Abstract
Since its original report in January 2020, the coronavirus disease 2019 (COVID-19) due to Severe Acute Respiratory Syndrome coronavirus 2 (SARS-CoV-2) infection has rapidly become one of the deadliest global pandemics. Early reports indicate possible neurological manifestations associated with COVID-19, with symptoms ranging from mild to severe, highly variable prevalence rates, and uncertainty regarding causal or coincidental occurrence of symptoms. As neurological involvement of any systemic disease is frequently associated with adverse effects on morbidity and mortality, obtaining accurate and consistent global data on the extent to which COVID-19 may impact the nervous system is urgently needed. To address this need, investigators from the Neurocritical Care Society launched the Global Consortium Study of Neurological Dysfunction in COVID-19 (GCS-NeuroCOVID). The GCS-NeuroCOVID consortium rapidly implemented a Tier 1, pragmatic study to establish phenotypes and prevalence of neurological manifestations of COVID-19. A key component of this global collaboration is development and application of common data elements (CDEs) and definitions to facilitate rigorous and systematic data collection across resource settings. Integration of these elements is critical to reduce heterogeneity of data and allow for future high-quality meta-analyses. The GCS-NeuroCOVID consortium specifically designed these elements to be feasible for clinician investigators during a global pandemic when healthcare systems are likely overwhelmed and resources for research may be limited. Elements include pediatric components and translated versions to facilitate collaboration and data capture in Latin America, one of the epicenters of this global outbreak. In this manuscript, we share the specific data elements, definitions, and rationale for the adult and pediatric CDEs for Tier 1 of the GCS-NeuroCOVID consortium, as well as the translated versions adapted for use in Latin America. Global efforts are underway to further harmonize CDEs with other large consortia studying neurological and general aspects of COVID-19 infections. Ultimately, the GCS-NeuroCOVID consortium network provides a critical infrastructure to systematically capture data in current and future unanticipated disasters and disease outbreaks.

Keywords: COVID-19, SARS-CoV2, Disease prevalence, Neurological manifestations, Neurological symptoms, Coronavirus, Common data element, Case report form
Introduction
The coronavirus disease 2019 (COVID-19) pandemic continues to escalate worldwide, with over 18 million people infected and over 696,000 deaths as of August, 2020. While some geographic regions experience peak surges, followed by consistent decreases in the number of patients testing positive for Severe Acute Respiratory Syndrome coronavirus 2 (SARS-CoV-2), other regions remain inundated with high volumes of infections, hospitalizations, and deaths [1]. Scientific reports from various regions are prolific, published with the intent of rapidly sharing knowledge regarding prevalence, treatment, and outcomes of infected individuals. Numerous reports of neurological symptoms and manifestations seemingly associated with SARS-CoV-2 infection continue to emerge, with spectrum of neurological manifestations ranging from mild (anosmia, ageusia, and headache) to severe (coma, seizures, hypoxic brain injury encephalopathy, stroke, cerebral hemorrhage, posterior reversible encephalopathy, and Guillain-Barré syndrome) [2–17]. Similarly, prevalence estimates across these reports range from 3.5 to 84% [5–7, 12, 16], with many studies not controlling for confounding factors or differentiating between levels of care or severity of systemic infection. Given the continued escalation of the global COVID-19 pandemic and the rapidity of emerging information from regional reports on neurological manifestations of COVID-19, it has become increasingly difficult to ascertain accurate estimates on prevalence and severity of neurological dysfunctions. As a result, critical data on causality versus recrudescence of preexisting neurological conditions versus coincident findings of COVID-19 are lacking. Furthermore, recent attempts at pooled analysis are proven unsuccessful due to substantial heterogeneity across populations, sites, and data components [6].

A global, systematic, and collaborative approach to knowledge development in this pandemic is critical [18]. Fragmented reports create ambiguity about case definitions, clinical findings, and empiric treatments, potentially leading to administration of ineffective or harmful regimens and public alarm due to inaccurate conclusions about causation in the absence of sound scientific methodology [14, 19]. Data gathering in a global pandemic must include diversity in age, sex, race, ethnicity, geographic region, and resource settings. Researchers must utilize a collaborative and pragmatic approach feasible for members of the healthcare team, as many research teams do not have access to hospitalized patients during a pandemic crisis. To this end, we rapidly established the Global Consortium Study of Neurological Dysfunction in COVID-19 (GCS-NeuroCOVID) and launched a Tier 1 basic study to gather essential data on acute neurological manifestations of COVID-19 captured by frontline providers in the midst of this pandemic [20]. The objective of this study is to pragmatically and systematically determine the major phenotypes of neurological symptoms and estimate their global prevalence among hospitalized COVID-19 patients. All acute care hospitals caring for COVID-19 patients are eligible to register as sites through a central Web portal [21]. The consortium employs an accelerated process to develop consensus common data element (CDE) and definitions as previously described. Whenever possible, we utilized any consensus CDEs already developed through the National Institute of Health (NIH) CDE process [22, 23].

As COVID-19 infection is associated with age- and race-dependent disease prevalence, severity, symptoms, and outcomes, the GCS-NeuroCOVID consortium study uses CDEs specifically designed for adult and pediatric populations that include race and ethnicity designations. Additionally, the GCS-NeuroCOVID consortium collaborated closely with partners in Latin America to harmonize data elements and definitions, resulting in the development of Spanish and Portuguese versions of case report forms (CRFs).

Methods
The aims, design, and methodology of the GCS-NeuroCOVID research program are previously reported [20]. In brief, the study employs a nimble, tiered design to determine the prevalence, severity, predictors, and outcomes of neurological manifestations among hospitalized patients across the age span with COVID-19 infection. A key element is CRFs that are readily available in multiple languages and applicable across sites and settings. International guidelines for good clinical practices in research define CRFs as “...specialized documents designed to record all protocol-required information to be reported on each subject” [24]. As such, CRFs are a critical component to ensure internal validity of any study, particularly for multisite investigations.

GCS-NeuroCOVID Consortium CRF: Adult
Guiding principles underlying development of the CRF for the GCS-NeuroCOVID investigation center on feasibility and harmonization. Feasibility refers to the ability of frontline clinicians to record observations of neurological manifestations among hospitalized COVID-19 patients with minimal burden, care delivery disruption, and no additional risk of exposure to providers. Given the sustained surge of cases worldwide, lack of adequate personal protective equipment (PPE), and limited resources for clinical research particularly during a pandemic, it is paramount to consider practical aspects to ensure feasibility of study initiation and completion. The acquisition of these data elements must not involve
increased SARS-CoV-2 exposure risk for frontline clinical providers or require additional PPE use for research purposes alone. Data elements must have clear, simple, and specific definitions to optimize collection of high-quality data with minimal errors or missing values. Data definitions must be easy to use and not require specialized expertise in neurological examinations for accurate data acquisition. Data elements should be commonly available regardless of resource levels of the acute care hospital to encourage participation and broad inclusion of all regions and hospitals that care for acute COVID-19 patients. Data elements need to capture overall severity of illness, because severe single- or multi-organ failures can result in secondary neurological sequelae, regardless of the original etiology of organ failure.

Creation of these initial highly pragmatic data elements provides the foundation for the Tier 1 study of GCS-NeuroCOVID. The aim of the Tier 1 study is to systematically record data to identify the major phenotypes and prevalence of neurological symptoms among hospitalized patients with COVID-19 infection. As such, it is designed to be a minimal dataset that captures the most high-value data elements that are feasible to obtain in the challenging clinical environment during a pandemic where many routine diagnostic data, such as imaging studies, may not be available due to infection containment considerations or an overwhelmed health system. To address this, we further divided this basic and minimal set of Tier 1 CDEs into Core and Supplemental CDEs (Table 1). Core elements represent the minimal dataset that can be rapidly and easily captured during initial patient triage and care. Core CDEs should be recorded as completely as possible. Supplemental elements capture additional clinical characteristics, basic pre-morbid conditions, laboratory values, and outcome measures beyond acute hospitalization.

An added benefit of pragmatic data elements is the possibility for an expedited institutional review board (IRB) process at single-center sites. During pandemic surges, many sites limit research operations to reduce risk of exposure or facilitate re-allocation of staff to needed areas. As such, there may be limited personnel to review and approve lengthy or complex research protocols, and mechanisms for contract negotiations for data sharing may be temporarily suspended. A pragmatic protocol deemed not greater than minimal risk may be feasibly approved at sites using a single-center approval process. Subsequent amendments when resources are not as limited may then be made to establish data-sharing agreements via a central data coordinating center to pool data from participating sites for analysis and ensure use of secure platforms for protected health information (PHI).

The second principle of global CRF development includes data harmonization. Alignment of data elements and definitions across sites and studies serves the vital role of reducing heterogeneity of findings across studies, thus allowing for data pooling, systematic reviews, meta-analyses, and development of evidence-based guidelines based on a body of high-quality evidence. These factors are of critical importance when developing CRFs for a global consortium during a pandemic. As data rapidly become available, it is crucial to be able to cumulatively synthesize findings across studies to draw accurate conclusions and drive care decisions in real time.

To this end, the GCS-NeuroCOVID adult CRF aligns data fields and definitions with CDEs from the NIH where applicable when documenting neurological manifestations observed in COVID-19 infection. Our investigator team also engaged with emerging and existing consortiums to align common definitions across COVID-19 populations and to have CRFs available in other languages to encourage participation across geographic regions and resource settings.

**Development of Adult Spanish Version CRF**

The GCS-NeuroCOVID consortium includes many sites located in primary Spanish-speaking regions. The Regional South American chapter of the Neurocritical Care Society was instrumental in aligning collaborations to facilitate participation among member sites and regional groups. To minimize data collection burden for the frontline clinicians at those sites and promote data fidelity, we developed Spanish language versions of study documents and CRF (Table 2). Spanish translation was performed by trained research team member (VA) and medical abbreviations as there are variabilities in regional customs. Specifically, we avoided using medical abbreviations as there are variabilities in regional customs.

The Latin American Brain Injury Consortium (LABIC) is the association of neurointensivists in Latin America. LABIC’s missions are (1) to promote education in neuroscience and care and (2) to foster neurocritical care research and thereby improve clinical care and patient outcomes throughout Latin America. LABIC consists of over 400 critical care professionals from Patagonia to México and the Caribbean countries who are dedicated to improve care and outcomes of their neurological patients. The LABIC consortium has a track record of successful multicenter collaboration and research such as the publication of consensus guidelines for traumatic brain injury management [25]. The LABIC consortium is actively developing research initiatives and collaborations with global partners such as the South American chapter of
| Data elements | Description | Data fields (permissible values) | Variable type |
|---------------|-------------|---------------------------------|---------------|
| **Core data elements** | | | |
| Study site ID | Identification (ID) for your study site assigned by the central coordinating center | Text | Text |
| Study ID | Site ID followed by chronological number for each subject. Example provided in data table. This is patient's assigned study ID, which does not contain identifying information | Text | Nominal |
| MRN | Medical record number (MRN) | Text or numeric | Nominal |
| DOB | Patient's date of birth (DOB) | MM/DD/year | Date |
| Admission date | Date of index admission | MM/DD/year | Date |
| Institution/hospital | Name of institution/hospital patient is admitted to | Free text | Free text |
| Date of COVID symptom onset | Date patient noticed symptom first. If unknown/no history, please enter admission date | MM/DD/year | Date |
| Date of neurological symptom onset | Date patient first developed neurological symptoms | MM/DD/year | Date |
| Sex | Patient's biological sex (not self-identified gender) | Male, female; intersex; unknown | Binary |
| Height | Enter height in centimeters | Numeric | Continuous |
| Weight | Enter weight in kilograms | Numeric | Continuous |
| Age | Patient's age on presentation | Numeric | Continuous |
| Race | Patient's race | American Indian or Alaska Native, Asian, Black or African American, Native Hawaiian or other Pacific Islander, White, others | Nominal |
| Ethnicity | Patient's self-reported ethnicity | Hispanic or Latino; not Hispanic or Latino; unknown; not reported; other, specify | Nominal |
| PMH neurological disorder | Does the patient have a past medical history (PMH) of neurological disorder? | Yes, no | Binary |
| If PMH neurological disorder, describe | Describe the neurological disorder/list the diagnosis | Free text | Free text |
| COVID-19 PUI | Is the patient a COVID-19 person under investigation (PUI) | Yes, no | Binary |
| Final COVID-19 status | Final COVID-19 test status (if patient first tested negative and then turn positive, please code as positive). | Yes (test positive), no (test negative), unknown | Nominal |
| Empiric COVID-19 treatment | What empiric COVID-19 treatment(s) did patient receive? | None; hydroxychloroquine; azithromycin; hydroxychloroquine + azithromycin; intravenous immunoglobulin (IVIG); remdesivir; lopinavir/ritonavir; and convalescent plasma; other | Nominal |
| Headache | Did the patient develop new onset headache before or during hospitalization for COVID-19 (self-report or family report) | Yes, no | Binary |
| Sympathetic storming/dysautonomia | Did the patient exhibit signs/symptoms of sympathetic storming? | Yes, no | Binary |
| Anosmia/ageusia | Did the patient have abnormal smell or taste before or during hospitalization for COVID-19 (self-report or family report) | Yes, abnormal smell Yes, abnormal taste Yes, both abnormal smell and taste No the patient did not have these symptoms | Nominal |
| Syncope | Did the patient experience acute syncope leading to the hospitalization or had syncope during hospitalization? | Yes, no | Binary |
| Data elements                      | Description                                                                 | Data fields (permissible values)                                                                 | Variable type |
|-----------------------------------|------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|---------------|
| Stroke                            | Did the patient exhibit signs of acute stroke?                               | No, Yes, ischemic stroke, Yes, IVH and/or ICH, Yes, SAH                                           | Nominal       |
| Acute encephalopathy              | Did the patient develop new onset altered mental status before or during hospitalization for COVID-19 excluding direct medication effect or hypotension (mean arterial pressure < 60 mmHg)? | Yes, no                                                                                            | Binary        |
| Meningitis/encephalitis           | Did the patient present with or develop meningitis or encephalitis?          | Yes, no                                                                                            | Binary        |
| Coma                              | Did the patient present with or develop coma during the course of hospitalization? Exclude coma due to medication | Yes, no                                                                                            | Binary        |
| Clinical seizure/status epilepticus| Did the patient present with or develop seizure/status epilepticus during the hospitalization? | Yes, no                                                                                            | Binary        |
| Myelopathy                        | Did the patient show signs of myelopathy during hospitalization?             | Yes, no                                                                                            | Binary        |
| Other neurological manifestations  | If the patient exhibited other neurological manifestations, please describe  | Free text                                                                                          | Free text     |
| Neuroimaging                      | Was neuroimaging obtained during hospitalization?                           | Yes, no                                                                                            | Binary        |
| CSF                               | Was cerebrospinal fluid (CSF) obtained during hospitalization?              | Yes, no                                                                                            | Binary        |
| ECMO                              | Did the patient require extracorporeal membrane oxygenation (ECMO) therapy while hospitalized? | Yes, no                                                                                            | Binary        |
| Dialysis/CRRT                     | Did the patient develop acute kidney injury requiring dialysis/continuous renal replacement therapy (CRRT) as a result of COVID-19? | Yes, no                                                                                            | Binary        |
| Mechanical ventilation            | Did the patient require intubation and mechanical ventilation during critical care admission? | Yes, no                                                                                            | Binary        |
| DNR                               | Code status at hospital discharge is do not resuscitate (DNR)                | Yes, no                                                                                            | Binary        |
| DNI                               | Code status at hospital discharge is do not intubate (DNI)                   | Yes, no                                                                                            | Binary        |
| CMO                               | Code status at hospital discharge is comfort measures only (CMO)             | Yes, no                                                                                            | Binary        |
| Hospital COVID-19 census          | Total # of COVID-19 positive or COVID-19 person under investigation (PUI) patients in your hospital on the day of index admission | Numeric                                                                                           | Continuous    |
| ICU COVID-19 census               | Total # of COVID-19+ or COVID-19 PUI patients in Intensive Care Unit (ICU) beds on the day of index admission. Please include all ICU beds—including centers which expanded beyond historic capacity | Numeric                                                                                           | Continuous    |
| In hospital death                 | Did the patient die during hospitalization?                                 | Yes, no                                                                                            | Binary        |
| Date of death                     | Enter date of death                                                         | Date                                                                                              | Date          |
| Supplemental data elements         |                                                                              |                                                    |               |
| Preexisting code status           | Preexisting code status prior to presentation to hospital                    | Full DNR, DNI, CMO, Other                                                                          | Nominal       |
| Data elements               | Description                                                                 | Data fields (permissible values) | Variable type |
|----------------------------|-----------------------------------------------------------------------------|----------------------------------|---------------|
| Diabetes                   | Preexisting or newly diagnosed diabetes (types 1 or 2)                      | Type 1                           | Nominal       |
|                            |                                                                             | Type 2                           |               |
|                            |                                                                             | Unknown                          |               |
|                            |                                                                             | Other specify                    |               |
| CAD                        | Preexisting cardiovascular disease (coronary artery disease, CHF,            | Yes, no                          | Binary        |
|                            | peripheral artery disease)                                                  |                                  |               |
| Hypertension               | Preexisting history of hypertension or taking antihypertensive medications  | Yes, no                          | Binary        |
|                            | prior to admission                                                          |                                  |               |
| CVD                        | Preexisting history of cerebrovascular disease (ischemic stroke, TIA,       | Yes, no                          | Binary        |
|                            | ICH, vascular dementia)                                                     |                                  |               |
| Immunosuppressed state     | Preexisting immunosuppressed state (taking immunosuppressant/chemotherapy, | Yes, no                          | Binary        |
|                            | chronic steroids, hematologic malignancy, HIV, other immunodeficiency       |                                  |               |
|                            | syndrome)                                                                   |                                  |               |
| Lung disease               | Preexisting lung conditions (COPD, asthma, lung cancer, lung resection,     | Yes, no                          | Binary        |
|                            | pulmonary hypertension, pulmonary fibrosis, BOOP, etc.)                     |                                  |               |
| Smoking                    | Did the patient report smoking within the last 30 days before hospitalization? | Yes, no                          | Binary        |
| ATII-RA                    | Did the patient receive angiotensin-II-receptor antagonists within last     | Yes, no                          | Binary        |
|                            | 30 days before admission?                                                   |                                  |               |
| Corticosteroids            | Did the patient take nonsteroidal or corticosteroids 30 days prior to       | Yes, no                          | Binary        |
|                            | admission?                                                                  |                                  |               |
| Other immunosuppressives   | Did the patient receive other immunosuppressive medications?                | Yes, no                          | Binary        |
| Plegia/paralysis           | Did patient develop new plegia/pareis, including single-limb plegia/pareis,| Yes, no                          | Binary        |
|                            | hemiplegia/pareis, and quadriplegia/pareis                                  |                                  |               |
| If new plegia/paralysis, describe | Describe new plegia or paralysis including limb, location                  | Free text                        |               |
| Aphasia                    | Did patient present with new aphasia or develop aphasia during hospitalization? | Yes, no                          | Binary        |
| New movement abnormalities | Did patient develop new movement symptoms before or during                  | Yes, no                          | Binary        |
|                            | hospitalization for COVID-19. Including posturing, chorea, dystonia,        |                                  |               |
|                            | hyperkinesia, akinesis, extrapyramidal symptoms                             |                                  |               |
| If new movement disorder, describe | Indicate the type of new movement disorder experienced              | 1 Tremor; stiffness; 2 change in facial expression; 3 disturbances of dexterity; 4 micrographia; 5 weakness; 6 dystonia; 7 ambulatory/axial difficulties—freezing; 8 ambulatory/axial difficulties—lack of arm swing; 9 ambulatory/axial difficulties—leg dragging; 10 ambulatory/axial difficulties—shuffling of gait; 11 ambulatory/axial difficulties—postural imbalance; 12 ambulatory/axial difficulties—falls; 13 ambulatory/axial difficulties—stooped posture; 14 ambulatory/axial difficulties—other abnormalities of posture or gait; 16 others | Nominal       |
| Abnormal tone              | Did the patient have abnormal tone?                                         | Yes, no                          | Binary        |
Table 1 (continued)

