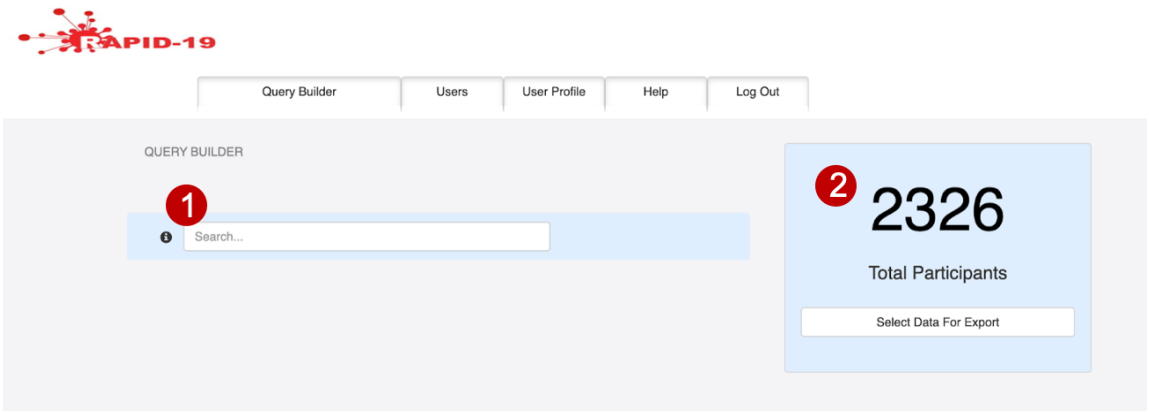
The RAPID-19 PIC-SURE environment allows users to perform feasibility queries on the RAPID-19 dataset. While this platform does not present all of the data available in the dataset, it allows users to explore the feasibility of research questions, define study cohorts, and submit requests for data export to the Data Access Committee.

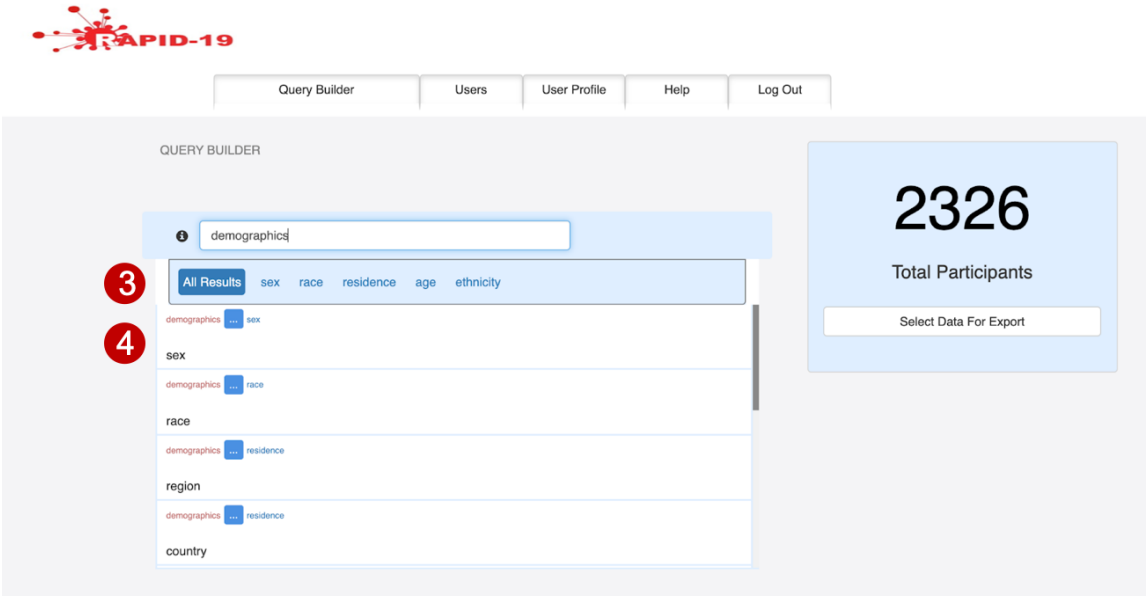
The RAPID-19 repository combines data from a number of registries and individual sources.

