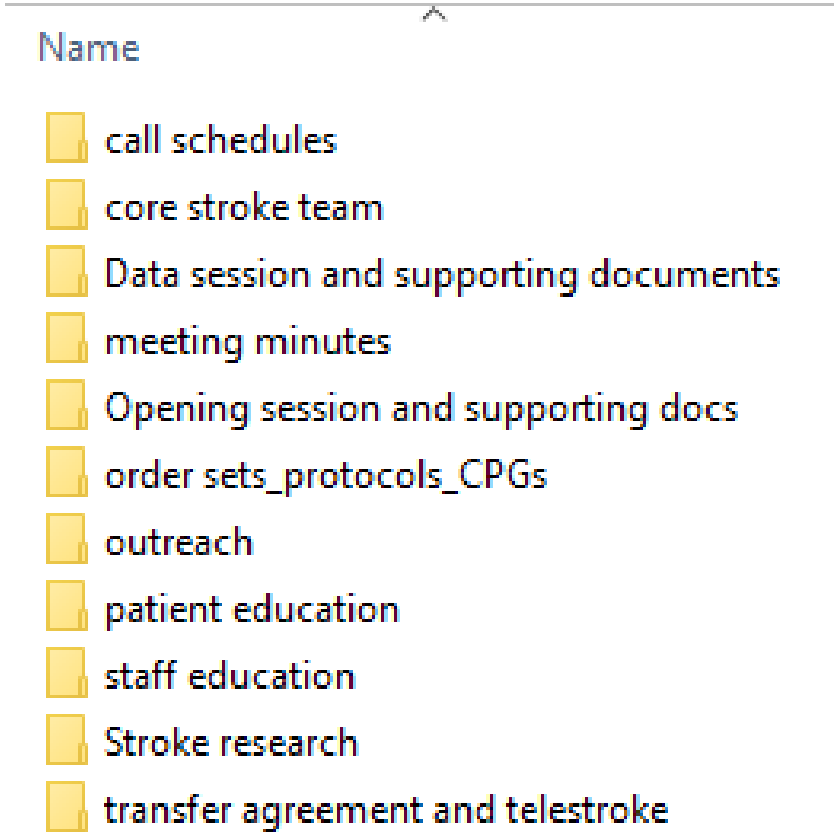
	Activity	Organization Participants
Afternoon Prior to Review		
3:00-4:30p (time may be adjusted based on HCO or reviewer needs)	**Opening Conference** (10 minutes) ▪ Reviewer greeting and introduction ▪ Introductions of key program and organization staff ▪ Brief review of agenda **Orientation Programs** (30 minutes) Topics to be covered include: ▪ Program leadership ▪ Program interdisciplinary team composition ▪ Program design and integration into hospital ▪ Program mission and goals for care ▪ Population characteristics and needs ▪ Program selection and implementation of clinical practice guidelines (CPG) ▪ Program evaluation of CPG use and deviation monitoring ▪ Program improvements in CPG content and use ▪ Overall program improvements implemented or planned **Q & A Discussion** (20 minutes)	• Program Clinical and Administrative Leadership • Hospital Leadership • Interdisciplinary Team Members

Creating a Presence

- Online Etiquette: Netiquette
  - Plan for Introductions
    - Effective use of webcam for formal introductions
    - Sign in with full name
    - Turn off pop ups
  - Clear Directions to all attendees
    - Identify a moderator – someone able to move things along
  - Effective Participation
    - Define team roles for digital citizenship

Key Documents for Shared Drive

- Going digital:
  - Who is super organized on your team? – put them in charge
  - Enlist help to scan required documents
  - Review required document list
- Share & orient core support team
- Allow adequate time for this step!!