| Data elements                              | Description                                                                 | Data fields (permissible values)                                                                 | Variable type |
|--------------------------------------------|-----------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|---------------|
| If abnormal tone, describe                | Please list if the tone was (1) hypertonia, (2) hypotonia                    | Hypertonia, hypotonia                                                                           | Nominal       |
| Abnormal brainstem reflexes, specify      | Specify if any of the following reflexes were abnormal: (1) corneal, (2) pupillary, (3) cough, and (4) gag | Abnormal corneal, Abnormal pupillary, Abnormal cough, Abnormal gag, No abnormal reflexes, Others | Nominal       |
| Acute sensory symptoms                    | Did patient exhibit or report new sensory symptoms                           | Yes, no                                                                                         | Binary        |
| Refractory shock                          | Did the patient experience refractory shock while hospitalized?              | Yes, no                                                                                         | Binary        |
| Best GCS                                  | BEST documented Glasgow Coma Score (GCS) after the onset of severe neurological complication. For intubated patients please use imputed GCS | Numeric                                                                                         | Continuous    |
| Baseline oxygen saturation (SPO2)         | Oxygen saturation at baseline                                                | Numeric                                                                                         | Continuous    |
| Baseline respiratory rate                 | Baseline respiratory rate                                                    | Numeric                                                                                         | Continuous    |
| Baseline pH                               | Baseline arterial blood gas pH (first available since acute hospital admission) | Numeric                                                                                         | Continuous    |
| Baseline PaO2                             | Baseline arterial blood gas PaO2 (first available since acute hospital admission) | Numeric                                                                                         | Continuous    |
| Baseline PaCO2                            | Baseline arterial blood gas PaCO2 (first available since acute hospital admission) | Numeric                                                                                         | Continuous    |
| Baseline HCO3                             | Baseline arterial blood gas HCO3 (first available since acute hospital admission) | Numeric                                                                                         | Continuous    |
| Pre-intubation oxygen saturation (SPO2)   | Lowest oxygen saturation prompting intubation                               | Numeric                                                                                         | Continuous    |
| Pre-intubation respiratory rate           | Highest respiratory rate prompting intubation                               | Numeric                                                                                         | Continuous    |
| Pre-intubation pH                         | Pre-intubation arterial blood gas pH                                        | Numeric                                                                                         | Continuous    |
| Pre-intubation PaO2                       | Pre-intubation arterial blood gas PaO2                                      | Numeric                                                                                         | Continuous    |
| Pre-intubation PaCO2                      | Pre-intubation arterial blood gas PaCO2                                      | Number                                                                                         | Continuous    |
| Pre-intubation HCO3                       | Pre-intubation arterial blood gas HCO3                                      | Numeric                                                                                         | Continuous    |
| Days on mechanical ventilation           | Enter the number of total days the patient was on mechanical ventilation    | Numeric                                                                                         | Continuous    |
| WBC on presentation                       | Total white blood cell count on presentation (unit: 10^9/L)                 | Numeric                                                                                         | Continuous    |
| Lymph on presentation                     | Total lymphocyte count on presentation (unit: 10^9/L)                        | Numeric                                                                                         | Continuous    |
| Platelet on presentation                  | Platelet count on presentation (unit: 10^9/L)                               | Numeric                                                                                         | Continuous    |
| CRP on presentation                       | CRP value on presentation (unit: mg/L)                                      | Numeric                                                                                         | Continuous    |
| Data elements       | Description                                      | Data fields (permissible values) | Variable type |
|--------------------|--------------------------------------------------|----------------------------------|---------------|
| Neuroimaging type  | Describe the type of neuroimaging performed      | 1, CT scan head  
2, MRI head  
3 MRI spine  
4 None  
5 Other | Categorical |
| ICU LOS            | Total ICU length of stay (LOS), i.e., number of days patient received care in the critical care unit | Numeric | Continuous |
| Hospital LOS       | Total hospital LOS, i.e., number of days patient received care in the hospital | Numeric | Continuous |
| Discharge disposition | State the discharge destination                  | 1. Home  
2. Nursing home/SNF (skilled nursing facility)  
3. LTACH (long-term acute care hospital)  
4. Hospice  
5. Other | Nominal |
| 30-day mortality   | Was the patient alive at 30 days after hospital discharge? | Yes, no | Binary |
| mRS at hospital discharge | Please enter modified Rankin score (mRS) at hospital discharge | 0, 1, 2, 3, 4, 5, 6 | Ordinal |
| 90-day mortality   | Was the patient alive at 90 days after hospital discharge? | Yes, no | Binary |
| Elementos de datos (CDE nombre*) *NINDS CDE nombres | Descripción | Campo de datos (valores permisibles) | Tipo de variable (tipo de datos) |
|--------------------------------------------------|-------------|-------------------------------------|----------------------------------|
| ID del sitio de estudio                          | Identificación para su sitio de estudio asignado por el centro de coordinación central | Texto libre                      | Nominal                          |
| ID del Estudio                                   | Al paciente se le asignará un número para el estudio que no contiene información que lo puede identificar (ej. 001, 002...) | Texto libre                      | Nominal                          |
| Número de registro medico                        | número del expediente clínico/número de registro medico | Numérico                          | Nominal                          |
| Fecha Nacimiento                                 | Fecha de nacimiento | Mes/Día/Año                        | Fecha                            |
| Fecha de Ingreso                                 | Fecha de ingreso en la actual hospitalización | Mes/Día/año                       | Fecha                            |
| Institución/hospital                             | nombre de la institución/hospital a la cual el paciente ingreso | Texto libre                      | Texto libre                      |
| Fecha de inicio de síntomas del COVID-19         | Fecha en que el paciente comenzó a tener síntomas relacionados a COVID. Si desconoce/no tiene información entonces anote la fecha de ingreso al hospital | Mes/Día/Año                      | Fecha                            |
| Fecha de inicio de síntomas neurológicos         | Fecha en que el paciente desarrolló síntomas neurológicos | Mes/Día/Año                      | Fecha                            |
| Sexo                                             | Sexo biológico del paciente (no el género al que el paciente se identifica) | Hombre, Mujer, Intersexual, Se desconoce, Otro | Binario                          |
| Estatura                                         | Altura en centímetros | Numérico                           | Continuo                          |
| Peso                                             | Peso en kilogramos | Numérico                           | Continuo                          |
| Edad                                             | Edad del paciente al momento de ingreso al hospital | Numérico                           | Continuo                          |
| Raza                                             | Raza del paciente | Indio americano o nativo de Alaska, Asiático, Negro o afroamericano, Nativo de Hawai'i o otro isleño del Pacífico, Blanco, Otro | Nominal                          |
| Etnia                                            | Etnia del paciente | Hispano o latino, No hispano o latino, Desconocido, No reportado, Otro | Nominal                          |
| Enfermedades neurológicas preexistentes           | ¿El paciente tiene alguna enfermedad neurológica preexistente? | Sí, no                             | Binario                          |
| Descripción enf. neurológica (preexistente)      | Por favor indique la enfermedad/es preexistente/s | Texto libre                      | Texto libre                      |
| Bajo investigación de COVID-19                   | El paciente esta bajo investigación de COVID-19, es decir hay sospecha, pero no se ha confirmado el resultado final | Sí, no                            | Binario                          |
| Elementos de datos (CDE nombre*) *NINDS CDE nombres | Descripción | Campo de datos (valores permitibles) | Tipo de variable (tipo de datos) |
|-----------------------------------------------------|-------------|--------------------------------------|----------------------------------|
| Resultado Final COVID-19                           | Resultado final de la prueba de COVID-19. Si el paciente tuvo una prueba negativa y después tuvo otra y salió positiva, por favor anote prueba positiva | Sí (prueba positiva), no (prueba negativa), desconocida. | Nominal |
| Tratamiento empírico COVID-19                       | Cual tratamiento/s empírico/s ha recibido el paciente? | Ninguna, Hidroxicloroquina, Azitromicina (zithromax), hidroxicloroquina + azitromicina combo, Terapia inmunoglobulina intravenosa (IgIV), Remdesivir, Lopinavir/ritonavir (kaletra), terapia con plasma conval-eciente, otros | Nominal |
| Dolor de Cabeza                                      | Si, no | Binario |
| Tormenta simpática/disautonomía                     | El paciente exhibe signos/síntomas de una tormenta simpática/disautonomía? | Si, no | Binario |
| Anosmia/Ageusia                                      | El paciente sufrió de anomalidades en su olfato o gusto antes de o durante la hospitalización por COVID-19 (puede ser reportado por el paciente o su familia) | Si, olfato anormal, Si, gusto anormal, Si, ambos olfato y gusto anormales, No, el paciente no tenía estos síntomas | Ordinal |
| Síncope                                             | El paciente sufrió un evento sincopal antes de o durante la hospitalización (puede ser reportado por el paciente o su familia) | Si, no | Binario |
| Ataque cerebrovascular                              | El paciente exhibe síntomas de un ataque cerebrovascular (ACV) | No, Si, ataque cerebrovascular isquémico, Si, ataque cerebrovascular hemorrágico y/o hemorragia intraventricular, Si, Hemorragia subaracnoidea | Nominal |
| Encefalopatía aguda                                 | El paciente desarrolla una alteración agudas del estado mental antes de o durante la hospitalización por COVID-19. EXCLUYA alteraciones debido a efectos de medicinas o hipotensión (PAM < 60 mmHg) | Si, no | Binario |
| Meningitis/encefalitis                              | ¿El paciente tuvo meningitis o encefalitis? | Si, no | Binario |
| Coma                                                | ¿El paciente estuvo en coma (basado en el examen físico) durante la hospitalización? EXCLUYA coma debido a medicinas. Definición del coma: inconsciente y no responde a estimulaciones nocivas, seguimiento ocular inexistente o no exhibe movimientos conscientes, no abre los ojos espontáneamente | Si, no | Binario |
| Convulsión clínica y/o electrográfica/Estado epiléptico | El paciente tuvo convulsiones clínicas y/o electrográficas, o estado epiléptico durante la hospitalización por COVID-19 | Si, no | Binario |
| Elementos de datos (CDE nombre*) *NINDS CDE nombres | Descripción | Campo de datos (valores permitibles) | Tipo de variable (tipo de datos) |
|---------------------------------------------------|-------------|-------------------------------------|---------------------------------|
| Mielopatía                                        | ¿El paciente demostró síntomas de mielopatía? | Sí, no                           | Binario                         |
| Otras manifestaciones neurológicas, describe      | ¿El paciente sufrió de otras manifestaciones neurológicas? Por favor describálas | Texto libre                      | Binario                         |
| Neuroimágenes                                     | ¿El paciente obtuvo estudios de neuroimagen durante la hospitalización? | Sí, no                           | Binario                         |
| Líquido cefalorraquídeo                           | ¿Se obtuvo líquido cefalorraquídeo (LCR) durante la hospitalización? | Sí, no                           | Binario                         |
| Terapia con oxigenación por membranas extracorpóreas | ¿El paciente requirió terapia con oxigenación por membranas extracorpóreas? | Sí, no                           | Binario                         |
| Diálisis/terapia de reemplazo renal continua      | El paciente sufrió de lesión renal aguda y requirió diálisis o terapia de reemplazo renal continua debido a la infección con COVID-19? | Sí, no                           | Binario                         |
| Ventilación Mecánica                              | El paciente requirió intubación y ventilación mecánica durante su estadía en la unidad de cuidados intensivos | Sí, no                           | Binario                         |
| Orden de no resucitar                             | El paciente o su familia firmó una orden de no resucitar y el paciente fue dado de alta con esta orden (es decir, la orden de no resucitar es vigente al momento de ser dado de alta) | Sí, no                           | Binario                         |
| Orden de no intubar                               | El paciente o su familia firmó una orden de no intubar y el paciente fue dado de alta con esta (es decir, la orden de no intubar es vigente al momento de ser dado de alta) | Sí, no                           | Binario                         |
| Terapia paliativa                                 | Terapia paliativa al momento en que el paciente es dado de alta del hospital. Es decir, el paciente solo continuará recibiendo terapias para minimizar el sufrimiento y no para combatir enfermedades | Sí, no                           | Binario                         |
| Censo total COVID-19 en el hospital               | Número total de pacientes positivos con COVID-19 o COVID-19 bajo investigación en el hospital en EL DIA DE INGRESO al hospital | Numérico                         | Continuo                        |
| Censo total COVID-19 en la unidad de cuidados intensivos | Número total de pacientes positivos con COVID-19 o COVID-19 bajo investigación en los centros de cuidados intensivos en EL DIA DE INGRESO al hospital. Por favor incluya pacientes en todos los centros de cuidados intensivos del hospital, incluyendo camas que estén sirviendo como centro de cuidados intensivos (por necesidad/demanda) que normalmente no son parte de la unidad de cuidados intensivos | Numérico                         | Continuo                        |
| Fallecimiento en el Hospital                      | ¿El paciente falleció durante la hospitalización? | Sí, no                           | Binario                         |
| Fecha de fallecimiento                            | Anote la fecha de fallecimiento | Mes/Día/Año                      | Fecha                           |
### Table 2 (continued)