- REDCap refers to information from all sites that contributed data through the REDCap survey developed by the RAPID-19 team. These include patients from Boston Children's Hospital, Boston Medical Center, Hasbro Children's Hospital, Federal University of Fluminense, Federal University of Sao Paolo, University of Chicago Comer Children's Hospital, University of Malaya Medical Center and hospitalized patients who presented at the University of Massachusetts after November 2020.
- UMass refers to data from the University of Massachusetts Pediatric COVID Registry.
- ISARIC refers to data from the International Severe Acute Respiratory and Emerging Infection Consortium and includes sites across the United Kingdom.
- Yale refers to data from the Yale New Haven Hospital System and includes sites across Connecticut, Rhode Island, and New York.

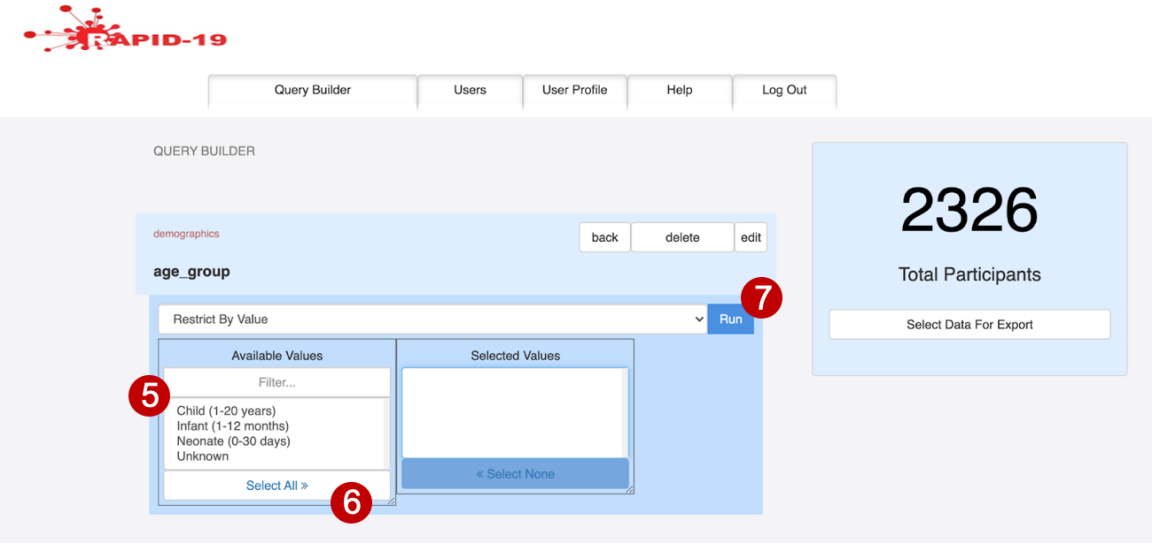
The following guide describes the branches within the environment as well as the searchable variables so users may more efficiently perform their queries.



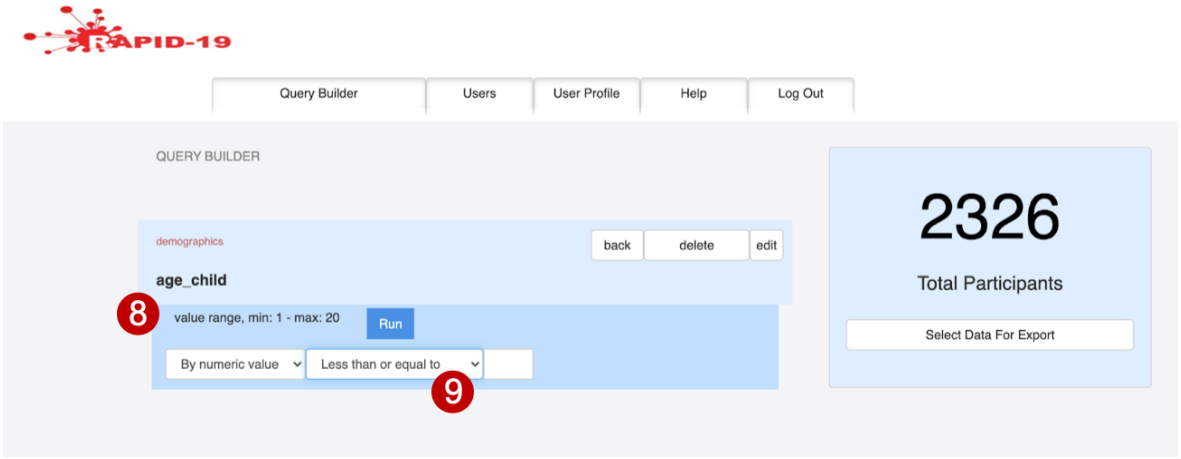
1. On the landing page, the user can query variables or variable groupings using the search bar.
2. This number will give the total number of participants based on the search built.