Behind the Scene Magic

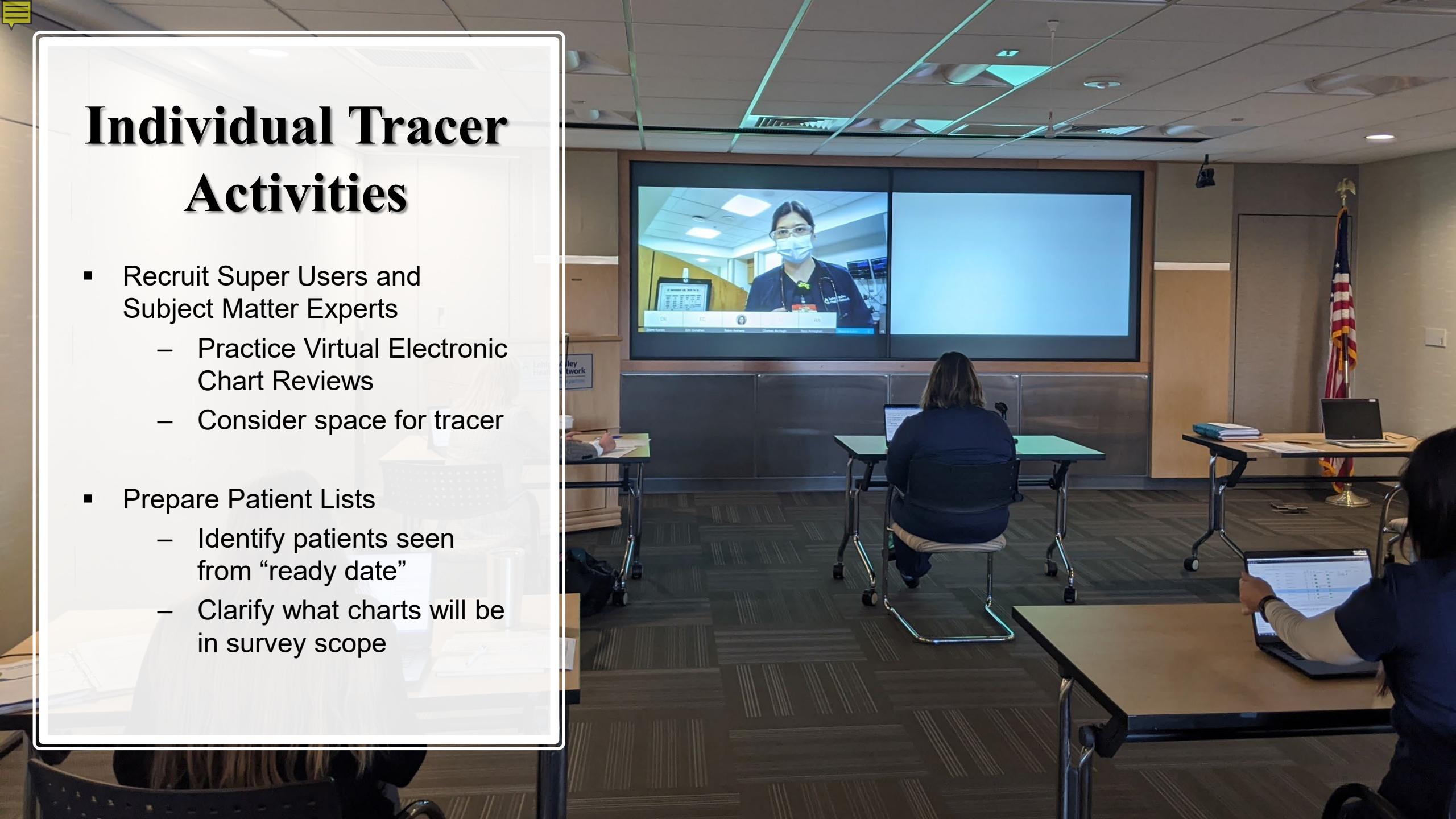
- Survey Command Center:
  - Logistical /tactical needs
  - Bi-directional Communication
  - Socially distant and PPE prepared