| Elementos de datos (CDE nombre*) | Descripción | Campo de datos (valores permisibles) | Tipo de variable (tipo de datos) |
|----------------------------------|-------------|--------------------------------------|----------------------------------|
| **Datos suplementarios**         |             |                                      |                                  |
| ID del Estudio                   | Identificación para su sitio de estudio asignado por el centro de coordinación central | Texto libre                      | Nominal                          |
| Limitaciones en atención medica (ingreso) | Describa si el paciente tiene limitaciones en el tipo de atención medica al momento de ingreso. Orden de no resucitar, orden de no intubar, Terapia paliativa = solo se están administrando medicamentos para mantener al paciente cómodo/sin sufrimiento | Sin Limitaciones, orden de no resucitar, orden de no intubar, terapia paliativa, otro | Ordinal |
| **Diabetes**                     | Indique “si” en los pacientes que tienen un historial de diabetes o se le diagnostico durante esta hospitalización (incluya a pacientes con diabetes 1 o 2) | Tipo 1 Tipo 2 Desconocido No diabetes | Nominal |
| **Enf. Cardiovascular Crónicas** | Indique “si” en los pacientes que tienen un historial de enfermedades cardiovasculares (enfermedad de las arterias coronarias (EAC), insuficiencia cardiaca congestiva, enfermedad arterial periférica) | Si, no | Binario |
| **Hipertensión**                 | Indique “si” en pacientes con historial de hipertensión o si están tomando medicamentos para la presión | Si, no | Binario |
| **Enf. cerebrovascular crónica** | Indique “si” en los pacientes que tienen un historial de enfermedades cardiovasculares (ataque cerebrovascular isquémico o hemorrágico, ataque isquémico transitorio, demencia vascular) | Si, no | Binario |
| **Estado Inmunodeprimido**       | El paciente tiene un estado de inmunodepresión (toma medicamentos inmunodepresivos o quimioterapia, corticoesteroides crónicos, cáncer hematológico, virus de inmunodeficiencia humana (VIH), otro síndrome de inmunodeficiencia | Si, no | Binario |
| **Enf. Pulmón Crónica**          | El paciente sufre de una enfermedad pulmonar crónica por la que toma medicamentos o por la que tuvo una cirugía en el pasado (Enfermedad pulmonar obstructiva crónica (EPOC), asma, fibrosis pulmonar, bronquiolitis obliterante con neumonía organizada (BONO), cáncer de pulmón/resección pulmonar, trasplante de pulmón, etc.) | Si, no | Binario |
| **Tabaquismo**                   | ¿El paciente ha fumado tabaco en los últimos 30 días previo al ingreso al hospital? | Si, no | Binario |
| **Antagonistas de los receptores de la angiotensina II** | ¿El paciente ha tomado antagonistas de los receptores de la angiotensina II en los últimos 30 días previo al ingreso al hospital? | Si, no | Binario |
| **Corticosteroides**             | ¿El paciente ha tomado antiinflamatorio no esteroide o corticosteroides en los 30 días previo al ingreso al hospital? | Si, no | Binario |
**Table 2 (continued)**

| Elementos de datos (CDE nombre*) *NINDS CDE nombres | Descripción | Campo de datos (valores permitibles) | Tipo de variable (tipo de datos) |
|------------------------------------------------------|-------------|-------------------------------------|----------------------------------|
| Otros medicamentos inmunodepresivos                  | El paciente toma otros medicamentos inmunodepresivos? Si, no | | |
| Plejía/parálisis                                     | El paciente desarrolló plejía o parálisis nueva, incluyendo plejía/paresia de una extremidad, hemiplejía/paresia, cuadriplejía/paresia | Si, no | Binario |
| Si Plejía/Parálisis es nueva, describe               | Describa la plejía/parálisis nueva, incluyendo la extremidad/es afectadas | | Texto libre |
| Afasia                                               | El paciente presentó o desarrolló afasia aguda antes o durante la hospitalización? Si, no | | Binario |
| Nuevos movimientos anormales                         | ¿El paciente desarrolló nuevos movimientos anormales antes de o durante la hospitalización por COVID-19? Incluido: posturas anormales, corea, distonía, hiperkinesia, acinesia, síntomas extrapiramidales | Si, no | Binario |
| Tono muscular anormal                                | El paciente desarrolló/tiene un tono muscular anormal? Si, no | | Binario |
| Si hay tono muscular anormal, describa               | Por favor describa si el tono es 1) hipertónico o 2) hipotónico | | Nominal |
| Si hay nuevos movimientos anormales, describe       | Indique que tipo de movimiento anormal nuevo está experimentando el paciente | | Ordinal |
| Reflejos anormales del tronco encefálico              | Especifique si algún/los siguientes reflejos es/son anormal/es (1) corneal, (2) pupilar, (3) Tusígeno, and (4) Faringeo | Reflejo: 1 corneal anormal 2 Pupilar anormal 3 Tusígeno anormal 4 Faringeo anormal 5 Sin reflejos anormales 6 otros | Ordinal |
| Síntomas sensoriales agudos                           | ¿El paciente exhibe o reporta nuevos síntomas sensoriales? Si, no | | Binario |
| Elementos de datos (CDE nombre*) | Descripción | Campo de datos (valores permitibles) | Tipo de variable (tipo de datos) |
|----------------------------------|-------------|-------------------------------------|----------------------------------|
| Shock Refractario                | ¿El paciente desarrolló shock refractario atribuido a la infección con COVID-19? Shock refractario se define como: El paciente requirió de 2 o más vasopresores para mantener una presión arterial adecuada | Sí, no | Binario |
| Mejor puntaje de Coma de Glasgow | Documente el MEJOR puntaje en la Escala de coma de Glasgow DESPUÉS del inicio de los síntomas/complicaciones neurológicos severos. Para pacientes intubados: utilice el GCS imputado | Numérico | Continuo |
| Porcentaje de saturación de oxígeno basal | Porcentaje de saturación de oxígeno basal (primero disponible desde el ingreso hospitalario) | Numérico | Continuo |
| Frecuencia respiratoria basal | Frecuencia respiratoria basal (primero disponible desde el ingreso hospitalario) | Numérico | Continuo |
| pH de sangre arterial basal | pH de sangre arterial basal (primero disponible desde el ingreso hospitalario) | Numérico | Continuo |
| Presión parcial arterial de oxígeno basal | Presión parcial arterial de oxígeno basal (PaO2) basal (primero disponible desde el ingreso hospitalario) | Numérico | Continuo |
| Presión parcial de dióxido de carbono basal | Presión parcial de dióxido de carbono (PaCO2) basal (primero disponible desde el ingreso hospitalario) | Numérico | Continuo |
| Bicarbonato basal | Bicarbonato (Bic) basal (primero disponible desde el ingreso hospitalario) | Numérico | Continuo |
| Porcentaje de saturación de oxígeno previo a ser intubado | Indique el porcentaje de saturación de oxígeno más baja en los momentos previos a la intubación. | Numérico | Continuo |
| Frecuencia respiratoria antes de la intubación | Anote la frecuencia respiratoria más alta en los momentos junto antes de la intubación | Numérico | Continuo |
| pH previo a ser intubado | pH obtenido en los momentos previos a la intubación (en caso de que haya sido obtenido) | Numérico | Continuo |
| Presión parcial arterial de oxígeno previo a ser intubado | Presión parcial arterial de oxígeno en los momentos junto antes de la intubación | Numérico | Continuo |
| Presión parcial de dióxido de carbono previo a ser intubado | Presión parcial de dióxido de carbono en los momentos junto antes de la intubación | Numérico | Continuo |
| Bicarbonato previo a ser intubado | Bicarbonato (Bic) en los momentos junto antes de la intubación | Numérico | Continuo |
| Días de ventilación mecánica | Indique el número total de días que el paciente estuvo bajo ventilación mecánica | Numérico | Continuo |
| Leucocitos (ingreso) | Número total de leucocitos al momento de ingreso (10⁹/L) | Numérico | Continuo |
| Linfocitos (ingreso) | Número total de linfocitos al momento de ingreso (10⁹/L) | Numérico | Continuo |
| Plaquetas (ingreso) | Número de plaquetas al momento de ingreso (10⁹/L) | Numérico | Continuo |
| Elementos de datos (CDE nombre*) | Descripción | Campo de datos (valores permisibles) | Tipo de variable (tipo de datos) |
|----------------------------------|-------------|--------------------------------------|----------------------------------|
| Proteína C reactiva (ingreso)    | Proteína C reactiva al momento de ingreso (mg/L) | Numérico | Continuo |
| Tipo de neuroimágenes            | Describa que tipo de neuroimágenes fueron obtenidas | | Ordinal |
|                                  | 1 Tomografía computarizada de la cabeza (TC) | | |
|                                  | 2 Resonancia magnética (MRI) de cabeza | | |
|                                  | 3 Resonancia magnética (MRI) columna | | |
|                                  | 4 Ninguna | | |
|                                  | 5 Otro | | |
| Duración en la unidad de cuidados intensivos | Número de días que el paciente estuvo en la unidad de cuidados intensivos | Numérico | Continuo |
| Duración en el Hospital | Número de días que el paciente permaneció en el hospital | Numérico | Continuo |
| Disposición al ser dado de alta | Describa a donde fue el paciente después de ser dado de alta | | Ordinal |
|                                  | 1. Casa del paciente/familia | | |
|                                  | 2. Clínica o casa de reposo | | |
|                                  | 3. Centro de atención medica a largo plazo | | |
|                                  | 4. Hospicio | | |
|                                  | 5. Otro | | |
| Mortalidad a los 30 días        | ¿El paciente esta vivo a los 30 días? | Sí, No | Binario |
| Puntaje de rankin modificado (alta) | Indique el número en la escala de Rankin modificada al momento en que el paciente es dado de alta | | Ordinal |
|                                  | 0. Asintomático | | |
|                                  | 1. Sin discapacidad significativa, Presenta algunos síntomas y signos, pero sin limitaciones para realizar sus actividades habituales y su trabajo | | |
|                                  | 2. Discapacidad leve. Presenta limitaciones en sus actividades habituales y laborales previas, pero es independiente para las actividades básicas de la vida diaria | | |
|                                  | 3. Discapacidad moderada, Necesita ayuda para algunas actividades instrumentales, pero no para las actividades básicas de la vida diaria. Camina sin ayuda de otra persona. Necesita de cuidador al menos dos veces por semana | | |
|                                  | 4. Discapacidad moderadamente grave. Incapaz de atender satisfactoriamente sus necesidades, precisando ayuda para caminar y para actividades básicas. Necesita de cuidador al menos una vez al día, pero no de forma continuada. Puede quedar solo en casa durante algunas horas | | |
|                                  | 5. Discapacidad grave. Necesita atención constante. Encamado. Incontinente. No puede quedar solo | | |
|                                  | 6. Muerte | | |
| Mortalidad a los 90 días        | ¿El paciente esta vivo 90 días después de ser dado de alta? | Sí, No | Binario |

ACVI = ACV isquémico; ACVH = ACV Hemorrágico; AIT = Ataque isquémico transitorio; HSA = hemorragia subaracnoidea; TBI = trauma craneoencefálico; SE = Estado Epiléptico
| Variáveis | Descrição | Campo de dados (valores permitidos) | Tipo de variável |
|-----------|-----------|-------------------------------------|-----------------|
| **Identificação** | | | |
| ID do local de estudo | Identificação do local de estudo (ID) atribuída pelo Centro Coordenador | Texto livre | Nominal |
| ID do estudo | Identificação do local de estudo seguido pelo número de cada paciente em ordem cronológica. Esse é o número atribuído ao paciente pelo estudo e não contém informação passível de identificação | Texto livre | Nominal |
| **Número do registro médico** | | | |
| Número do registro médico | Número do Prontuário Médico | Numérico | Nominal |
| **Data de Nascimento** | | | |
| Data de Nascimento | Data de nascimento | Dia/Mês/Ano | Data |
| **Data de Admissão Hospitalar** | | | |
| Data de Admissão Hospitalar | Data da internação no Hospital | Dia/Mês/Ano | Data |
| **Instituição** | | | |
| Instituição | Nome da Instituição na qual o paciente foi admitido | Texto livre | Nominal |
| **Data do início dos Sintomas de Covid-19** | | | |
| Data do início dos Sintomas de Covid-19 | Data em que o paciente primeiro percebeu os sintomas. Se desconhecido, colocar a data de admissão. | Dia/Mês/Ano | Data |
| **Data de início dos Sintomas Neurológicos** | | | |
| Data de início dos Sintomas Neurológicos | Data em que o paciente/médico primeiro notou os sintomas neurológicos | Dia/Mês/Ano | Data |
| **Sexo** | | | |
| Sexo | Gênero biológico | Homem, Mulher | Binário |
| **Altura (cm)** | | | |
| Altura (cm) | Colocar a altura do paciente em cm | Numérico | Contínua |
| **Peso (Kg)** | | | |
| Peso (Kg) | Colocar o peso do paciente em Kg | Numérico | Contínua |
| **Idade** | | | |
| Idade | Idade do paciente na Admissão | Numérico | Discreta |
| **Informações Gerais Sobre o COVID** | | | |
| COVID-19 confirmado? | Foi confirmada laboratorialmente a infecção por Covid-19? | Sim/Não | Binário |
| Tratamento empírico para COVID-19? | Qual o tratamento empírico realizado para Covid-19? | Nenhuma, Hidroxicloroquina, Azitromicina (Zithromax), Remdesivir, Lopinavir/Ritonavir (Kaletra), Terapia com plasma convalescente, outros | Nominal |
| **Número de pacientes com COVID-19 no CTI no dia da admissão** | | | |
| Número de pacientes com COVID-19 no CTI no dia da admissão | Total de pacientes confirmados ou suspeitos para Covid-19 nos leitos de CTI no dia da admissão hospitalar. Por favor, incluir todos os leitos de CTI—incluindo os centros que expandidram além da capacidade habitual | Numérico | Discreta |
| **Número de pacientes com COVID-19 no hospital no dia da admissão** | | | |
| Número de pacientes com COVID-19 no hospital no dia da admissão | Total de pacientes confirmados ou suspeitos para Covid-19 no hospital no dia da admissão hospitalar. | Numérico | Discreta |
| **Comorbidades** | | | |
| História de AVC isquêmico | O paciente já teve o diagnóstico de AVC isquêmico antes da internação hospitalar? | Sim/Não | Binário |
| História de Demência | O paciente já teve o diagnóstico de demência antes da internação hospitalar? | Sim/Não | Binário |
| Outra comorbidade neurológica? | O paciente já teve o diagnóstico de outra doença neurológica antes da internação hospitalar? | Sim/Não | Binário |
### Variáveis

