



RADx-UP CDCC Electronic Health Record (EHR) Mapping Guidance

The below table is intended to help RADx-UP projects map EHR data to the RADx-UP NIH Common Data Elements in the survey. It currently includes many of the Tier 1 RADx-UP NIH Common Data Elements (CDE) variables, response options, whether the variable is available to map, and guidance on mapping.

Please note that not all of the Tier 1 CDE variables are included in this table at this time. This guidance is under development and some variables in specific categories such as medical history and vaccine acceptance will be added in future versions. However, some variables will never be included as they are not commonly found in medical records.

Additionally, tier 2 CDE variables are not included in the table at this time—for now, projects are not required to map Tier 2 CDEs. If a project feels comfortable mapping more variables on their own, either from Tier 1 or Tier 2, they may do so.

This mapping guidance solely pertains to the process of mapping some EHR data to RADx-UP NIH CDEs and does not replace or supersede the NIH exception process that projects must go through in order to gain approval from the NIH regarding which CDEs they will collect and which they will not.

For any variables listed below that do not have guidance, please contact the CDCC (via your EIT or by emailing Courtney Mann – courtney.mann@duke.edu) if you have questions about mapping them.

location Table / Form

Variable / Field Name	Data Format	RADx-UP CDCC Field Label	Response Options for categorical variables	Guidance
current_county	Text	County		County associated with the participant's current home address. May not be directly captured in the EHR.
zip_code	Numeric	Zip Code		Zip code (5 or 9 digit) associated with the participant's current home address.

sociodemographics Table / Form

Variable / Field Name	Data Format	RADx-UP CDCC Field Label	Response Options for categorical variables	Guidance
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race_ethn_race	Numeric, categorical	What is your race? Mark one or more boxes AND print origins.	1, American Indian or Alaska Native 2, Black or African American 3, Asian 4, Native Hawaiian or Other Pacific Islander 5, White 15, Some other race 99, Prefer not to answer	If race and ethnicity are captured as a single variable within the source system (e.g., "Hispanic or Latino" is included as a selection under Race): for patients with a known race (e.g., race is something other than "Hispanic or Latino,") leave Ethnicity blank and set Race to the appropriate value. For patients who are listed as having a race of "Hispanic," set ethnicity to "1" and leave race blank. If multiple race values are present in the EHR, create a separate entry for each one. If EHR contains a race value that is not present in the CDE list, use "15." Use "99" if a patient refused to answer.
race_ethn_hispanic	Numeric, categorical	Are you of Hispanic, Latino, or Spanish origin?	0, No, not of Hispanic, Latino, or Spanish origin 1, Yes, of Hispanic, Latino, or Spanish origin 99, Prefer not to answer	See guidance for race CDE if race and ethnicity are captured in the same field in the EHR. If EHR contains values other than "Hispanic/not Hispanic" (or similar) leave blank for those records. Use "99" when a patient refused to answer.
age_yrs	Numeric	Age For babies less than 1 year old, do not write the age in months. Write 0 as the age.		Calculate age (in years) based on birth date and the date extract is generated (?) Age should be rounded down to even year in all cases, never rounded up.
bio_sex_birth	Numeric, categorical	What was your sex assigned at birth?	1, Female 0, Male 2, Non-binary 96, None of these describe me 99, Prefer not to answer	Use non-binary ("2") for participants who are physically undifferentiated at birth (may be recorded in the EHR as ambiguous).
gender_identity_term	Numeric, categorical	What terms best express how you describe your	1, Woman 0, Man 2, Non-binary 3, Transgender man/Female-to-male (FTM) 4, Transgender woman/Male-to-female (MTF) 5, Gender non-binary/Genderqueer/Gender	Use "96" (none of these describe me) if multiple gender identities are present or if value is not present in the CDE list.

		gender identity?	nonconforming 6, Agender 7, Bigender 96, None of these describe me 99, Prefer not to answer	
sex_orient_id	Numeric, categorical	Which of the following best represents how you think of yourself at this time?	1, Gay 2, Lesbian 3, Straight; that is, not gay or lesbian, etc. 4, Bisexual 96, None of these describe me 99, Prefer not to answer	Use "96" (none of these describe me) if multiple orientations are present, or for values of asexual, questioning, queer, "gay, lesbian or homosexual" (recorded as a single response) or any other value not present in the CDE list.

housing_employment_and_insurance Table / Form

Variable / Field Name	Data Format	RADx-UP CDCC Field Label	Response Options for categorical variables	Guidance
language_english	Numeric, categorical	Do you speak a language other than English at home?	1, Yes 0, No 98, Prefer not to answer	If patient preferred language is English, set to "0". If any other defined value, set to "1". If language is not defined, leave blank.
language_spoken	Numeric, categorical	What language(s)	1, Spanish 2, Vietnamese 3, Mandarin 4, Cantonese 5, Tagalog 6, Hawaiian 7, Ilokano 8, Navajo 90, Other	If patient preferred language is not English and can be mapped to one of the enumerated choices, choose the appropriate value. If preferred language is not one of the options in this list, map to "90"
language_spoken_other	Text	Specify other language(s)		Include language if patient's preferred language is not English and NOT in the list above.