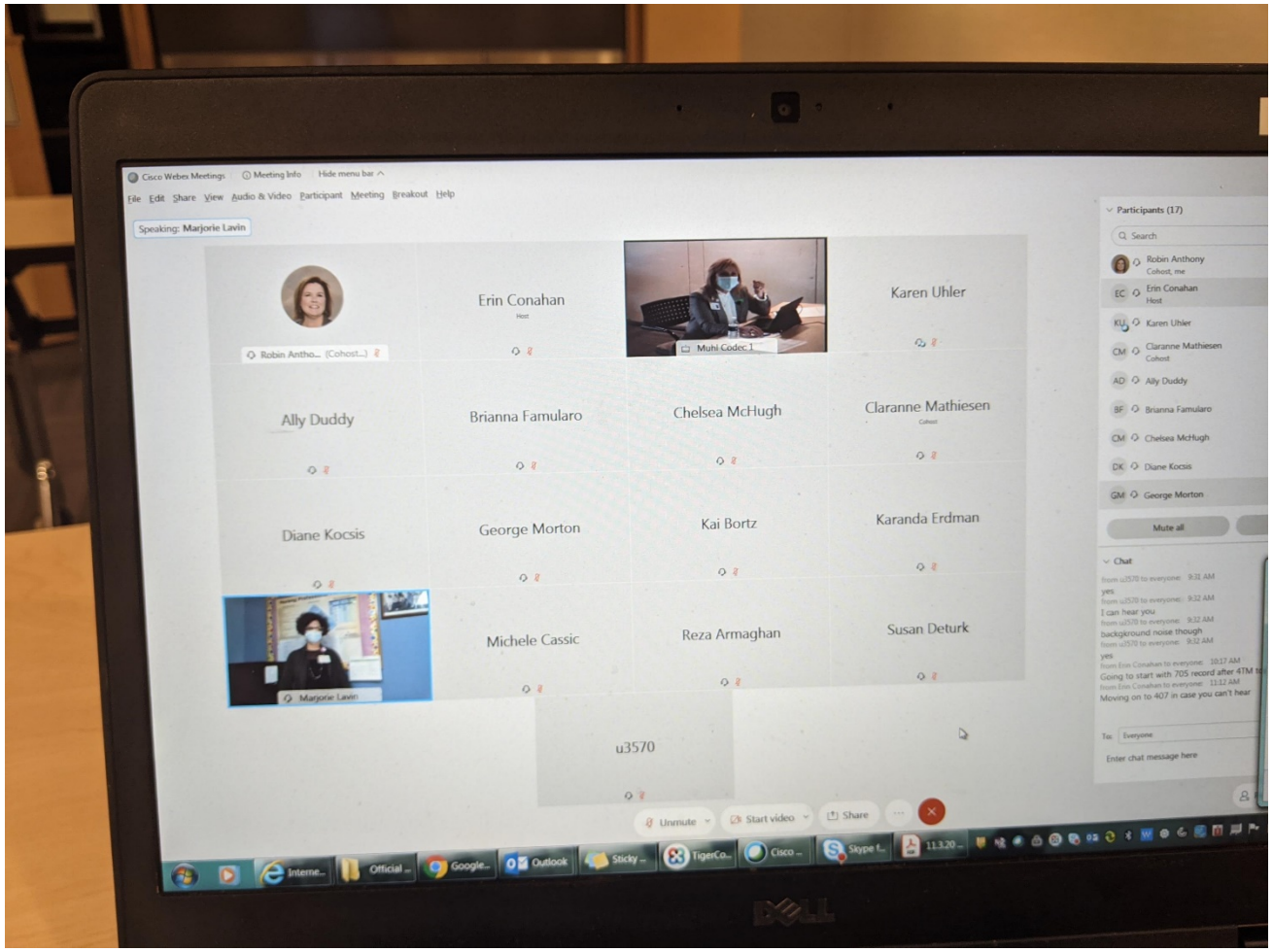
Unit Tours

- Test & practice with technology ahead of time
  - Laptop with webcam on a mobile workstation
  - Ipad on a IV pole
- Signage for your device
- Avoid broadcasting during travel
  - Go DARK during transitions (mute and close web cam)
- Patient & Staff sensitive
  - Have moderator ensure location suitable
- Clear instructions on operations
  - Contact for any IT issues/ network connectivity

Individual Tracer Activities

- Recruit Super Users and Subject Matter Experts
  - Practice Virtual Electronic Chart Reviews
  - Consider space for tracer
- Prepare Patient Lists
  - Identify patients seen from “ready date”
  - Clarify what charts will be in survey scope





Tracing Activity

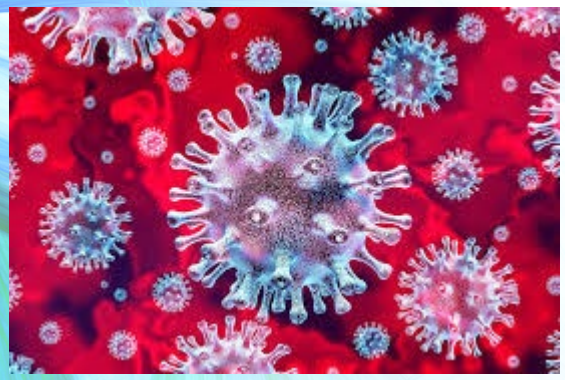
Competence Assessment & Credentialing Session

- Remember 2 years of information if this is a recertification
- **How are you going to present this online?**
  - **Dry run what this looks like**
  - **Ensure key participants available to assist**

Issue Resolution

- Identify who is taking notes and relaying to command
  - Organize close out of any IOU's
  - Must show everything before end of survey
  - Reviewers were very transparent with opportunities / findings
- Work closely with the reviewer to request any additional documentation/ policies/ sidebar discussions

HOW HAS COVID-19 IMPACTED CARE?