| Variáveis                              | Descrição                                                                 | Campo de dados (valores permitidos)                                                                 | Tipo de variável |
|----------------------------------------|---------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|------------------|
| História Patológica Pregressa          | O paciente possui alguma das seguintes comorbidades?                      | DM tipo 1/DM tipo 2/Doença arterial coronariana/Hipertensão/Imunossupressão/Doença Pulmonar/Tabagismo Ativo/Uso de IECA/Uso de Corticóide/Uso de Drogas Imunossupressoras | Nominal         |
| Sintomas Neurológicos na Admissão ou durante a Internação |                                                                            |                                                                                                   |                  |
| Cefaléia                               | O paciente desenvolveu cefaléia nova antes ou durante a hospitalização por Covid-19 (auto declaração ou declaração da família)? | Sim/Não                                                                                           | Binário         |
| Disautonomia                           | O paciente exibiu sinais/sintomas de disautonomia?                         | Sim/Não                                                                                           | Binário         |
| Anosmia/Ageusia                        | O paciente desenvolveu sensação de olfato ou gustomação anormais antes ou depois da hospitalização por Covid-19 (auto declaração ou declaração da família)? | Simanosmia; Sim, ageusia; Sim, ambos, Não                                                      | Nominal         |
| Síncope                                | O paciente apresentou síncope levando a hospitalização ou teve síncope durante a hospitalização? Síncope é definida como: perda transitória da consciência devido a hipoperfusão global cerebral transitória caracterizada por início rápido, curta duração, e recuperação espontânea completa. Para relatar esse diagnóstico, traumatismo de crânio e epilepsia devem ser descartados. | Sim/Não                                                                                           | Binário         |
| Acidente Vascular Cerebral             | O paciente apresentou sinais de AVC agudo?                                 | Sim, AVC isquêmico; Sim, AVC hemorrágico; Sim, Hemorragia subaracnoidea, Não                       | Nominal         |
| Encefalopatia aguda                    | O paciente desenvolveu alteração do estado mental novo antes ou durante a hospitalização por Covid-19 excluindo efeito direto da medicación ou hipotensão (pressão arterial média <60 mmHg)? | Sim/Não                                                                                           | Binário         |
| Meningite/Encefalite                   | O paciente se apresentou (ou desenvolveu) meningite ou encefalite?          | Sim/Não                                                                                           | Binário         |
| Coma                                   | O paciente se apresentou com coma (ou desenvolveu durante a hospitalização)? Excluir coma devido a medicación. | Sim/Não                                                                                           | Binário         |
| Variáveis                  | Descrição                                                                                                                                 | Campo de dados (valores permitidos)                       | Tipo de variável |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|-----------------|
| Crise convulsiva          | O paciente se apresentou com crise convulsiva/status epilepticus (ou desenvolveu durante a hospitalização)? Definição: crises com duração > 5 minutos, diagnosticado clinicamente e/ou eletrofagicamente pelo neurologista | Sim/Não                                                    | Binário         |
| Mielopatia                | O paciente apresentou sinais de mielopatia durante a hospitalização? Definição: fraqueza de membro superior/inferior relacionada a alterações patológicas suspeitas ou confirmadas da medula espinhal. | Sim/Não                                                    | Binário         |
| Plegia/Paresia            | O paciente desenvolveu plegia/paresia nova, incluindo monoplegia/paresia, hemiplegia/paresia e tetraplegia/paresia.                         | Sim/Não                                                    | Binário         |
| Local da Plegia/Paresia   |                                                                                                                                          | Texto Livre                                                | Nominal         |
| Afasia                    | O paciente se apresentou com afasia (ou desenvolveu durante a hospitalização)?                                                             | Sim/Não                                                    | Binário         |
| Distúrbio de Movimento    | O paciente desenvolveu novos sintomas motores antes ou durante a hospitalização por Covid-19? Incluir: postura anormal, coréia, distonia, hiperkinesia, acinesia, sintomas extra-piramidais | Sim/Não                                                    | Binário         |
| Alteração de Tônus        | O paciente se apresentou com alterações de tônus muscular (ou desenvolveu durante a hospitalização)?                                         | Sim/Não                                                    | Binário         |
| Alteração de Reflexos de Tronco | Especificifique se alguns desses reflexos está anormal: (1) corneano, (2) fotomotor, (3) tosse, (4) reflexo de vômito                      | 1 Corneano anormal 2 Fotomotor anormal 3 Tosse anormal 4 Reflexo de vômito anormal 5 Sem anormalidades de reflexos 6 Outros | Nominal         |
| Novos sintomas sensitivos | O paciente se apresentou com novos sintomas sensitivos (ou desenvolveu durante a hospitalização)?                                           | Sim/Não                                                    | Binário         |
| Quais sintomas sensitivos? | Descrever os sintomas sensitivos apresentados                                                                                               | Texto Livre                                                | Nominal         |
| Outros sintomas neurológicos | O paciente se apresentou com outros sintomas neurológicos não mencionados anteriormente (ou desenvolveu durante a hospitalização)? | Sim/Não                                                    | Binário         |
| Melhor Glasgow após evento neurológico? | Melhos Glasgow Coma Score (GCS) documentado após o início de complicação neurológica grave. Para pacienes intubados: usar o GCS antes da intubação. | 3–15                                                      | Ordinal         |

**Dados de Admissão**

|                  | Descrição                                                                                         | Campo de dados (valores permitidos) | Tipo de variável |
|------------------|---------------------------------------------------------------------------------------------------|------------------------------------|-----------------|
| Saturação de O2  | Saturação de O2 na admissão                                                                      | Numérico                           | Discreta        |
| Frequência Respiratória | Frequência respiratória na admissão                                                             | Numérico                           | Discreta        |
| Variáveis   | Descrição                                                                 | Campo de dados (valores permitidos) | Tipo de variável |
|-------------|----------------------------------------------------------------------------|-------------------------------------|------------------|
| pH          | pH do sangue arterial (primeira disponível desde a admissão hospitalar)    | Numérico                            | Contínua         |
| paO2        | pO2 do sangue arterial (primeira disponível desde a admissão hospitalar)    | Numérico                            | Contínua         |
| paCO2       | pCO2 do sangue arterial (primeira disponível desde a admissão hospitalar)   | Numérico                            | Contínua         |
| HCO3        | HCO3 do sangue arterial (primeira disponível desde a admissão hospitalar)   | Numérico                            | Contínua         |
| Leucócitos  | Contagem de leucócitos (primeira disponível desde a admissão hospitalar)    | Numérico                            | Discreta         |
| Linfócitos  | Contagem de linfócitos (primeira disponível desde a admissão hospitalar)    | Numérico                            | Discreta         |
| Plaquetas   | Contagem de Plaquetas (primeira disponível desde a admissão hospitalar)     | Numérico                            | Discreta         |
| PCR         | Dosagem de PCRt (primeira disponível desde a admissão hospitalar) (unidade: mg/dl) | Numérico                            | Contínua         |

**Avaliação No Desfecho Hospitalar**

| Variáveis                              | Descrição                                                                 | Campo de dados (valores permitidos) | Tipo de variável |
|----------------------------------------|----------------------------------------------------------------------------|-------------------------------------|------------------|
| Houve Necessidade de Ventilação Mecânica? | O paciente evoluiu para ventilação mecânica? | Sim/Não                           | Binário         |
| Data da Intubação                      | Qual o dia da intubação orotracheal?                                     | Dia/Mês/Ano                        | Data            |
| Data da Extubação ou Desmame Ventilatório Concluído (se TQT) | Qual o dia da extubação ou da conclusão do desmame ventilatório? | Dia/Mês/Ano                        | Data            |
| Houve Necessidade de ECMO?             | O paciente evoluiu para ECMO?                                             | Sim/Não                           | Binário         |
| Houve Necessidade de Diálise?          | O paciente evoluiu para diálise?                                          | Sim/Não                           | Binário         |
| Decisão por Cuidados Paliativos Estritos? | Houve uma decisão por cuidados paliativos? | Sim/Não                           | Binário         |
| Óbito Hospitalar?                     | O paciente evoluiu para óbito durante a internação hospitalar?             | Sim/Não                           | Binário         |
| Data do Óbito?                         | Qual o dia do óbito?                                                      | Dia/Mês/Ano                        | Data            |
| Tempo de Internação em CTI             | Computar o número total de dias de internação no CTI                        | Numérico                            | Discreta         |
| Tempo de Internação Hospitalar         | Computar o número total de dias de internação no hospital                  | Numérico                            | Discreta         |
| Situação da Alta Hospitalar            | O paciente foi de alta para casa ou transferido para outra instituição?    | Residência/Transferência Hospitalar | Nominal         |
| Instituição de Transferência           | Qual foi a instituição de transferência?                                  | Texto Livre                        | Nominal         |
| Tomografia de Crânio                   | Foi realizada tomografia de crânio?                                       | Sim/Não                           | Binário         |
| Data da Tomografia                     | Qual a data da realização da tomografia?                                  | Dia/Mês/Ano                        | Data            |
| Achados da Tomografia                  | Descrever os achados da tomografia                                        | Infarto Cerebral/Hemorragia Cerebral/Outros (descrever) | Nominal         |
| Ressonância Nuclear Magnética de Crânio| Foi realizada ressonância nuclear magnética de crânio?                     | Sim/Não                           | Binário         |
the Neurocritical Care Society (NCS) and the GCS-NeuroCOVID consortium. The GCS-NeuroCOVID Spanish data elements and CRF are developed in close collaboration with LABIC consortia. This harmonization of data elements and definitions is an important step toward harmonized data capture of COVID-19 neurological manifestations across the North, Central, and South America.

**Harmonization with POSSIBLE Network and Development of Adult Portuguese Version CRF**

The GCS-NeuroCOVID consortium is endorsed by and collaborates closely with the Prospective Observational Study of Subarachnoid hemorrhage and Intracerebral hemorrhage patients in Latin America (POSSIBLE) network. The POSSIBLE network was created in 2017 to investigate the epidemiology and the medical practices in hemorrhagic stroke and subarachnoid hemorrhage in 33 Latin America critical care units including 12 primary Portuguese-speaking sites in Brazil. Non-Portuguese-speaking sites include critical care units from Argentina, Bolivia, Chile, Colombia, Cuba, Equator, Paraguay, Peru, Puerto Rico, Uruguay, and Venezuela. There are three coordinating sites: Brain’s Institute in Rio de Janeiro, led by CR and PK (for centers from Brazil) and Fundación Valle del Lili, and Hospital Universitário (Cali, Colombia) and Hospital de Especialidades Eugenio Espejo (Quito, Equator), led by JM and NM, respectively (for the non-Portuguese-speaking sites). All data collected are stored in a RedCap database linked to the Brain’s Institute.

As soon as the COVID-19 pandemic emerged in South America, two POSSIBLE network investigators (CR and PK) developed a common database for neurological manifestations in COVID-19 patients by leveraging the existing infrastructure of POSSIBLE network in Brazil. In collaboration with the GCS-NeuroCOVID consortium, lead POSSIBLE investigators (CR and PK) harmonized the GCS-NeuroCOVID Tier 1 CDEs with existing POSSIBLE CDEs to create a single neurological COVID-19 CRF for the POSSIBLE network. They further translated all data elements and the data dictionary into Portuguese (Table 3). Some variables were adjusted due to regional heterogeneity. For example, the discharge disposition was changed to free text, because there are few long-term facilities like hospice units or long-term care units in Brazil.