medical_history Table / Form (variables available now)

Variable / Field Name	Data Format	RADx-UP CDCC Field Label	Response Options for categorical variables	Guidance

cc_hypertension	Numeric, categorical	Hypertension (HTN, high blood pressure)	1, Yes 0, No	Any of the following ICD10 diagnosis codes: I10.*; I11.*; I12.*; I13.*; I15.*
cc_diabetes	Numeric, categorical	Diabetes	1, Yes 0, No	Any of the following ICD10 diagnosis codes: E10.*; E11.*; E13.*
cc_chronickd	Numeric, categorical	Chronic kidney disease (CKD)	1, Yes 0, No	See CKD tab in Reference Table document.
cc_cancer	Numeric, categorical	Cancer diagnosis and/or treatment within the past 12 months	1, Yes 0, No	See CANCER tab in Reference Table document. Note, this list includes diagnoses only, not treatment-related codes.
cc_asthma	Numeric, categorical	Asthma	1, Yes 0, No	See ASTHMA tab in Reference Table document.
cc_copd	Numeric, categorical	Chronic obstructive pulmonary disease (COPD)	1, Yes 0, No	Any of the following ICD10 diagnosis codes: J44.*

health_status Table / Form

Variable / Field Name	Data Format	RADx-UP CDCC Field Label	Response Options for categorical variables	Guidance
self_reported_height_coded	Numeric, categorical	How tall are you without shoes? Please choose the units you would like to use for height	1, Feet and inches 2, Meters and centimeters 98, Don't know 99, Prefer not to answer	Provide most recent patient height. Map to field with relevant units.
self_reported_height_feet	Numeric	Feet		

self_reported_height_inches	Numeric	Inches		
self_reported_height_meters	Numeric	Meters		
self_reported_height_centimeters	Numeric	Centimeters		
self_reported_weight_units	Numeric, categorical	Please choose the units you would like to use for weight	1, Kilograms 2, Pounds	Provide most recent patient weight. Map to field with relevant units.
self_reported_weight_kgs	Numeric	How much do you weigh without clothes or shoes? If you are currently pregnant, how much did you weigh before your pregnancy?		
self_reported_weight_lbs	Numeric	How much do you weigh without clothes or shoes? If you are currently pregnant, how much did you weigh before your pregnancy?		

testing Table / Form

Variable / Field Name	Data Format	RADx-UP CDCC Field Label	Response Options for categorical variables	Guidance
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test_date_mdy	Text, MM/DD/YYYY	Date of Testing Collection		
tested_for_covid	Numeric, categorical	Have you ever been tested for COVID- 19?	1, Yes 2, No 98, Don't know 99, Prefer not to answer	If COVID-19 result present, set to "1". See COVID_LOINC tab for codes.
tested_positive_for_covid	Numeric, categorical	Have you ever tested positive for COVID-19?	1, Yes 2, No 98, Don't know 99, Prefer not to answer	If result = Positive, Presumptive Positive, or Detected (used in PCR tests), or Recent Infection, Past Infection, Antibodies Detected, or SARS Coronavirus 2 (applicable to some Antigen/Antibody tests) set to "1". Results at the site level may not use these exact terms to report results.
positivemonth_covidtest	Numeric, categorical	What month did you first test positive for COVID- 19?	1, January 2, February 3, March 4, April 5, May 6, June 7, July 8, August 9, September 10, October 11, November 12, December	Derive month from date of FIRST positive test. Use RESULT DATE if available, otherwise sample collection date or specimen received date.
positiveyear_covidtest	Numeric, categorical	What year did you first test positive for COVID-19?	1,2019 2,2020 3,2021	Derive year from date of FIRST positive test. Use RESULT DATE if available, otherwise sample collection date or specimen received date.
recentmonth_covidtest	Numeric, categorical	What month did you have your most recent COVID-19 test?	1, January 2, February 3, March 4, April 5, May 6, June 7, July 8, August 9, September 10, October 11, November 12, December	Derive month from date of most RECENT test. Use RESULT DATE if available, otherwise sample collection date or specimen received date.
recentyear_covidtest	Numeric, categorical	What year did you have your most recent COVID-19 test?	1,2019 2,2020 3,2021	Derive year from date of most RECENT test. Use RESULT DATE if available, otherwise sample collection date or specimen received date.
recentresult_covidtest	Numeric, categorical	What was the result of your most recent COVID-19 test?	1, Negative 2, Positive 3, Never obtained results 4, Indeterminate 98, Don't know 99, Prefer not to answer	Choose appropriate value based on result of most RECENT test. Results may not use these exact terms: "1" - Negative, Not Detected, Undetected "2" - Positive, Presumptive Positive, Detected, Recent Infection, Past Infection, Antibodies Detected, SARS Coronavirus 2 "4" - Undetermined, Indeterminate abnormal, Equivocal, Specimen Unsatisfactory