Adapting Stroke Care

Lehigh Valley Health Network

Key Learnings

- You have been busy since last survey
  - Time to shine
- Pick the reviewers brain
  - Find ways to strengthen your program
- Use this experience to further support stroke care delivery

- *Celebrate this accomplishment!!!!!*

American Heart Association®

COVID-19 CVD Registry™

Powered by Get With The Guidelines®

GETTING STARTED, WHAT YOUR HOSPITAL NEEDS TO KNOW

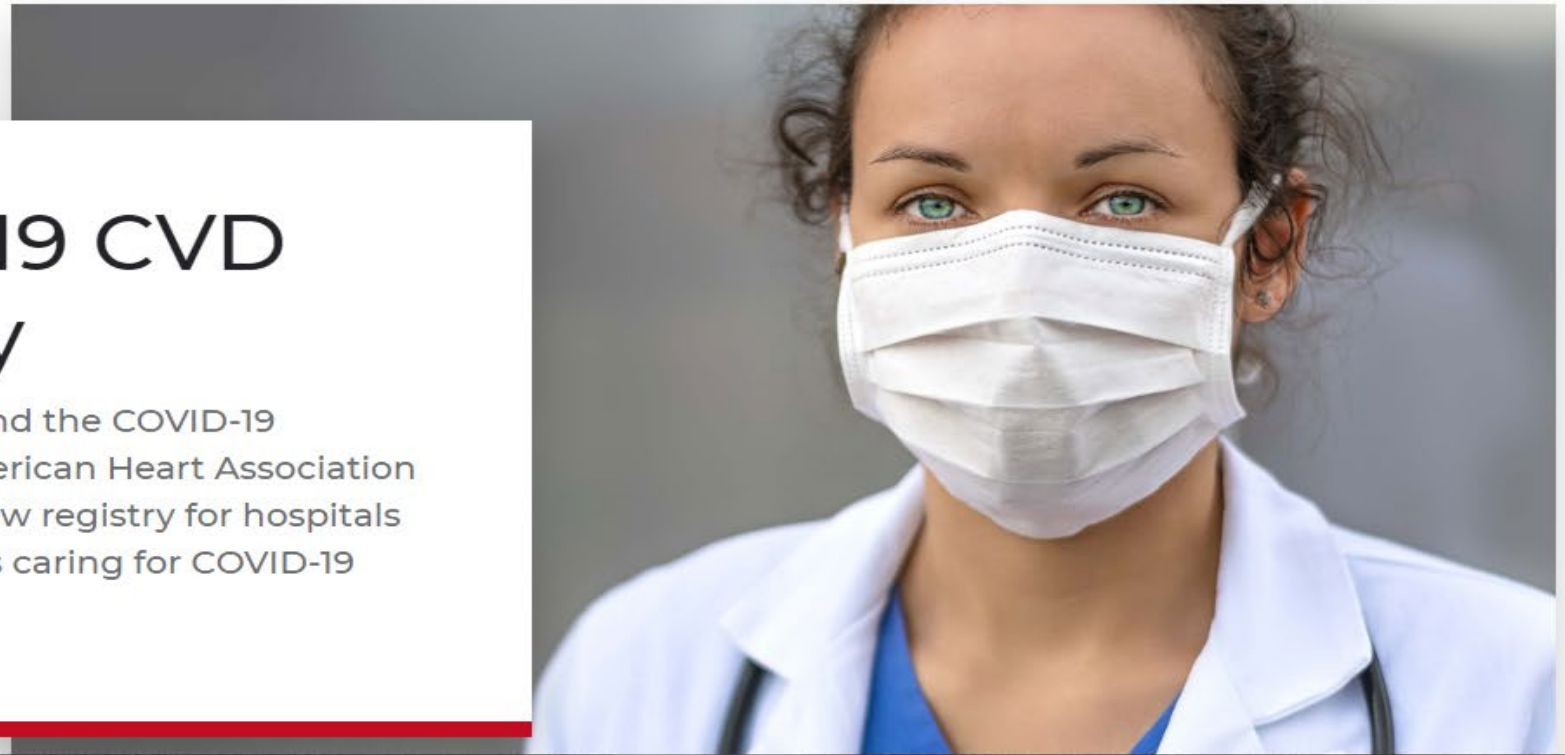
Please email the following information to qualityresearch@heart.org using the subject line, "[your hospital's name] interest in COVID-19 CVD Registry Participation"

- Hospital name and location
- Which Get With The Guidelines® (GWTG) modules hospital currently participates in, and GWTG Site ID if known
- Name and email of person leading the contracting
- Name and email of lead physician champion for the registry
- Do you have an onsite clinical chemistry laboratory? If yes, please describe its capacity for running serial standard blood tests.

Once received, AHA staff will review and contact you with any questions.

The website is:
www.heart.org/covidregistry

American Heart Association.