**Development of Pediatric CRFs (English and Spanish)**

The pediatric CRF (Table 4) was approached with similar principles as the adult CRF with some intentional differences. COVID-19 infection prevalence in hospitalized children is estimated to be 9.4 and 5.4 per 100,000 in children aged 0–4 and 5–17 years of age, respectively,
| Data elements                                      | Description                                                                 | Data fields (permissible values) | Variable type |
|---------------------------------------------------|-----------------------------------------------------------------------------|----------------------------------|---------------|
| Site identification (ID)                          | Assigned on-site ID tab                                                     | Fixed                            | Fixed         |
| Participant ID                                    | Auto-assigned                                                              | Fixed                            | Fixed         |
| Study ID                                          | Auto-assigned                                                              | Fixed                            | Fixed         |
| Institution/hospital                              | Name of institution/hospital patient is admitted to                        | Free text                        | Free text     |
| Academic/university hospital                      | Is your hospital an academic or university center?                         | Yes/no/unknown                   | Binary        |
| Freestanding children's hospital                  | Is your hospital a dedicated children's hospital?                          | Yes/no/unknown                   | Binary        |
| Pediatric neurocritical care service              | Does your hospital have a pediatric neurocritical care service?            | Yes/no/unknown                   | Binary        |
| Total pediatric hospital beds                     | What is the total number of pediatric hospital beds in your center? (excluding Neonatal Intensive Care Unit (NICU)) | Numeric                          | Continuous    |
| Total pediatric ICU beds                          | What is the total number of pediatric ICU beds in your center?             | Free text                        | Continuous    |
| Hospital admission date                           | Index admission to hospital                                                | MM/DD/year                       | Date          |
| PICU admission date                                | Index admission to pediatric ICU                                          | MM/DD/year                       | Date          |
| PICU discharge date                               | Index discharge/transfer from pediatric ICU                               | MM/DD/year                       | Date          |
| Hospital discharge date                           | Index discharge from hospital                                             | MM/DD/year                       | Date          |
| Total days hospital admission                     | Total days of hospital admission (admission to discharge from hospital) patients discharged from ED will be entered as 1 day | Numeric                          | Continuous    |
| Hospital disposition                              | Index discharge disposition from hospital                                  | List                             | Nominal       |
| Sex                                               | Patient’s biological sex (not self-identified gender)                      | List                             | Nominal       |
| Weight (kg)                                       | Enter weight in kilograms                                                  | Free text                        | Continuous    |
| Height (cm)                                       | Enter height in centimeters                                                | Free text                        | Continuous    |
| Age                                               | Patient’s age on presentation (whole numbers for children 1+ years and fractions for children < 1) | Numeric                          | Continuous    |
| Race                                              | Patient’s race                                                             | List                             | Nominal       |
| Ethnicity                                         | Patient’s self-reported ethnicity                                          | List                             | Nominal       |
| Comorbidity: neurological                         | Patient has a neurological comorbidity                                     | Yes/no/unknown                   | Binary        |
| Comorbidity: cardiovascular                       | Patient has a cardiovascular comorbidity                                   | Yes/no/unknown                   | Binary        |
| Comorbidity: respiratory                           | Patient has a pulmonary comorbidity                                        | Yes/no/unknown                   | Binary        |
| Comorbidity: renal or urologic                    | Patient has a renal or urologic comorbidity                                | Yes/no/unknown                   | Binary        |
| Comorbidity: gastrointestinal                     | Patient has gastrointestinal comorbidity                                   | Yes/no/unknown                   | Binary        |
| Comorbidity: hematologic or immunologic           | Patient has a hematologic or immunologic comorbidity                       | Yes/no/unknown                   | Binary        |
| Comorbidity: metabolic                            | Patient has a metabolic comorbidity                                        | Yes/no/unknown                   | Binary        |
| Comorbidity: congenital or genetic defect         | Patient has a congenital or genetic comorbidity                            | Yes/no/unknown                   | Binary        |
| Comorbidity: malignancy                           | Patient has a malignancy comorbidity                                       | Yes/no/unknown                   | Binary        |
| Comorbidity: premature or neonatal                | Patient has a premature or neonatal comorbidity                            | Yes/no/unknown                   | Binary        |
| Comorbidity: technology dependence                | Patient has a technology dependence comorbidity                            | Yes/no/unknown                   | Binary        |
| Comorbidity: transplantation                      | Patient has a transplantation comorbidity                                  | Yes/no/unknown                   | Binary        |
| Comorbidity: other, nonneurological               | Patient has another, nonneurological comorbidity                           | Yes/no/unknown                   | Binary        |
| COVID diagnosis PCR test                          | PCR test positive                                                          | Yes/no/unknown                   | Binary        |
| COVID diagnosis PCR test date                      | PCR test positive date                                                     | MM/DD/year                       | Date          |
| COVID diagnosis presumed positive                 | Patient presumed (not tested) positive due to positive close contacts (NOT simply person under investigation) | Yes/no/unknown                   | Binary        |
| COVID diagnosis presumed positive date            | Patient presumed (not tested) positive due to positive close contacts (NOT simply person under investigation) date | MM/DD/year                       | Date          |
| COVID diagnosis antibody test                     | Antibody test positive                                                     | Yes/no/unknown                   | Binary        |
| COVID diagnosis antibody test date                | Antibody test positive date                                                | MM/DD/year                       | Date          |
| Data elements                                      | Description                                                                 | Data fields (permissible values) | Variable type |
|---------------------------------------------------|------------------------------------------------------------------------------|----------------------------------|---------------|
| Date of ANY COVID symptom onset                   | Date patient noticed symptom first. If unknown/no history, please enter admission date | MM/DD/year                      | Date          |
| Date of neurological symptom onset                | Date patient first developed neurological symptoms                            | MM/DD/YEAR                      | Date          |
| Headache                                          | Did the patient report headache?                                             | Yes/no/unknown                   | Binary        |
| Date of headache onset                            | Date first noted                                                              | MM/DD/year                      | Date          |
| Sympathetic storming/dysautonomia                 | Did the patient exhibit signs/symptoms of sympathetic storming?              | Yes/no/unknown                   | Binary        |
| Date of storming/dysautonomia onset               | Date first noted                                                              | MM/DD/year                      | Date          |
| Anosmia                                           | Did patient report abnormal smell?                                           | Yes/no/unknown                   | Binary        |
| Date of anosmia onset                             | Date first noted                                                              | MM/DD/year                      | Date          |
| Ageusia                                           | Did patient report either loss of taste or abnormal taste?                   | Yes/no/unknown                   | Binary        |
| Date of ageusia onset                             | Date first noted                                                              | MM/DD/year                      | Date          |
| Vision impairment                                 | Did patient report abnormal vision?                                          | Yes/no/unknown                   | Binary        |
| Date of vision impairment onset                   | Date first noted                                                              | MM/DD/year                      | Date          |
| Syncope                                           | Did the patient develop syncope?                                            | Yes/no/unknown                   | Binary        |
| Date of syncope onset                             | Date first noted                                                              | MM/DD/year                      | Date          |
| Stroke                                            | Did the patient have an acute stroke?                                       | Drop down                        | Nominal       |
| Date of stoke onset                               | Date first noted                                                              | MM/DD/year                      | Date          |
| Acute encephalopathy (altered mental status, lethargy, or drowsiness) | Did patient develop new onset altered mental status, lethargy, or drowsiness? | Yes/no/unknown                   | Binary        |
| Date of acute encephalopathy onset                | Date first noted                                                              | MM/DD/year                      | Date          |
| Cardiac arrest                                    | Did patient develop cardiac arrest?                                          | Yes/no/unknown                   | Binary        |
| Date of cardiac arrest onset                      | Date first noted                                                              | MM/DD/year                      | Date          |
| Meningitis/encephalitis                           | Did patient have meningitis or encephalitis?                                 | Yes/no/unknown                   | Binary        |
| Date of meningitis/encephalitis onset             | Date first noted                                                              | MM/DD/year                      | Date          |
| Coma                                              | Did patient develop coma (by examination)? Exclude coma due to medication. Coma definition: unarousable to noxious stimuli, no eye tracking or purposeful movement, no spontaneous eye opening  | Yes/no/unknown                   | Binary        |
| Date of coma onset                                | Date first noted                                                              | MM/DD/year                      | Date          |
| Clinical seizures/status epilepticus              | Did patient develop clinical seizure/status epilepticus?                     | Yes/no/unknown                   | Binary        |
| Date of clinical seizure/status epilepticus onset  | Date first noted                                                              | MM/DD/year                      | Date          |
| Numbness                                          | Did patient develop numbness?                                                | Yes/no/unknown                   | Binary        |
| Date of numbness onset                            | Date first noted                                                              | MM/DD/year                      | Date          |
| Weakness                                          | Did patient develop weakness?                                                | Yes/no/unknown                   | Binary        |
| Date of weakness onset                            | Date first noted                                                              | MM/DD/year                      | Date          |
| Neuropathy                                        | Did patient develop neuropathy?                                              | Yes/no/unknown                   | Binary        |
| Date of neuropathy onset                          | Date first noted                                                              | MM/DD/year                      | Date          |
| Paresthesia                                       | Did patient develop paresthesia?                                             | Yes/no/unknown                   | Binary        |
| Date of paresthesia onset                         | Date first noted                                                              | MM/DD/year                      | Date          |
| Myelopathy                                        | Did patient show signs of myelopathy?                                        | Yes/no/unknown                   | Binary        |
| Date of myelopathy onset                          | Date first noted                                                              | MM/DD/year                      | Date          |
| Dizziness                                         | Did patient report dizziness?                                                | Yes/no/unknown                   | Binary        |
| Date of dizziness onset                           | Date first noted                                                              | MM/DD/year                      | Date          |
| Ataxia                                            | Did patient show signs of ataxia?                                            | Yes/no/unknown                   | Binary        |
| Date of ataxia onset                              | Date first noted                                                              | MM/DD/year                      | Date          |
| Other neurological manifestations, describe        | If the patient exhibited other neurological manifestations, please describe    | Free text                        | Nominal       |
| Date of other neurological manifestations onset    | Date first noted                                                              | MM/DD/year                      | Date          |
| Fever                                             | Did patient have fever?                                                      | Yes/no/unknown                   | Binary        |
| Data elements                                      | Description                                                                 | Data fields (permissible values) | Variable type |
|---------------------------------------------------|------------------------------------------------------------------------------|----------------------------------|---------------|
| Date of fever onset                               | Date first noted                                                             | MM/DD/year                       | Date          |
| Cough                                             | Did patient have cough?                                                     | Yes/no/unknown                   | Binary        |
| Date of cough onset                               | Date first noted                                                             | MM/DD/year                       | Date          |
| Delirium                                          | Did patient have delirium?                                                  | Yes/no/unknown                   | Binary        |
| Date of delirium onset                            | Date first noted                                                             | MM/DD/year                       | Date          |
| How was delirium diagnosed?                       | Delirium tool (name it) or clinical                                          | Free text                        | Nominal       |
| Anorexia                                          | Did patient have anorexia?                                                  | Yes/no/unknown                   | Binary        |
| Date of anorexia onset                            | Date first noted                                                             | MM/DD/year                       | Date          |
| Diarrhea                                          | Did patient have diarrhea?                                                  | Yes/no/unknown                   | Binary        |
| Date of diarrhea onset                            | Date first noted                                                             | MM/DD/year                       | Date          |
| Throat pain                                       | Did patient have throat pain?                                               | Yes/no/unknown                   | Binary        |
| Date of throat pain onset                         | Date first noted                                                             | MM/DD/year                       | Date          |
| Abdominal pain                                    | Did patient have abdominal pain?                                           | Yes/no/unknown                   | Binary        |
| Date of abdominal pain onset                      | Date first noted                                                             | MM/DD/year                       | Date          |
| Electroencephalography (EEG) completed            | Was an EEG performed?                                                      | Yes/no/unknown                   | Binary        |
| EEG date                                          | Date of first EEG                                                           | MM/DD/year                       | Date          |
| EEG results                                       | EEG results                                                                 | List                             | Binary        |
| EEG final read                                    | Final read of first EEG                                                     | Free text                        | Free text     |
| Brain computed tomography (CT)                    | Was a brain CT performed?                                                  | Yes/no/unknown                   | Binary        |
| Date of brain CT                                  | Date of first brain CT                                                      | MM/DD/year                       | Date          |
| Brain CT results                                  | Results of first brain CT                                                   | Drop-down                        | Nominal       |
| Brain CT final read                               | Final read of first brain CT                                                | Free text                        | Free text     |
| Brain magnetic resonance imaging (MRI)            | Was a brain MRI performed?                                                 | Yes/no/unknown                   | Binary        |
| Date of brain MRI                                 | Date of first brain MRI                                                     | MM/DD/year                       | Date          |
| Brain MRI results                                 | Results of first brain MRI                                                  | List                             | Binary        |
| Brain MRI final read                              | Final read of first brain MRI                                               | Free text                        | Free text     |
| Cerebrospinal fluid (CSF) testing                 | Was CSF tested?                                                             | Yes/no/unknown                   | Binary        |
| Date of first CSF testing                         | Date of first CSF studies                                                   | MM/DD/year                       | Date          |
| CSF white blood cell (WBC) count                  | CSF WBC count                                                               | Numeric                          | Continuous    |
| CSF red blood cell (RBC) count                    | CSF RBC count                                                               | Numeric                          | Continuous    |
| CSF glucose                                       | CSF glucose mg/dl                                                           | Numeric                          | Continuous    |
| CSF protein                                       | CSF protein mg/dl                                                           | Numeric                          | Continuous    |
| CSF culture (viral and bacterial)                 | CSF culture results                                                         | Free text                        | Free text     |
| CSF polymerase chain reaction (PCR)               | CSF PCR results—viral and other                                             | Free text                        | Free text     |
| CSF COVID testing                                 | CSF COVID testing                                                           | List                             | Binary        |
| CSF opening pressure                              | CSF opening pressure in cm H2O                                              | Numeric                          | Continuous    |
| CSF other results                                 | CSF other results (antibody, oligoclonal bands, inflammatory molecules such as IL-6) | Free text                        | Free text     |
| Extracorporeal membrane oxygenation (ECMO)        | Did the patient require ECMO therapy while hospitalized?                    | Yes/no/unknown                   | Binary        |
| ECMO days                                         | How many days was the patient on ECMO?                                      | Numeric                          | Continuous    |
| Extracorporeal cardiopulmonary resuscitation (ECPR) | Was the patient placed on ECMO DURING ACTIVE CPR?                           | Yes/no/unknown                   | Binary        |
| Date of ECPR                                      | Date first noted                                                             | MM/DD/year                       | Date          |
| Dialysis/continuous renal replacement therapy (CRRT) | Did the patient develop acute kidney injury requiring dialysis/continuous renal replacement therapy | Yes/no/unknown                   | Binary        |
| Dialysis/CRRT days                                | How many days was the patient on dialysis/CRRT?                             | Numeric                          | Continuous    |
| Invasive mechanical ventilation                   | Did patient require intubation and mechanical ventilation during critical care admission | Yes/no/unknown                   | Binary        |
| Data elements                                | Description                                                                 | Data fields (permissible values) | Variable type |
|---------------------------------------------|------------------------------------------------------------------------------|----------------------------------|---------------|
| Invasive mechanical ventilation days        | How many days was the patient on invasive mechanical ventilation?            | Numeric                          | Continuous    |
| Noninvasive mechanical ventilation          | Did patient require noninvasive mechanical ventilation during critical care admission | Yes/no/unknown               | Binary        |
| Noninvasive mechanical ventilation days     | How many days was the patient on noninvasive mechanical ventilation?          | Numeric                          | Continuous    |
| Intracranial pressure (ICP) monitor        | Did the patient have an ICP placed?                                         | Yes/no/unknown               | Binary        |
| ICP device type                             | What kind of ICP monitor was placed?                                         | Drop-down                      | Nominal       |
| ICP monitor: date placed                    | Day of ICP monitor placement                                                 | MM/DD/year                     | Date          |
| ICP monitor: total days                     | If yes, how many days?                                                       | Numeric                        | Continuous    |
| ICP monitor: initial ICP                    | Initial intracranial pressure, mmHg                                          | Numeric                        | Continuous    |
| ICP monitor: ICP peak                       | Peak intracranial pressure (record ICP values that were sustained > 2 min)  | Numeric                        | Continuous    |
| ICP monitor: day of ICP peak                | Day of peak ICP                                                              | MM/DD/year                     | Date          |
| ICP monitor: cerebral perfusion pressure (CPP) low | Lowest CPP                                                                 | Numeric                        | Continuous    |
| ICP monitor: day of CPP low                 | Day of lowest CPP                                                            | MM/DD/year                     | Date          |
| Cause of death                              | What was the cause of in-hospital death if the patient died?                 | Free text                      | Free text     |
| Pediatric Index of Mortality (PIM) [30]     | PIM score on hospital admission (see “Scoring Guides” tab for scoring calculator) | # percent                     | Continuous    |
| Glasgow Coma Score (GCS)                    | GCS on hospital admission (if no neuromuscular blockade)                     | 3–15                            | Ordinal       |
| Pediatric Logistic Organ Dysfunction-2 (PELOD) [29] | PELOD score on hospital admission (see “Scoring Guides” tab for scoring calculator) | Numeric                        | Continuous    |
| WBC                                         | Enter WBC to two decimal points                                              | Numeric                        | Continuous    |
| Lymphocytes                                 | Enter absolute lymphocytes at admission                                       | Numeric                        | Continuous    |
| Lymphocytes—lowest                          | Enter lowest absolute lymphocyte count during hospitalization                | Numeric                        | Continuous    |
| Lymphocytes—date lowest                     | Date of laboratory value                                                     | MM/DD/year                     | Date          |
| Platelets                                   | Enter platelets at admission                                                  | Numeric                        | Continuous    |
| Platelets—lowest                            | Enter lowest platelet count during hospitalization                            | Numeric                        | Continuous    |
| Platelets—date lowest                       | Date of laboratory value                                                     | MM/DD/year                     | Date          |
| Sodium                                      | Enter blood sodium level mMol/L on admission                                 | Numeric                        | Continuous    |
| Hemoglobin                                  | Enter hemoglobin level g/dL on admission                                      | Numeric                        | Continuous    |
| Interleukin (IL-6) (first)                  | Enter IL-6 if done                                                           | Numeric                        | Continuous    |
| IL-6 (first) date                           | Date of laboratory value                                                     | MM/DD/year                     | Date          |
| C-reactive protein (CRP)                    | Enter first CRP mg/dl                                                        | Numeric                        | Continuous    |
| CRP—highest                                 | Enter the highest CRP during admission                                        | Numeric                        | Continuous    |
| CRP—highest date                            | Date of laboratory value                                                     | MM/DD/year                     | Date          |
| Ferritin                                    | Enter first ferritin ng/ml                                                    | Numeric                        | Continuous    |
| Ferritin—highest                            | Enter highest ferritin during admission                                      | Numeric                        | Continuous    |
| Ferritin—highest date                       | Date of laboratory value                                                     | MM/DD/year                     | Date          |
| Procalcitonin                               | Enter first procalcitonin, ng/mL                                             | Numeric                        | Continuous    |
| Procalcitonin—highest                       | Enter highest the procalcitonin ng/mL during admission                      | Numeric                        | Continuous    |
| Procalcitonin—the highest date              | Date of laboratory value                                                     | MM/DD/year                     | Date          |
| Fibrinogen                                  | Enter fibrinogen on ADMIT, mg/dL                                             | Numeric                        | Continuous    |
| Fibrinogen—lowest                           | Enter lowest fibrinogen during admission, mg/dl                              | Numeric                        | Continuous    |
| Fibrinogen—the lowest date                  | Date of laboratory value                                                     | MM/DD/year                     | Date          |
| Alanine aminotransferase (ALT)              | Enter the first ALT, Intl U/L                                                 | Numeric                        | Continuous    |
| ALT—highest                                 | Enter the highest ALT during admission, Intl U/L                              | Numeric                        | Continuous    |
### Table 4 (continued)