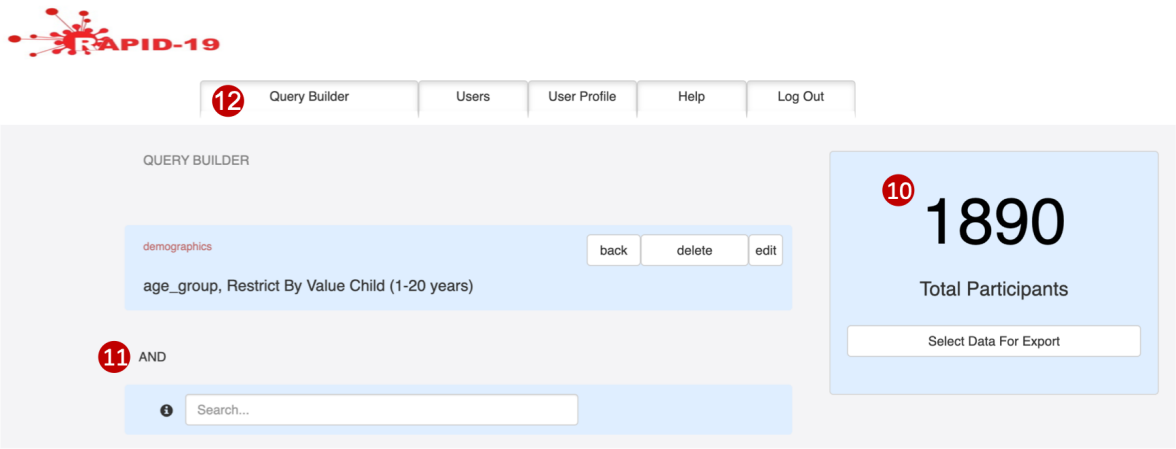
3. This blue bar will give the sub-branches available under the variable grouping. In this case, the demographics branch has sub-branches for sex, race, residence, age, and ethnicity. Clicking on each will give the user only the variables available in that sub-branch.
4. Clicking on these variables will allow a user to see the options for each variable and select participants for their dataset.



5. Clicking on a categorical variable such as age_group allows the user to visualize the options available.
6. For variables with many options, it may be helpful to click on the bottom right corner of the "Available Values" box and drag to expand the selections.
7. Once the desired values are selected, the user can click "Run" to see the number of participants available.



8. Clicking on a numerical variable such as age_child allows the user to visualize the range of values.
9. The user can filter participants based on numeric values available. The user can choose values less than or equal to, greater than or equal to, or between any desired value(s).



10. Once the user selects a filter, the number of participants will change based on the criteria selected.
11. The user can build on the initial search by adding more filters.
12. In order to refresh or start over, the user can click “Query Builder” at the top of the screen.

Bolded words (e.g. Demographics) represent variable groupings
Black words (e.g. Age, Ethnicity, Race, Residence, Sex) represent variable sub-groupings
Red words (e.g. age_group, age_neonate, age_infant, age_child) represent variables

Institution

- Institution

Demographics

- Age
    - age_group
      Includes three age groups -- neonate (0-30 days), infant (1-12 months), child (1-20 years)
    - age_neonate
      Limitations: data not available for ISARIC, where all children <1 years listed as 0 years
    - age_infant
      Limitations: data not available for ISARIC, where all children <1 years listed as 0 years
    - age_child
      Limitations: data only partially available for ISARIC, where some ages were only reported as ranges
- Ethnicity
    - ethnicity_US
      Limited to US-based sites
- Race
    - race
      Race was captured differently by country in order to account for country-specific racial groups. (BR=Brazil, MY=Malaysia, UK=United Kingdom, US=United States)
- Residence
    - country
    - US_state
      Limited to US-based sites
    - region
      Limited to Brazilian and Malaysian sites
- Sex
    - sex

Healthcare Encounter

- Index Encounter
    - date_index_encounter
      Data is formatted in weeks to insure PHI. The first week begins Jan 4, 2020 and follows the weeks set by the The Morbidity and Mortality Weekly Report (MMWR), a commonly used epidemiological framework to standardize time reporting at local, state, and national levels.
    - location_index_encounter
      Options include outpatient (general pediatrics clinic), outpatient (speciality clinic), urgent care clinic, emergency department, inpatient (non-intensive care unit), inpatient (intensive care unit), telephone/telehealth or test only, and other