COVID-19 CVD Registry

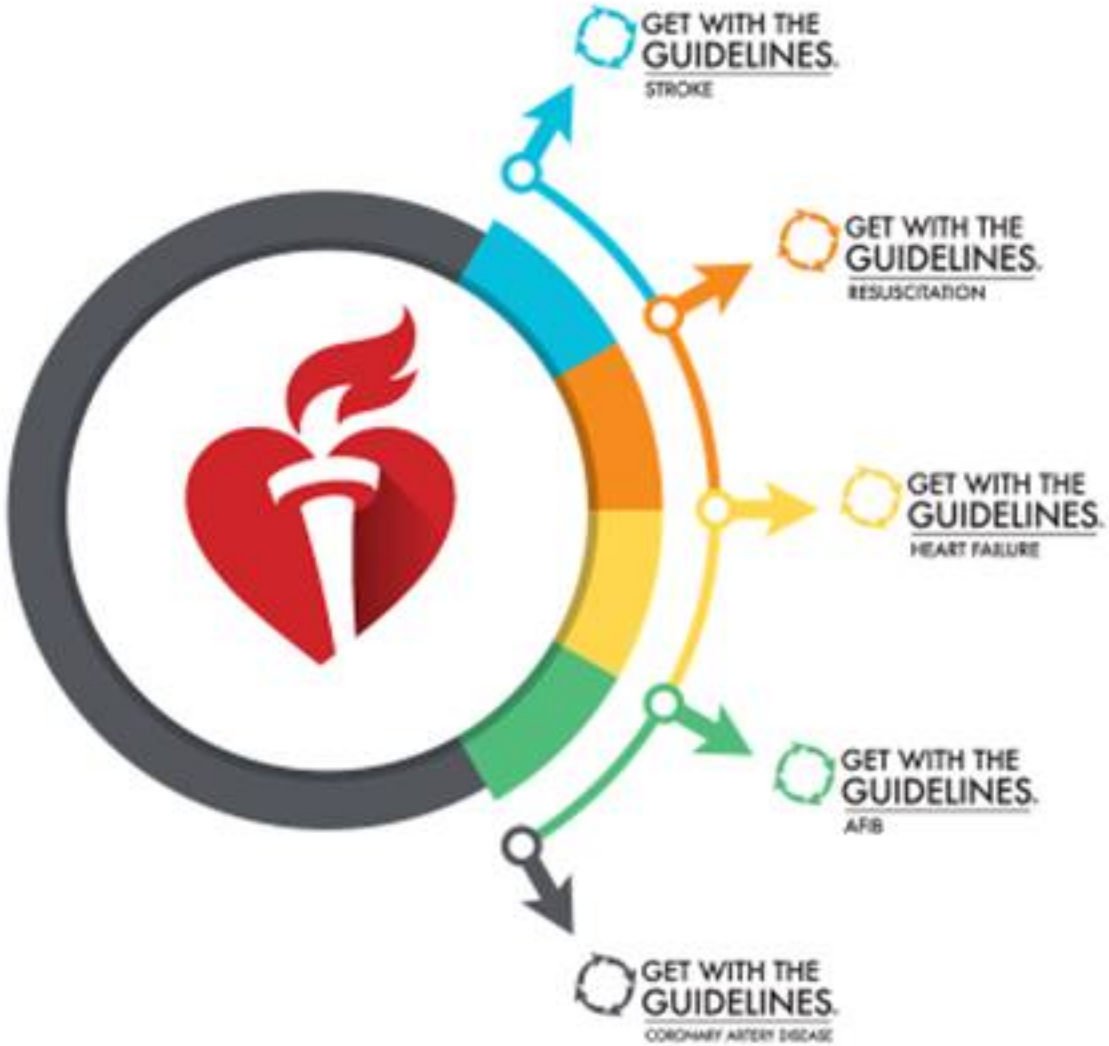
To better understand the COVID-19 pandemic, the American Heart Association has developed a new registry for hospitals and health systems caring for COVID-19 patients.

WHAT WE NEED FROM YOU

- Please review the website www.heart.org/covidregistry
- Streamlined enrollment:
  - Abbreviated amendment for existing customers
  - Accelerated web-based contracting for new customers
- Email any questions to Qualityresearch@heart.org using the subject line, "[your hospital's name] interest in COVID-19 CVD Registry Participation"

American Heart Association.

QUALITY IMPROVEMENT PROGRAMS



MISSION: LIFELINE

TARGET: PROGRAMS

HOSPITAL Accreditation & Certification

https://www.heart.org/en/professional/quality-improvement

American Heart Association.