| Data elements | Description | Data fields (permissible values) | Variable type |
|---------------|-------------|---------------------------------|---------------|
| ALT—the highest date | Date of laboratory value | MM/DD/year | Date |
| Aspartate aminotransferase (AST) | Enter the first AST | Numeric | Continuous |
| AST—highest | Enter the highest AST during admission | Numeric | Continuous |
| AST—the highest date | Date of laboratory value | MM/DD/year | Date |
| Prothrombin (PT) | Enter the first PT | Numeric | Continuous |
| PT—highest | Enter the highest PT during admission | Numeric | Continuous |
| PT—the highest date | Date of laboratory value | MM/DD/year | Date |
| Partial thromboplastin time (PTT) | Enter the first PTT | Numeric | Continuous |
| PTT—highest | Enter the highest PTT during admission | Numeric | Continuous |
| PTT—the highest date | Date of laboratory value | MM/DD/year | Date |
| International normalized ratio (INR) | Enter the first INR | Numeric | Continuous |
| INR—highest | Enter the highest INR during admission | Numeric | Continuous |
| INR—the highest date | Date of laboratory value | MM/DD/year | Date |
| D-Dimer | Enter the first D-dimer | Numeric | Continuous |
| D-dimer—highest | Enter the highest D-dimer during admission | Numeric | Continuous |
| D-dimer—the highest date | Date of laboratory value | MM/DD/year | Date |
| Positive blood culture | Did the patient have a positive blood culture | Yes/no/unknown | Binary |
| Blood culture date | Date blood culture sent | MM/DD/year | Date |
| Blood culture results | Results of positive blood culture | Free text | Free text |
| Positive respiratory culture | Did the patient have a positive respiratory culture | Yes/no/unknown | Binary |
| Respiratory culture date | Date respiratory culture sent | MM/DD/year | Date |
| Respiratory culture results | Results of positive respiratory culture | Free text | Free text |
| Respiratory viral panel (non-COVID-19) | Was respiratory viral panel sent for non-COVID-19 viruses? | Yes/no/unknown | Binary |
| Respiratory viral panel date | Date respiratory viral panel sent | MM/DD/year | Date |
| Respiratory viral panel results | Results of respiratory viral panel | Free text | Free text |
| Other coinfection detected? | List other coinflections (organisms, sites, dates) | Free text | Free text |
| Lowest arterial blood gas (ABG) pH (intubated) | Enter worst ABG pH while intubated if done | Numeric | Continuous |
| Lowest ABG pH date | Date of laboratory value | MM/DD/year | Date |
| Lowest ABG pO2 (Intubated) | Enter the lowest ABG pO2 while intubated if done | Numeric | Continuous |
| Lowest ABG pCO2 Date | Date of laboratory value | MM/DD/year | Date |
| Highest Oxygenation Index (OI) (intubated) | Enter OI associated with worst pO2 while intubated if ABG done (https://www.mdcalc.com/oxygenation-index) | Numeric | Continuous |
| Highest Oxygenation Index (OI) (Intubated) date | Date of laboratory value | MM/DD/year | Date |
| Highest ABG pCO2 (intubated) | Enter the highest ABG pCO2 while intubated if done | Numeric | Continuous |
| Highest ABG pCO2 (intubated) date | Date of laboratory value | MM/DD/year | Date |
| Empiric COVID-19 treatment #1 | Enter the first medication used for empiric COVID-19 treatment | Free text | Free text |
| Empiric COVID treatment #1 date | Start date of empiric COVID treatment #1 | MM/DD/year | Date |
| List "other" empiric COVID treatment #1 | List other empiric COVID-19 treatments | Free text | Free text |
| Empiric COVID treatment #2 | Enter the second medication used for empiric COVID-19 treatment | Free text | Free text |
| Dosing and duration for COVID-19 treatment #1 | Enter dosing for any medication #1 used for empiric COVID-19 treatment | Free text | Free text |
| Empiric COVID treatment #2 date | Start date of empiric COVID treatment #2 | MM/DD/year | Date |
| List "other" empiric COVID treatment #2 | List other empiric COVID-19 treatments | Free text | Free text |
| Empiric COVID treatment #2 | Enter the second medication used for empiric COVID-19 treatment | Free text | Free text |
| Dosing and duration for COVID-19 treatment #2 | Enter dosing for any medication #2 used for empiric COVID-19 treatment | Free text | Free text |
| Data elements                                           | Description                                                                 | Data fields (permissible values) | Variable type |
|--------------------------------------------------------|-----------------------------------------------------------------------------|---------------------------------|---------------|
| Empiric COVID-19 treatment #3                          | Enter the third medication used for empiric COVID-19 treatment               | Free text                       | Free text     |
| List "other" empiric COVID treatment #3                 | List other empiric COVID-19 treatments                                       | Free text                       | Free text     |
| Empiric COVID treatment #3 date                         | Start date of empiric COVID treatment #3                                    | MM/DD/year                      | Date          |
| Dosing and duration for COVID-19 treatment #3           | Enter dosing for any medication #3 used for empiric COVID-19 treatment      | Free text                       | Free text     |
| Empiric COVID-19 treatment #4                          | Enter 4th medication used for empiric COVID-19 treatment                    | Free text                       | Free text     |
| List "other" empiric COVID treatment #4                 | List other empiric COVID-19 treatments                                       | Free text                       | Free text     |
| Empiric COVID treatment #4 date                         | Start date of empiric COVID treatment #4                                    | MM/DD/year                      | Date          |
| Dosing and duration for COVID-19 treatment #4           | Enter dosing for any medication #4 used for empiric COVID-19 treatment      | Free text                       | Free text     |
| Empiric COVID-19 treatment #5                          | Enter 5th medication used for empiric COVID-19 treatment                    | Free text                       | Free text     |
| List "other" empiric COVID treatment #5                 | Start date of empiric COVID treatment #5                                    | MM/DD/year                      | Date          |
| Empiric COVID treatment #5 date                         | Enter dosing for any medication #5 used for empiric COVID-19 treatment      | Free text                       | Free text     |
| Dosing and duration for COVID-19 treatment #5           | Enter dosing for any medication #5 used for empiric COVID-19 treatment      | Free text                       | Free text     |
| Multisystem inflammatory Syndrome (MIS-C) related to COVID-19 [31] | Did patient have this syndrome diagnosed?                                    | Yes/no/unknown                  | Binary        |
| Multisystem inflammatory syndrome date                  | Date first noted                                                             | MM/DD/year                      | Date          |
| Empiric MIS-C treatment #1                              | Enter the first therapy used for empiric syndrome treatment                 | Free text                       | Free text     |
| Empiric MIS-C treatment #1 date                         | Enter the first therapy used for empiric syndrome treatment start date       | MM/DD/year                      | Date          |
| Dosing and duration for MIS-C treatment #1              | Enter dosing for any medication #1 used for empiric syndrome treatment       | Free text                       | Free text     |
| Empiric MIS-C treatment #2                              | Enter the second medication used for empiric syndrome treatment              | Free text                       | Free text     |
| Empiric MIS-C treatment #2 date                         | Enter the second therapy used for empiric syndrome treatment start date      | MM/DD/year                      | Date          |
| Dosing and duration for MIS-C treatment #2              | Enter dosing for any medication #2 used for empiric syndrome treatment       | Free text                       | Free text     |
| Empiric MIS-C treatment #3                              | Enter the third medication used for empiric syndrome treatment               | Free text                       | Free text     |
| Empiric MIS-C treatment #3 date                         | Enter the third therapy used for empiric syndrome treatment start date       | MM/DD/year                      | Date          |
| Dosing and duration for MIS-C treatment #3              | Enter dosing for any medication #3 used for empiric syndrome treatment       | Free text                       | Free text     |
| Empiric MIS-C treatment #4                              | Enter the fourth medication used for empiric syndrome treatment              | Free text                       | Free text     |
| Empiric MIS-C treatment #4 date                         | Enter the fourth therapy used for empiric syndrome treatment start date      | MM/DD/year                      | Date          |
| Dosing and duration for MIS-C treatment #4              | Enter dosing for any medication #4 used for empiric syndrome treatment       | Free text                       | Free text     |
| Empiric MIS-C treatment #5                              | Enter the fifth medication used for empiric syndrome treatment               | Free text                       | Free text     |
| Empiric MIS-C treatment #5 date                         | Enter the fifth therapy used for empiric syndrome treatment start date       | MM/DD/year                      | Date          |
| Dosing and duration for MIS-C treatment #5              | Enter dosing for any medication #5 used for empiric syndrome treatment       | Free text                       | Free text     |
compared with 316.9 per 100,000 adults >65 years of age [26]. The lower patient volume in the pediatric population makes collecting more detailed data elements possible for the pediatric CRF. Conversely, the low volume expected per country demands multicenter collaboration to attain a large enough sample size to produce robust results to inform clinical care and research initiatives. Some data elements, such as those specific to intensive care admission (e.g., mechanical ventilation, risk of mortality scores), are already standardized and commonly collected in pediatric intensive care units (PICUs). However, many of the baseline and COVID-19-related data elements should harmonize with other pediatric COVID-19 studies, none of which (to our knowledge) includes detailed neurological manifestations. Finally, unique data elements specific to pediatrics are necessary in order to account for the following: (1) child age and developmental stage [27, 28]; (2) pediatric-specific risk adjustment [29, 30]; (3) baseline hospital characteristics; (4) differences in pediatric versus adult morbidities, symptoms, treatments, and outcomes; (5) inclusion of multisystem inflammatory syndrome related to COVID-19 (MISC) data elements [31], a pediatric-specific manifestation; and (6) child- and family-validated outcome measures.

Similar to the adult study, the pediatric collective is actively working to establish partnerships with centers and networks affected by COVID-19 in high-, middle-, and low-income countries. To facilitate this aim, we engaged with the LARed (“Red Colaborativa Pediatrìca Latinoamericana, or Collaborative Pediatric Latin American Network), which in turn reached out to partner networks including CL.aNi (Colegio Latinoamericano de Neurointensivismo), AMCI (Asociacion Colombiana de Medicina Critica y Cuidados Intensivos), and SLACIP (Sociedad Latinoamericana de Cuidados Intensivos Pediátricos SM) to recruit sites outside of LARed. At the time of this writing, these efforts have resulted in 22 registered sites spanning from Mexico to Chile and Argentina. We developed Spanish language versions of study documents and CRF (Table 5). Spanish translation was performed by team members (MS, JDR.) and reviewed and edited by global partners in primary Spanish-speaking regions (PV, SG). As in the adult CRF, data elements were reviewed and adjusted for applicability to the local region and medical abbreviations were avoided.

Table 4 (continued)

| Data elements | Description | Data fields | Variable type |
|---------------|-------------|-------------|---------------|
| Baseline (preadmission) pediatric cerebral performance category (PCPC) [27] | Enter baseline pediatric cerebral performance category (assign retrospectively) (see “Scoring Guides” tab for scoring information) | Numeric Ordinal | |
| Hospital admission PCPC | Enter admission pediatric cerebral performance category (see “Scoring Guides” tab for scoring information) | Numeric Ordinal | |
| Hospital discharge PCPC | Enter discharge pediatric cerebral performance category (see “Scoring Guides” tab for scoring information) | Numeric Ordinal | |
| Baseline (preadmission) functional status scale (FSS) [18] | Enter baseline functional status scale (see “Scoring Guides” tab for scoring information) | Numeric Ordinal | |
| Hospital admission FSS | Enter admission functional status scale (see “Scoring Guides” tab for scoring information) | Numeric Ordinal | |
| Hospital discharge FSS | Enter discharge functional status scale (see “Scoring Guides” tab for scoring information) | Numeric Ordinal | |
| Physical therapy consult | Did the patient have a physical therapy consultation in the hospital? | Yes/no/unknown Binary | |
| Physical therapy consultation date | If yes, date ordered? | MM/DD/year Date | |
| Occupational therapy consult | Did the patient have an occupational therapy consultation in the hospital? | Yes/no/unknown Binary | |
| Occupational therapy consultation date | If yes, date ordered? | MM/DD/year Date | |
| Speech and language therapy consult | Did the patient have a speech and language therapy consultation in the hospital? | Yes/no/unknown Binary | |
| Speech and language therapy consultation date | If yes, date ordered? | MM/DD/year Date | |
| Rehabilitation consult | Did the patient have a rehabilitation consultation in the hospital? | Yes/no/unknown Binary | |
| Rehabilitation consultation date | If yes, date ordered? | MM/DD/year Date | |
### Table 5 Pediatric CRF Spanish version (formato para reporte de casos)