- Hospitalization
    - hospitalized
    - icu

COVID-19 diagnosis

- COVID-19 exposure
    - exposure_type

      Options include confirmed COVID contact, presence in a healthcare facility, history of international travel, and other exposures that occurred in the 14 days prior to onset of COVID-19 illness.
      Limitations: data not available for Yale; information on presence in a healthcare facility not available for UMass
- Testing for COVID-19
    - reason_COVID_testing

      Options include symptoms concerning for infection, routine screening, possible exposure to infected individual, testing required for travel or activity, and other.
      Limitations: data not available for ISARIC, UMass, or Yale
    - first_positive_test_type

      Options include viral PCR, antigen, and antibody.
      Limitations: data not available for ISARIC or Yale
    - confirmed_PCR_test

      Limitations: data not available for ISARIC or Yale; patients from ISARIC and Yale thus listed under Unknown
    - confirmed_antigen_test

      Limitations: data not available for ISARIC or Yale; patients from ISARIC and Yale thus listed under Unknown
    - confirmed_antibody_test

      Limitations: data not available for ISARIC or Yale; patients from ISARIC and Yale thus listed under Unknown

Symptoms and Presentation

- symptoms_present
- symptom_type

  Available options include abdominal pain, anorexia (loss of appetite), arthralgia (joint pain), chest pain, chest retractions, congestion, cough, productive cough, diarrhea, ear pain, eye injection (conjunctivitis), fever, headache, loss of smell (anosmia), loss of taste (ageusia), lymphadenopathy, malaise, myalgia (muscle aches), nausea or vomiting, seizures, shortness of breath, skin rash, sore throat, wheezing, and other

Past Medical History

- Risk Factors
    - obese_bmi

      Obese BMI is defined as a BMI > 30
    - hx_smoking
    - Hx_pneumonia

      This refers to events prior to and distinct from this illness episode if the patient also has pneumonia due to COVID-19.
      Limitations: data not available for ISARIC, UMass, or Yale; patients from ISARIC, UMass, and Yale thus listed under Unknown
    - born_premature

      Premature is defined as gestational age < 37 weeks
- Chronic Conditions
    - any_chronic_conditions
    - chronic_conditions_list

      While more chronic conditions were captured, the options presented in this variable were chosen based on those with the highest frequency within the RAPID-19 dataset. Options include aplastic anemia, asthma, cerebral palsy, congenital cardiac disease, diabetes, G-tube/G-J tube dependence, gastroesophageal reflux

(GERD), history of solid organ transplant, hypertension, immunocompromising condition, seizure disorder, sickle cell disease or trait, thalassemia, thyroid disease.
Limitations: data on cerebral palsy, congenital cardiac disease, G-tube/G-J tube dependence, GERD, seizure disorder, aplastic anemia, thalassemia, and thyroid disease not available for ISARIC, where comorbidity information is available by organ system but specific diseases may not have been available.

- pulmonary_condition
  Limitations: data from Yale may not be comprehensive and include all of the patients with this type of condition.
- gi_hep_metabolic_condition
  Limitations: data from Yale may not be comprehensive and include all of the patients with this type of condition.
- cardiovascular_condition
  Limitations: data from Yale may not be comprehensive and include all of the patients with this type of condition.
- kidney_condition
  Limitations: data from Yale may not be comprehensive and include all of the patients with this type of condition.
- neurologic_condition
  Limitations: data from Yale may not be comprehensive and include all of the patients with this type of condition.
- neurodevelopmental_condition
  Limitations: data from Yale may not be comprehensive and include all of the patients with this type of condition.
- neuropsychiatric_condition
  Limitations: data from Yale may not be comprehensive and include all of the patients with this type of condition.
- endocrine_condition
  Limitations: data from Yale may not be comprehensive and include all of the patients with this type of condition.
- infectious_disease
  Limitations: data from Yale may not be comprehensive and include all of the patients with this type of condition.
- rheumatologic_inflammatory_condition
  Limitations: data from Yale may not be comprehensive and include all of the patients with this type of condition.
- hematologic_condition
  Limitations: data from Yale may not be comprehensive and include all of the patients with this type of condition.