| Variable                                | Descripción                                                                 | Valores Admitidos       | Tipo de variable |
|-----------------------------------------|-----------------------------------------------------------------------------|-------------------------|------------------|
| Identificación del Sitio               | Asignado en la pestaña Sitio ID                                             | Fijo                    | Fijo             |
| Identificación del Participante         | Autoasignado                                                                | Fijo                    | Fijo             |
| ID del Estudio                          | Autoasignado                                                                | Fijo                    | Fijo             |
| Institución/Hospital                    | Nombre de la institución/hospital en el cual está admitido el paciente     | Texto Libre             | Texto Libre      |
| Hospital Académico/Universidad          | El hospital está ubicado en un centro académico o está afiliado a una universidad? | Sí/No/Desconocido      | Binario          |
| Hospital Pediátrico                     | Es el hospital exclusivamente pediátrico?                                  | Sí/No/Desconocido      | Binario          |
| Servicio de Cuidado Crítico Neurológico | ¿Su hospital tiene un servicio de atención neurocrítico?                    | Sí/No/Desconocido      | Binario          |
| Número Total Camas Pediátricas          | ¿Cuál es el número total de camas pediátricas en su centro? (sin contar camas de Cuidados Intensivos Neonatales) | #                       | Continuo         |
| Total de Camas UCI Pediátricas          | ¿Cuál es el número total de camas en la UCI pediátrica en su centro?       | Texto Libre             | Continuo         |
| Fecha de Admisión al hospital           | Fecha de admisión al hospital                                               | MM/DD/Año               | Fecha            |
| Fecha de Admisión a la UCI              | Fecha ingreso a la UCI                                                      | MM/DD/Año               | Fecha            |
| Fecha de alta UCI                       | Fecha de salida/transferencia desde la UCI                                  | MM/DD/Año               | Fecha            |
| Fecha de Alta Hospitalaria              | Fecha de alta del hospital                                                  | MM/DD/Año               | Fecha            |
| Total Días Hospitalización             | Días totales de hospitalización                                             | #                       | Continuo         |
| Ubicación al alta                      | Disposición del paciente al dar de alta del hospital                        | Lista                   | Nominal          |
| Sexo                                    | Sexo biológico del paciente                                                 | Lista                   | Nominal          |
| Peso, kg                                | Ingrese el peso en kilogramos                                               | Texto libre             | Continuo         |
| Altura (cm)                             | Introducir la talla/estatura en centímetros                                 | Texto libre             | Continuo         |
| Años                                    | La edad del paciente al ingreso al hospital (números enteros para niños de 1 año y fracciones para niños < 1) | #                       | Continuo         |
| Raza                                    | Raza del paciente                                                           | Lista                   | Nominal          |
| Grupo Étnico                            | Etnicidad auto-reportada del paciente                                       | Lista                   | Nominal          |
| Comorbilidad: Neurológica               | ¿El paciente tiene una comorbilidad neurológica?                            | Sí/No/Desconocido      | Binario          |
| Comorbilidad: Cardiovascular            | ¿El paciente tiene una comorbilidad cardiovascular?                        | Sí/No/Desconocido      | Binario          |
| Comorbilidad: Respiratoria              | ¿El paciente tiene una comorbilidad pulmonar?                               | Sí/No/Desconocido      | Binario          |
| Comorbilidad: renal o urológica         | ¿El paciente tiene una comorbilidad renal o urológica?                      | Sí/No/Desconocido      | Binario          |
| Comorbilidad: Gastrointestinal          | ¿El paciente tiene una comorbilidad gastrointestinal?                      | Sí/No/Desconocido      | Binario          |
| Comorbilidad Hematológica o Inmunológica | ¿El paciente tiene una comorbilidad inmunológica o hematológica?            | Sí/No/Desconocido      | Binario          |
| Comorbilidad: Metabólica                | ¿El paciente tiene una comorbilidad metabólica?                             | Sí/No/Desconocido      | Binario          |
| Comorbilidad: Enfermedad Congénita o Defecto Genético | ¿El paciente tiene un defecto congénito o comorbilidad genética?            | Sí/No/Desconocido      | Binario          |
| Comorbilidad: Malignidad               | El paciente tiene tumor u otra malignidad como comorbilidad                | Sí/No/Desconocido      | Binario          |
| Comorbilidad: Prematurez o Neonatal     | ¿El paciente nació prematuro o es un recién nacido?                         | Sí/No/Desconocido      | Binario          |
| Comorbilidad: Dependencia Tecnología    | ¿El paciente requiere soporte tecnológico/maquinas para su cuidado diario?  | Sí/No/Desconocido      | Binario          |
| Comorbilidad: Trasplante                | ¿El paciente es receptor de trasplante?                                     | Sí/No/Desconocido      | Binario          |
| Otra Comorbilidad: no neurológica       | ¿El paciente tiene otra comorbilidad (no neurológica)?                      | Sí/No/Desconocido      | Binario          |
| COVID Diagnóstico Prueba de PCR         | positivo en la prueba PCR                                                   | Sí/No/Desconocido      | Binario          |
| Fecha de Prueba de PCR COVID Positiva   | Fecha de PCR positivo en la prueba                                          | MM/DD/Año               | Fecha            |
| Presunción Diagnóstica de Tener COVID   | Paciente es presumentemente (no probado) positivo, debido a tener contactos cercanos positivos (el paciente bajo investigación) | Sí/No/Desconocido      | Binario          |
| Variable | Descripción | Valores Admitidos | Tipo de variable |
|----------|-------------|-------------------|------------------|
| Fecha de Presunción Diagnóstica Positiva COVID | Fecha en la cual el paciente se considera presuntamente (no probado) positivo debido a los contactos cercanos positivos | MM/DD/Año | Fecha |
| COVID Test Diagnóstico por Anticuerpos | Positivo en la prueba de anticuerpos | Sí/No/Desconocido | Binario |
| Fecha de Test Diagnóstico por Anticuerpos COVID | Fecha de la prueba de anticuerpos positiva | MM/DD/Año | Fecha |
| Fecha de Inicio de CUALQUIERA de los Síntomas de COVID | Fecha en la cual el paciente presentó los síntomas por primera vez. Si no se sabe, por favor, introduzca la fecha de admisión | MM/DD/Año | Fecha |
| Fecha de Inicio de los síntomas Neurológicos | Fecha en la cual el paciente desarrolló por primera vez los síntomas neurológicos | MM/DD/Año | Fecha |
| Dolor de cabeza | ¿El paciente se quejó de dolor de cabeza? | Sí/No/Desconocido | Binario |
| Fecha de Inicio de Cefalea | Fecha en la cual se observó cefalea por primera vez. | MM/DD/Año | Fecha |
| Tormenta Simpática/Disautonomía | ¿El paciente presentó síntomas de deterioro simpático o disautonomía? | Sí/No/Desconocido | Binario |
| Fecha de Tormenta Simpática/Disautonomía | Fecha en la cual se observó por primera vez. | MM/DD/Año | Fecha |
| Anosmia | ¿Se quejó el paciente de alteración para oler? | Sí/No/Desconocido | Binario |
| Fecha de Inicio Anosmia | Fecha en la que se observó por primera vez. | MM/DD/Año | Fecha |
| Ageusia | ¿El paciente se quejó de pérdida del gusto o de tener alteración del gusto? | Sí/No/Desconocido | Binario |
| Fecha de Inicio Ageusia | Fecha en la cual observó por primera vez. | MM/DD/Año | Fecha |
| Alteraciones Visuales | Se quejo el paciente de visión anormal? | Sí/No/Desconocido | Binario |
| Fecha de Inicio de Alteraciones Visuales | Fecha en la cual se observó por primera vez. | MM/DD/Año | Fecha |
| Síncope | ¿El paciente presentó síncope? | Sí/No/Desconocido | Binario |
| Fecha de Síncope | Fecha en la cual se observó por primera vez. | MM/DD/Año | Fecha |
| Ictus/ACVa | ¿El paciente tuvo un ataque cerebrovascular agudo? | Lista | Binario |
| Fecha de inicio Ictus/ACVa | Fecha en la cual se observó por primera vez. | MM/DD/Año | Fecha |
| Encefalopatía Aguda (alteración del estado mental, somnolencia o estupor) | ¿Tuvo el paciente alteración del estado mental, somnolencia o estupor de nueva aparición? | Sí/No/Desconocido | Binario |
| Fecha de Inicio Agudo de Encefalopatía | Fecha en la que se observó por primera vez | MM/DD/Año | Fecha |
| Paro Cardiorespiratorio | ¿El paciente tuvo parada cardio-respiratoria? | Sí/No/Desconocido | Binario |
| Fecha de Paro Cardiorespiratorio | Fecha en la cual se observó por primera vez. | MM/DD/Año | Fecha |
| Meningitis/Encefalitis | ¿Tuvo el paciente meningitis o encefalitis? | Sí/No/Desconocido | Binario |
| Fecha Meningitis/EnCEFalitis | Fecha en la cual se observó por primera vez. | MM/DD/Año | Fecha |
| Coma | El paciente presentó coma (no debido a medicaciones) Definición de coma: no despierta a los estímulos nocivos, no sigue con los ojos ni hace movimientos con propósito, no hace apertura ocular espontánea. | Sí/No/Desconocido | Binario |
| Fecha de Coma | Fecha en la cual se observó por primera vez | MM/DD/Año | Fecha |
| Convulsiones Clínicas/Estatus epiléptico | ¿El paciente desarrolló convulsiones clínicas o estatus epiléptico? | Sí/No/Desconocido | Binario |
| Fecha de Inicio de Convulsiones Clínicas/Estatus epiléptico | Fecha en la cual se observó por primera vez. | MM/DD/Año | Fecha |
| Pérdida de la sensibilidad | ¿El paciente desarrolló entumecimiento o alteración sensitiva ? | Sí/No/Desconocido | Binario |
| Fecha de Inicio de Pérdida de la Sensibilidad | Fecha en la cual se observó por primera vez. | MM/DD/Año | Fecha |
| Debilidad | ¿El paciente desarrolló debilidad motora? | Sí/No/Desconocido | Binario |
| Fecha de Inicio Debilidad | Fecha en la cual se observó por primera vez. | MM/DD/Año | Fecha |
| Neuropatía | ¿El paciente desarrolló neuropatía? | Sí/No/Desconocido | Binario |
| Fecha de Inicio Neuropatía | Fecha en la cual se observó por primera vez. | MM/DD/Año | Fecha |
| Parestesias | ¿El paciente desarrolló parestesias? | Sí/No/Desconocido | Binario |
| Fecha de Inicio Parestesia | Fecha en la cual se observó por primera vez. | MM/DD/Año | Fecha |
| Mielopatía | ¿El paciente mostró signos de mielopatía? | Sí/No/Desconocido | Binario |
| Variable | Descripción | Valores Admitidos | Tipo de variable |
|----------|-------------|-------------------|-----------------|
| Fecha de Inicio Mielopatía | Fecha en la cual se observó por primera vez. | MM/DD/Año | Fecha |
| Mareo | ¿El paciente se quejo de mareos? | Sí/No/Desconocido | Binario |
| Fecha de Inicio Mareo | Fecha en la cual se observó por primera vez. | MM/DD/Año | Fecha |
| Ataxia | ¿El paciente mostró signos de ataxia? | Sí/No/Desconocido | Binario |
| Fecha de Inicio Ataxia | Fecha en la cual se observó por primera vez. | MM/DD/Año | Fecha |
| Otras manifestaciones neurológicas | Si el paciente presentó otras manifestaciones neurológicas, por favor describirlas | Texto Libre | Binario |
| Fecha de inicio de Otras Manifestaciones Neurológicas | Fecha en la cual se observó por primera vez. | MM/DD/Año | Fecha |
| Fiebre | ¿Tuvo fiebre? | Sí/No/Desconocido | Binario |
| Fecha de Inicio Fiebre | Fecha en la cual se observó por primera vez. | MM/DD/Año | Fecha |
| Tos | ¿El paciente tuvo tos? | Sí/No/Desconocido | Binario |
| Fecha de Inicio de la Tos | Fecha en la cual se observó por primera vez. | MM/DD/Año | Fecha |
| Delirio | ¿El paciente tuvo delirio? (definido como alteración del contenido de conciencia, lenguaje o comportamiento confuso o incoherente) | Sí/No/Desconocido | Binario |
| Fecha de Inicio Delirio | Fecha en la cual se observó por primera vez. | MM/DD/Año | Fecha |
| ¿Cómo se Diagnosticó el Delirio? | Método de puntoje o herramienta para definir delirio (describir o nombrar) | Texto libre | Texto libre |
| Anorexia | ¿El paciente tuvo anorexia? | Sí/No/Desconocido | Binario |
| Fecha de Inicio de la Anorexia | Fecha en la cual se observó por primera vez. | MM/DD/Año | Fecha |
| Diarrea | El paciente tuvo diarrea? | Sí/No/Desconocido | Binario |
| Fecha de Aparición de la Diarrea | Fecha en la cual se observó por primera vez. | MM/DD/Año | Fecha |
| Dolor de Garganta | ¿El paciente tuvo dolor de garganta? | Sí/No/Desconocido | Binario |
| Fecha de Inicio del Dolor de Garganta | Fecha en la cual se observó por primera vez. | MM/DD/Año | Fecha |
| Dolor Abdominal | ¿El paciente tuvo dolor abdominal? | Sí/No/Desconocido | Binario |
| Fecha de inicio del dolor abdominal | Fecha en la cual se observó por primera vez. | MM/DD/Año | Fecha |
| EEG | ¿Se realizó un EEG? | Sí/No/Desconocido | Binario |
| Fecha EEG | Fecha del primer EEG | MM/DD/Año | Fecha |
| Resultados de EEG | Los resultados del EEG | Lista | Binario |
| Lectura Final EEG | Lectura final del primer EEG | Texto libre | Texto libre |
| Tomografía Cerebral | ¿Se realizó un TAC de cerebro? | Sí/No/Desconocido | Binario |
| Fecha de Tomografía Cerebral | Fecha de la primera TAC de cerebro | MM/DD/Año | Fecha |
| Resultados Tomografía cerebral | Los resultados del primer TAC cerebral | Lista | Binario |
| Lectura Final Tomografía cerebral | lectura final del primer TAC cerebral | Texto libre | Texto libre |
| RM cerebral | ¿Se realizó una resonancia magnética del cerebro? | Sí/No/Desconocido | Binario |
| Fecha RM Cerebral | Fecha de la primera resonancia magnética del cerebro | MM/DD/Año | Fecha |
| Resultados RM Cerebral | Resultados de la primera resonancia magnética del cerebro | Lista | Binario |
| Lectura final RM Cerebral | lectura final de la primera resonancia magnética del cerebro | Texto libre | Texto libre |
| Prueba LCR (líquido cefalorraquideo) | ¿Se analizó LCR? | Sí/No/Desconocido | Binario |
| Fecha del Primer Análisis de LCR | Fecha de estudios de primer LCR | MM/DD/Año | Fecha |
| Recuento Celulor WBC en LCR | Recuento glóbulos blancos WBC en líquido cefalorraquideo | # | Continuo |
| Recuento de Células RBC en LCR | Recuento glóbulos rojos en líquido cefalorraquideo | # | Continuo |
| Glucosa LCR | Glucosa mg/dl en líquido cefalorraquideo | # | Continuo |
| Proteína LCR | Proteína mg/dl en líquido cefalorraquideo | # | Continuo |
| Cultivo de LCR (viral y/o bacteriana) | Resultados del cultivo LCR | Texto libre | Texto libre |
| PCR en LCR | Resultados PCR | Texto libre | Texto libre |
| Prueba COVID en LCR | Prueba COVID PCR en líquido cefalorraquideo | Lista | Binario |
| Variable | Descripción | Valores Admitidos | Tipo de variable |
|----------|-------------|------------------|------------------|
| Presión Apertura | Presión de apertura LCR en cm H2O | # | Continuo |
| LCR Otros Resultados | anticuerpos, bandas oligoclonales, moléculas inflamatorias tales como IL-6, etc. | Texto libre | Texto libre |
| ECMO | ¿El paciente requirió terapia de oxigenación por membrana extracorpórea durante la hospitalización? | Sí/No/Desconocido | Binario |
| Días de ECMO | ¿Cuántos días estuvo el paciente en ECMO? | # | Continuo |
| ECPR | ¿El paciente fue colocado en ECMO durante reanimación activa? | Sí/No/Desconocido | Binario |
| Fecha ECPR | Fecha en la cual se observó por primera vez. | MM/DD/Año | Fecha |
| Diálisis/TRRC | ¿El paciente desarrolló lesión aguda renal que necesitó terapia de diálisis/reemplazo continuo renal (TRRC) ? | Sí/No/Desconocido | Binario |
| Días de Diálisis/TRRC | ¿Cuántos días estuvo el paciente en diálisis/TRRC? | # | Continuo |
| Ventilación Mecánica Invasiva | ¿El paciente necesitó intubación y ventilación mecánica durante la estadía en cuidados críticos? | Sí/No/Desconocido | Binario |
| Días de Ventilación Mecánica Invasiva | ¿Cuántos días recibió el paciente ventilación mecánica invasiva? | # | Continuo |
| Ventilación Mecánica No invasiva | ¿El paciente necesitó ventilación mecánica no-invasiva durante la estadía en cuidados críticos? | Sí/No/Desconocido | Binario |
| Días de Ventilación Mecánica No Invasiva | ¿Cuántos días estuvo el paciente en ventilación mecánica no invasiva? | # | Continuo |
| Monitor de PIC (Presión Intracraneal) | ¿El paciente tuvo un monitor de presión intracraneal? | Sí/No/Desconocido | Binario |
| Tipo de dispositivo de PIC | ¿Qué tipo de monitor de PIC fue colocado? | Lista | Binario |
| Fecha Colocación Monitor PIC | Fecha en la cual se colocó el monitor de PIC | MM/DD/Año | Fecha |
| Total Días Monitoreo PIC | En caso afirmativo, ¿cuántos días tuvo el monitor PIC? | # | Continuo |
| PIC inicial | Presión intracraneal inicial, mmHg | # | Continuo |
| Pico Máximo de PIC | Pico de la presión intracraneal (PIC) valores de registro que se mantuvieron > 2 min | # | Continuo |
| Fecha Pico Máximo de PIC | Día del pico de la PIC | MM/DD/Año | Fecha |
| Presión de Perfusion Cerebral más Baja | Valor más bajo de la presión de perfusión cerebral PPC (Presión arterial media -PIC) | # | Continuo |
| Día de Presión de Perfusion Cerebral más Baja | Día del PPC más bajo | MM/DD/Año | Fecha |
| Causa de la Muerte | ¿Cuál fue la causa de la muerte en el hospital si el paciente murió? | Texto libre | Texto libre |
| Índice de Mortalidad Pediátrica (PIM) | La puntuación PIM en ingreso hospitalario (véase “guías de puntuación” ficha de tanteo) | # | % |
| Glasgow Coma Score (GCS) | Puntuación de GCS al ingreso del hospital (si no hay bloqueo neuromuscular) | 3-15 | Ordinal |
| Pediatric Logistic Organ Dysfunction-2 (PELOD) | Puntuación de PELOD en la admisión hospitalaria (Ver “guías de puntuación” ficha de anexa) | # | Continuo |
| WBC | Introducir glóbulos blancos con dos decimales | # | Continuo |
| Linfocitos | Introducir linfocitos absolutos en la admisión | # | Continuo |
| Linfocitos más Bajos | introducir recuento absoluto de linfocitos más bajo durante la hospitalización | # | Continuo |
| Fecha de Linfocitos más Bajos | Fecha de valor de laboratorio | MM/DD/Año | Fecha |
| Plaqueta más Bajos | Introducir recuento de plaquetas en la admisión | # | Continuo |
| Fecha Plaqueta más Bajos | Fecha de valor de laboratorio | MM/DD/Año | Fecha |
| Sodio | Nivel de sodio en sangre mmol/L en la admisión | # | Continuo |
| Hemoglobina | Introducir el nivel de hemoglobina g/dl en la admisión | # | Continuo |
| IL-6 (primera) | Introducir valor de IL-6 si se hace | # | Continuo |
| Fecha IL-6 (primera) | Fecha de valor de laboratorio | MM/DD/Año | Fecha |
| PCR (Proteína C Reactiva) | Introducir primera PCR mg/dl | # | Continuo |
| PCR más Alta | Introducir el valor más alto de la PCR durante admisión | # | Continuo |
| Variable                                      | Descripción                                                                 | Valores Admitidos       | Tipo de variable |
|-----------------------------------------------|-----------------------------------------------------------------------------|-------------------------|-----------------|
| Fecha de PCR más alta                        | Fecha de valor de laboratorio                                              | MM/DD/Año               | Fecha           |
| Ferritina                                     | Introducir primera ferritina ng/ml                                         | #                       | Continuo        |
| Ferritina más Alta                            | Introducir el valor más alto de ferritina durante la hospitalización      | #                       | Continuo        |
| Fecha de Ferritina más Alta                  | Fecha de valor de laboratorio                                              | MM/DD/Año               | Fecha           |
| Procalcitonina                                | Introducir valor de la procalcitonina, ng/mL                               | #                       | Continuo        |
| Procalcitonina más alta                      | Introducir el valor más alto de la procalcitonina ng/ml durante la hospitalización | #                       | Continuo        |
| Fecha de Procalcitonina más Alta             | Fecha de valor de laboratorio                                              | MM/DD/Año               | Fecha           |
| Fibrinógeno                                   | Fibrinógeno al ingreso, mg/dl                                               | #                       | Continuo        |
| Fibrinógeno más Bajo                          | introducir fibrinógeno más bajo durante la hospitalización, mg/dl          | #                       | Continuo        |
| Fecha Fibrinógeno más Bajo                   | Fecha de valor de laboratorio                                              | MM/DD/Año               | Fecha           |
| ALT más Alto                                  | Introducir primer ALT, Intl U/L                                             | #                       | Continuo        |
| Fecha de ALT más Alto                         | Fecha de valor de laboratorio                                              | MM/DD/Año               | Fecha           |
| AS más Alto                                   | Introducir primer AST                                                      | #                       | Continuo        |
| AS más Alto                                   | Introducir el valor más alto de AST durante la hospitalización             | #                       | Continuo        |
| Fecha de AS más Alto                          | Fecha de valor de laboratorio                                              | MM/DD/Año               | Fecha           |
| TP más Alto                                   | introducir el primer tiempo de protrombina (TP)                           | #                       | Continuo        |
| Fecha de TP más Alto                          | Fecha de valor de laboratorio                                              | MM/DD/Año               | Fecha           |
| TPT más Alto                                  | introducir el valor más alto de TPT durante la hospitalización             | #                       | Continuo        |
| Fecha de TPT más Alto                         | Fecha de valor de laboratorio                                              | MM/DD/Año               | Fecha           |
| INR más Alto                                  | Introducir primero INR (índice normalizado)                              | #                       | Continuo        |
| Fecha de INR más alto                         | Fecha de valor de laboratorio                                              | MM/DD/Año               | Fecha           |
| Dímero-D más Alto                             | introducir valor más alto del dímero D la hospitalización                 | #                       | Continuo        |
| Fecha de Dímero-D más Alto                    | Fecha de valor de laboratorio                                              | MM/DD/Año               | Fecha           |
| Cultivo de Sangre Positivo                    | Tuvo el paciente un hemocultivo positivo?                                 | Sí/No/Desconocido       | Binario         |
| Resultados hemocultivo                        | Resultados de cultivo de sangre positivo                                  | MM/DD/Año               | Fecha           |
| Cultivo Respiratorio Positivo                 | Tuvo el paciente un cultivo respiratorio positivo                         | Sí/No/Desconocido       | Binario         |
| Fecha de Cultivo Respiratorio                 | Fecha de envío del cultivo respiratorio                                  | MM/DD/Año               | Fecha           |
| Resultados Cultivo Respiratorio               | resultados del cultivo respiratorio positivo                              | Sí/No/Desconocido       | Binario         |
| Panel Viral Respiratorio (no COVID-19)?       | ¿Se hizo panel de virus respiratorio (no para COVID-19)?                  | Sí/No/Desconocido       | Binario         |
| Fecha Panel Viral respiratorio                | Fecha enviado del panel respiratorio viral si se hizo                     | MM/DD/Año               | Fecha           |
| Resultados del panel Viral Respiratorio       | Resultados de panel de respiratorio viral                                 | Sí/No/Desconocido       | Binario         |
| Otras Coinfecciones Detectadas?               | Lista de otras coinfecciones (organismos, lugares, fechas)                | Sí/No/Desconocido       | Binario         |
| Peor pH Gases Sanguíneos (intubado)           | Introducir valor mas bajo de pH en gases arteriales mientras estaba intubado | #                       | Continuo        |
| Fecha de pH más bajo de Gases Sanguíneos (intubado) | Fecha de valor de laboratorio                                              | MM/DD/Año               | Fecha           |
| pO2 más bajo en Gases Sanguíneos (intubado)   | Introduce bajo ABG pO2, mientras que si se hace intubado                  | #                       | Continuo        |
| Fecha de pO2 más bajo en Gases Sanguíneos (intubado) | Fecha de valor de laboratorio                                              | MM/DD/Año               | Fecha           |
| Variable                                      | Descripción                                                                 | Valores Admitidos | Tipo de variable |
|-----------------------------------------------|------------------------------------------------------------------------------|-------------------|-----------------|
| Índice de oxigenación (IO) más alto (intubado) | introducir IO asociado con peor pO2 mientras intubado si se hicieron gases arteriales ([https://www.mdcalc.com/oxygenation-index](https://www.mdcalc.com/oxygenation-index)) | #                 | Continuo        |
| Fecha de Índice de Oxigenación (IO más alto)  | Fecha de valor de laboratorio                                               | MD/DD/Año         | Fecha           |
| PCO2 mas Alto en Gases Sanguíneos (intubado)   | Introducir el valor más alto de pCO2, mientras intubado, en gases arteriales | #                 | Continuo        |
| Fecha de PCO2 mas Alto                         | Fecha de valor de laboratorio                                               | MD/DD/Año         | Fecha           |
| Tratamiento Empírico COVID-19 # 1             | Introducir medicación utilizada para el tratamiento empírico COVID-19       | Texto libre       | Texto libre     |
| Fecha de Tratamiento Empírico COVID-19 # 1    | Fecha inicio tratamiento empírico COVID-19                                  | MD/DD/Año         | Fecha           |
| Dosisificación y Duración del Tratamiento COVID-19 # 1 | introducir la dosificación para cualquier medicamento # 1 utilizado para tratamiento empírico COVID-19 | Texto libre       | Texto libre     |
| Tratamiento Empírico COVID-19 # 2             | introducir segundo medicamento que se utiliza para el tratamiento empírico covid-19 | Texto libre       | Texto libre     |
| Sí Eligió ‘otro’/Describir                    | Enumerar otros tratamientos empíricos para COVID-19                         | Texto libre       | Texto libre     |
| Fecha de Tratamiento Empírico COVID-19 # 2    | Fecha inicio tratamiento empírico COVID-19                                  | MD/DD/Año         | Fecha           |
| Dosisificación y Duración del Tratamiento COVID-19 # 2 | Introducir la dosificación para cualquier medicamento # 2 utilizado para tratamiento empírico COVID-19 | Texto libre       | Texto libre     |
| Tratamiento Empírico COVID-19 # 3             | Introducir tercera medicación utilizada para el tratamiento empírico COVID-19 | Texto libre       | Texto libre     |
| Sí eligió ‘otro’/Mencione                     | Enumerar otros tratamientos empíricos COVID-19                              | Texto libre       | Texto libre     |
| Fecha de Tratamiento Empírico COVID-19 # 3    | Fecha inicio tratamiento empírico COVID-19                                  | MD/DD/Año         | Fecha           |
| Dosisificación y Duración del Tratamiento COVID-19 # 3 | Introducir la dosificación para cualquier medicamento # 3 utilizado para tratamiento empírico COVID-19 | Texto libre       | Texto libre     |
| Tratamiento Empírico COVID-19 # 4             | Introducir cuarta medicación utilizada para el tratamiento empírico COVID-19 | Texto libre       | Texto libre     |
| Sí eligió ‘otro’/Mencione                     | Enumerar otros tratamientos empíricos COVID-19                              | Texto libre       | Texto libre     |
| Fecha de Tratamiento Empírico COVID-19 # 4    | Fecha inicio tratamiento empírico COVID-19                                  | MD/DD/Año         | Fecha           |
| Dosisificación y Duración del Tratamiento COVID-19 # 4 | Introducir la dosificación para cualquier medicamento # 4 utilizado para tratamiento empírico COVID-19 | Texto libre       | Texto libre     |
| Tratamiento Empírico COVID-19 # 5             | Introducir quinta medicación utilizada para tratamiento empírico COVID-19   | Texto libre       | Texto libre     |
| Sí eligió ‘otro’/Mencione                     | Fecha de inicio tratamiento empírico COVID-19                              | MD/DD/Año         | Fecha           |
| Fecha de Tratamiento Empírico COVID-19 # 5    | Introducir la dosificación para cualquier medicamento # 5 utilizado para tratamiento empírico COVID-19 | Texto libre       | Texto libre     |
| Dosisificación y Duración del Tratamiento COVID-19 # 5 | Introducir la dosificación para cualquier medicamento # 5 utilizado para tratamiento empírico COVID-19 | Texto libre       | Texto libre     |
| Síndrome inflamatorio Multisistémico relacionado con COVID-19 | El paciente tuvo este síndrome diagnosticado? | Sí/No/Desconocido | Binario         |
| Fecha de Síndrome inflamatorio Multisistémico relacionado con COVID-19 | Fecha en la cual se observó por primera vez. | MD/DD/Año         | Fecha           |
| Tratamiento Empírico MIS-C # 1               | Introducir primera terapia que se usó para el tratamiento empírico Síndrome | Texto libre       | Texto libre     |
| Fecha de Tratamiento Empírico MIS-C # 1      | Introducir primera terapia que se usó para el tratamiento empírico Síndrome | MD/DD/Año         | Fecha           |
| Dosisificación y duración del Tratamiento Empírico MIS-C # 1 | Entrar dosificación para cualquier medicamento # 1 se usa para el tratamiento empírico del Síndrome | Texto libre       | Texto libre     |
| Tratamiento Empírico MIS-C # 2               | Introducir segundo medicamento que se utilizó para el tratamiento empírico Síndrome | Texto libre       | Texto libre     |
| Fecha del Tratamiento Empírico MIS-C # 2     | Introducir segunda terapia si se usó para el tratamiento empírico Síndrome | MD/DD/Año         | Fecha           |
| Dosisificación y duración del Tratamiento Empírico MIS-C # 2 | Entrar en la dosificación para cualquier medicamento # 2 se utiliza para el tratamiento empírico del Síndrome | Texto libre       | Texto libre     |
| Tratamiento Empírico MIS-C # 3               | Introducir tercera medicación que se utiliza para el tratamiento empírico del Síndrome | Texto libre       | Texto libre     |
**Conclusion**