Diagnostic Imaging

- abnormal_chest_imaging
  Options include chest radiograph (CXR), chest ultrasound, and chest CT.
  Limitations: no data available from Yale. Data for chest ultrasounds or chest CTs not available for ISARIC. Data for chest ultrasounds not available for UMass..
- abnormal_echocardiogram
  Limitations: data not available from ISARIC, UMass, or Yale
- abnormal_imaging_findings
  Options include left ventricle dysfunction, mitral or aortic valve dysfunction, pericardial effusion, pleural effusion, pneumonia or atelectasis (equal weight provided to both), pneumothorax or pneumomediastinum, probable or definite pneumonia, probable or definite atelectasis, right ventricle dysfunction, tricuspid valve dysfunction.
  Limitations: data not available from Yale. Limited data available from ISARIC and UMass, where only some types of imaging were available.

Laboratory Results

- Abnormal findings during hospitalization
  - any_abn_labs_after_date_admission
    Options include hemoglobin, hematocrit, white blood cell count, band count, lymphocyte count, absolute neutrophil count, platelet count, PTT, INR, PT, fibrinogen, D-dimer, erythrocyte sedimentation rate, C-reactive protein, procalcitonin, interleukin-6, creatinine, serum sodium, serum potassium, blood urea nitrogen, serum glucose, brain natriuretic peptide, troponin, lactate dehydrogenase, total bilirubin, alanine aminotransferase (ALT-SGPT), aspartate aminotransferase (AST-SGOT), albumin, lactate, ferritin
    Limitations: data not available from ISARIC or UMass
- Pathogens
  - positive_viral _testing

Options include influenza A, influenza B, respiratory syncytial virus (RSV), adenovirus, bocavirus, metapneumovirus, parainfluenza type 1, parainfluenza type 2, parainfluenza type 3, parainfluenza type 4, rhinovirus/enterovirus, coronoviruses not including SARS-CoV-2, and other.
Limitations: data not available from ISARIC

- positive_bacterial_testing
  Options include blood cultures, respiratory cultures, mycoplasma, pleural fluid culture, and other.
  Limitations: data not available from ISARIC

Clinical Management

- Interventions
  - interventions_received
    Options include nasogastric hydration, blood transfusion, convalescent plasma exchange, chest drainage procedure, renal replacement therapy or dialysis, cardiopulmonary resuscitation (CPR), extracorporeal membrane oxygenation (ECMO), and other
    Limitations: no data available for UMass. Data on nasogastric hydration, blood transfusion, convalescent plasma exchange, chest drainage, and CPR not available for ISARIC. Data on nasogastric hydration, blood transfusion, chest drainage procedure, and cardiopulmonary resuscitation (CPR) not available for Yale,
- Oxygen
  - received_supplemental_oxygen
    Limitations: data not available for UMass
  - oxygen_delivery_methods
    Options include nasal cannula, non-rebreather mask, aerosol mask, surgical airway, high-flow nasal cannula, BiPap, invasive ventilation by endotracheal tube, bag-valve-mask ventilation, laryngeal mask airway, CPAP, other, and unknown
    Limitations: data not available for UMass
- Medications
  - received_biologic
    Limitations: data not available for ISARIC or UMass
  - received_antiviral
    Limitations: data from UMass may not be comprehensive
  - received_antibiotic
    Limitations: data from UMass may not be comprehensive
  - received_antipyretics
    Limitations: data not available for ISARIC, UMass, or Yale
  - received_anticoagulant
    Limitations: data not available for ISARIC or UMass
  - received_corticosteroid
  - received_hypertonic_saline
    Limitations: data not available for ISARIC, UMass, or Yale
  - Received_nebulized_albuterol
    Limitations: data not available for ISARIC, UMass, or Yale
  - received_convalescent_plasma
    Limitations: data not available for ISARIC or UMass
  - received_inotrope_vasopressor
  - received_intravenous_immunoglobin
  - received_hydroxychloroquine_phosphate_chloroquine_phosphate
- Medications Prescribed
  - medications_prescribed
    Options include nebulized albuterol, nebulized hypertonic saline, antibiotics, antivirals, hydroxychloroquine phosphate or chloroquine phosphate, corticosteroid, biologic, and other.
    Limitations: data not available for ISARIC, UMass, or Yale

Final Disposition

- outcome

  Options include died, discharged home, transferred to another facility, other, and unknown.
  Limitations: data not available for Yale
- diagnoses

  Options were chosen based on the highest frequency within the RAPID-19 dataset. Options include acute respiratory distress syndrome, anemia, asthma exacerbation, bronchiolitis, multisystem inflammatory syndrome (MIS-C), myocarditis/endocarditis/pericarditis, pleural effusion, pneumonia, respiratory failure, sepsis, septic shock
  Limitations: data not available for ISARIC or Yale. Data on anemia, myocarditis/endocarditis/pericarditis, pneumonia, and septic shock not available for UMass.