We report the general guiding principles and framework for the development of CRFs for a global consortium during a global pandemic crisis. Unique features and considerations include: (1) timeline and speed—in order to address an explosive pandemic, we had to adopt an extremely accelerated and succinct process for CRF development, consensus CDE development, and data harmonization; (2) pragmatism and feasibility in a pandemic—the CRF and data elements present minimal burden to frontline clinicians who populate these data, including minimizing exposure risk and PPE use; (3) adaptation to rapid change—new data and information rapidly emerge in this new pandemic and studies must run on an accelerated timeline to provide timely and accurate information to the public; (4) inclusion of the life span to understand age-related effects; and (5) global partnerships and adaptation of CRF into multiple languages. As a result of this initiative, to date, there are 218 registered sites for the study representing 109 countries.

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### Table 5 (continued)

| Variable | Descripción | Valores Admitidos | Tipo de variable |
|----------|-------------|------------------|------------------|
| Fecha del Tratamiento Empírico MIS-C # 3 | Introducir tercera terapia que se utilizó para el tratamiento empírico fecha de inicio Síndrome | MM/DD/Año | Fecha |
| Desosificación y duración del Tratamiento Empírico MIS-C # 3 | Entrar dosificación para cualquier medicamento # 3 en el manejo empírico del Síndrome | Texto libre | Texto libre |
| Tratamiento Empírico MIS-C # 4 | Introducir cuarto medicamento que se utilizó para el tratamiento empírico del Síndrome | Texto libre | Texto libre |
| Fecha del Tratamiento Empírico MIS-C # 4 | Introducir cuarto terapia para el tratamiento empírico fecha de inicio Síndrome | MM/DD/Año | Fecha |
| Desosificación y duración del Tratamiento Empírico MIS-C # 4 | Entrar dosificación para cualquier medicamento # 4 para el tratamiento empírico del Síndrome | Texto libre | Texto libre |
| Tratamiento Empírico MIS-C # 5 | Introducir quinto medicamento que se utiliza para el tratamiento empírico del Síndrome | Texto libre | Texto libre |
| Fecha del Tratamiento Empírico MIS-C # 5 | Introducir quinto terapia que se usa para el tratamiento empírico fecha de inicio Síndrome | MM/DD/Año | Fecha |
| Desosificación y duración del Tratamiento Empírico MIS-C # 5 | Entrar dosificación para cualquier medicamento # 5 usado para el tratamiento empírico del Síndrome | Texto libre | Texto libre |
| PCPC Puntaje Inicial (Pre-admisión) | Introducir puntaje de base en la Categoría Pediátrica de Rendimiento Cerebral (asignar a posteriori) (véase "guías de puntuación" para obtener información de puntuación) | # | Ordinal |
| PCPC al Momento de Admisión al Hospital | Entrar el puntaje en la admisión de la categoría de rendimiento cerebral pediátrica (véase "guías de puntuación" para obtener información de puntuación) | # | Ordinal |
| PCPC al Alta Hospitalaria | Introducir la puntuación al alta de la categoría pediátrica de Rendimiento Cerebral (véase "guías de puntuación" para obtener información de puntuación) | # | Ordinal |
| Puntaje Inicial FSS (pre-admisión) | Introducir puntaje en la escala estado funcional basal (véase "guías de puntuación" para obtener información de puntuación) | # | Ordinal |
| FSS de Admisión al Hospital | Introducir la escala del estado funcional del ingreso (Ver "guías de puntuación" para obtener información de puntuación) | # | Ordinal |
| FSS al Alta Hospitalaria | Introducir la escala del estado funcional de egreso (véase "guías de puntuación" para obtener información de puntuación) | # | Ordinal |
| Consulta de Terapia Física | ¿El paciente tuvo consulta de fisioterapia en el hospital? Si/No/Desconocido | Binario |
| Fecha de Consulta de Terapia física | En caso afirmativo, ¿la fecha ordenados? MM/DD/Año | Fecha |
| Consulta de Terapia Ocupacional | ¿El paciente tuvo una consulta de terapia ocupacional en el hospital? Si/No/Desconocido | Binario |
| Fecha de Consulta de Terapia Ocupacional | En caso afirmativo, ¿la fecha en la cual fue ordenada? MM/DD/Año | Fecha |
| Consulta de Terapia del lenguaje (fonoaudiología) | ¿El paciente tuvo consulta de fonoyaudiología en el hospital? Si/No/Desconocido | Binario |
| Fecha de Consulta de Terapia del lenguaje (Fonoaudiología) | En caso afirmativo, ¿la fecha en la cual fue ordenada? MM/DD/Año | Fecha |
| Consulta de Rehabilitación | ¿El paciente tiene una consulta de rehabilitación en el hospital? Si/No/Desconocido | Binario |
| Fecha de Consulta de Rehabilitación | ¿En caso afirmativo, la fecha ordenados? MM/DD/Año | Fecha |
spreading six continents across the globe, and formal collaborations with other large research networks such as the European Academy of Neurology (EAN) NeuroCOVID Registry (ENERGY) [32] have been established. Participation on working groups within the World Health Organization is ongoing to align efforts with other initiatives related to neurological implications of COVID-19 [18, 33]. Throughout this work, the adaptable, layered design of the GCS-NeuroCOVID consortium affords a nimble yet systematic and scientific approach that may ultimately serve as a model for future studies that require rapid execution in the midst of pandemics or other overwhelming natural disasters.

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References
1. Centers for Disease Control. Coronavirus Disease 2019 (COVID-19) Global Response. 2020. https://www.cdc.gov/coronavirus/2019-ncov/global-response.html.
2. Anand P, Lau KY, Chung DY, et al. Posterior reversible encephalopathy syndrome in patients with coronavirus disease 2019: two cases and a review of the literature. J Stroke Cerebrovasc Dis. 2019;2020.105212.
3. Beyrouti R, Adams ME, Benjamin L, et al. Characteristics of ischaemic stroke associated with COVID-19. J Neurol Neurosurg Psychiatry. 2020;91:889–91.
4. Dinkin M, Gao V, Kahan J, et al. COVID-19 presenting with ophthalmoparesis from cranial nerve palsy. Neurology. 2020;95:221–3.
5. Helms J, Kremer S, Mendy H, et al. Neurologic features in severe SARS-CoV-2 infection. N Engl J Med. 2020.
6. Herman C, Mayer K, Saravol Scoping review of prevalence of neurologic comorbidities in patients hospitalized for COVID-19. Neurology. 2020;95:77–84.
7. Mao L, Jin H, Wang M, et al. Neurologic manifestations of hospitalized patients with Coronavirus Disease 2019 in Wuhan, China. JAMA Neurol. 2020.
8. Merkle AE, Parikh NS, Mir S, et al. Risk of ischemic stroke in patients with coronavirus disease 2019 (COVID-19) vs patients with influenza. JAMA Neurol. 2020.
9. Needham EJ, Chou SH, Coles AJ, Menon DK. Neurological implications of COVID-19 infections. Neurocritical Care 2020.
10. Paterson RW, Brown RL, Benjamin L, et al. The emerging spectrum of COVID-19 neurology: clinical, radiological and laboratory findings. Brain J Neurol. 2020.
11. Poyiadji N, Shahin G, Noujaim D, Stone M, Patel S, Griffith B. COVID-19-associated acute hemorrhagic necrotizing encephalopathy: CT and MRI features. Radiology. 2020;201187.
12. Romero Cantero V, Moreno Pulido S, Duque Holguera M, Casado Narango J. COVID-19 and concomitant neurological infections. Neurologia (Barcelona, Spain). 2020;35:322–3.
13. Romero-Sánchez CM, Díaz-Maroto I, Fernández-Díaz E, et al. Neurologic manifestations in hospitalized patients with COVID-19: the ALBACOVID registry. Neurology. 2020.

14. Solomon IH, Normandin E, Bhattacharyya S, et al. Neuropathological features of Covid-19. N Engl J Med. 2020. https://doi.org/10.1056/NEJMc2019373.

15. Toscano G, Palmerini F, Ravaglia S, et al. Guillain-Barre syndrome associated with SARS-CoV-2. N Engl J Med. 2020.

16. Xiong W, Mu J, Guo J, et al. New onset neurologic events in people with COVID-19 infection in three regions in China. Neurology. 2020.

17. Zanin L, Saraceno G, Panciani PP, et al. SARS-CoV-2 can induce brain and spine demyelinating lesions. Acta Neurochir. 2020;162:1491–4.

18. The Lancet Neurology Editors. The neurological impact of COVID-19. Lancet Neurol. 2020;19:471.

19. Saitz R, Schwitzer G. Communicating science in the time of a pandemic. JAMA. 2020.

20. Frontera J, Mainali S, Fink EL, et al. Global consortium study of neurological dysfunction in COVID-19 (GCS-NeuroCOVID): study design and rationale. Neurocritical Care. 2020;1–10.

21. The Neurocritical Care Society. COVID-19 research opportunities. 2020. https://www.neurocriticalcare.org/research/covid-19-research-opportunities.

22. The National Institutes of Health. Common data element resource portal. 2020. https://www.nlm.nih.gov/cde/index.html.

23. Suarez JI, Sheikh MK, Macdonald RL, et al. Common data elements for unruptured intracranial aneurysms and subarachnoid hemorrhage clinical research: a National Institute for Neurological Disorders and Stroke and National Library of Medicine project. Neurocrit Care. 2019;30:4–19.

24. Bellar Y, Krishnanukutty B, Latha M. Basics of case report form designing in clinical research. Perspectives Clin Res. 2014;5:159–66.

25. Godoy DA, Videtta W, Santa Cruz R, et al. General care in the management of severe traumatic brain injury: Latin American consensus. Med. Intensiva. 2020.

26. Centers for Disease Control. COVID view: a weekly surveillance summary of U.S. COVID-19 Activity. 2020.

27. Fiser DH. Assessing the outcome of pediatric intensive care. J Pediatr. 1992;121:68–74.

28. Pollack MM, Holubkov R, Glass P, et al. Functional Status Scale: new pediatric outcome measure. Pediatrics. 2009;124:e18–28.

29. Leteurtre S, Duhamel A, Salleron J, Grandbastien B, Lacroix J, Leclerc F. PELOD-2: an update of the Pediatric logistic organ dysfunction score. Crit Care Med. 2013;41:1761–73.

30. Wolff A, Osello R, Gualino J, et al. The importance of mortality risk assessment: validation of the pediatric index of mortality 3 score. Pediatr Crit Care Med. 2016;17:251–6.

31. Centers for Disease Control. Multisystem Inflammatory Syndrome in Children (MIS-C) Associated with Coronavirus Disease 2019 (COVID-19). 2020.

32. European Academy of Neurology. EAN neuro-covid registry (ENERGY). 2020. https://www.ean.org/.

33. Winkler AS, Knauss S, Schmutzhard E, Leonardi M, Padovani A, Abd-Allah F, et al. A call for a global COVID-19 neuro research coalition. Lancet Neurol. 2020;19:482–4.