cov_tst_mthd	Numeric, categorical	How were you tested for your most recent test?	1,Nasal Swab 2,Throat Swab 3, Blood Sample 4, Saliva	See "Sample Type" column of COVID_LOINC tab in the Reference Table document for categorization of testing method. Tests with a type of "XXX" can apply to multiple methods. Project teams would need to consult their EHR data source for exact information. "Respiratory" tests most likely obtain a sample via nasal swab.
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covid_test Table / Form

Variable / Field Name	Data Format	RADx-UP CDCC Field Label	Response Options for categorical variables	Guidance
covid_test_date_mdy	Text, MM/DD/YYYY	Date of COVID Test Information Collection		Derive year from date of most RECENT test. Use RESULT DATE if available, otherwise sample collection date or specimen received date.
covid_test_type	Numeric, categorical	Test Method Target	1, Antibody 2, Antigen 3, Nucleic acid/PCR 4, Nucleic acid/Isothermal 5, Molecular/host response 6, Biochemical marker (eg, pH) 90, Other, Specify	See "Test_Type" column of COVID_LOINC tab in the Reference Table document for categorization of test type. Most tests from the EHR are expected to be in the nucleic acid/PCR category.
covid_test_type_other	Text	Other method target		
covid_test_name	Text	Test manufacturer (or LDT) and test name		
covid_test_specimen_type	Numeric, categorical	Specimen Type	1, Anterior nasal swab 2, Mid-turbinate nasal swab 3, Nasopharyngeal swab	See "Sample Type" column of COVID_LOINC tab in the Reference Table document for categorization of testing method. Tests with a type of "XXX" can apply to multiple methods. Project teams would need to consult their EHR

			4, Oropharyngeal swab 5, Nasal lavage 6, Saliva 7, Sputum 8, Whole blood 90, Other, Specify	data source for exact information. "Respiratory" tests most likely obtain a sample via nasal swab.
covid_test_specimen_type_other	Text	Other specimen type		
covid_test_result_raw	Text	Raw test result (if not a Positive/Negative/Failed report)		Raw result can be placed in this field if it does not map to one of the values below.
covid_test_result	Numeric, categorical	Test result	1, Positive 2, Negative 3, Failed 4, Lost 90, Other	Choose appropriate value based on result of most RECENT test. Results may not use these exact terms, so choose the closest match: "1" - Negative, Not Detected, Undetected "2" - Positive, Presumptive Positive, Detected, Recent Infection, Past Infection, Antibodies Detected, SARS Coronavirus 2 "3" - Undetermined, Indeterminate abnormal, Equivocal, Specimen Unsatisfactory
covid_test_result_other	Text	Other test result		

Deferred Variables

The below variables may be included at a later date. If you have data related to columns listed below that you would like to map now, please let the CDCC know.

sociodemographics Table / Form

Variable / Field Name	Data Format	RADx-UP CDCC Field Label	Response Options for categorical variables	Guidance

race_ethn_asian_detail	Numeric, categorical		1, Japanese 2, Filipino 3, Chinese 4, Korean 5, Other Asian	
race_ethn_islander_detail	Numeric, categorical		1, Native Hawaiian 2, Pacific Islander 3, Samoan 4, Tongan 5, Maori 6, Fijian 7, Chamorro 8, Chuukese 9, Kosraen 10, Marshallese 11, Palauan 12, Pohnpeian 13, Yapese 14, Other Pacific Islander	
race_ethn_orig_other	Text	Specify other origin. Print race of origin.		
race_ethn_hispanic_detail	Numeric, categorical	Please specify your origin	1, Mexican, Mexican Am., Chicano 2, Puerto Rican 3, Cuban 4, Another Hispanic, Latino, or Spanish origin	
race_ethn_hispanic_other	Text	Please specify other Hispanic, Latino, or Spanish origin. For example, Salvadoran, Dominican, Colombian, Guatemalan, Spaniard, Ecuadorian, etc.		
pregnancy_status	Numeric, categorical	Are you currently pregnant?	1, Pregnant 0, Not Pregnant 98, Don't know 99, Prefer not to answer	Need to define further. Pregnant as of when? Can use Z3A.* ICD-10 codes (weeks of gestation), but also need to take delivery, stillbirth, miscarriages, etc. into consideration.

vaccine_acceptance Table / Form

Variable / Field Name	Data Format	RADx-UP CDCC Field Label	Response Options for categorical variables	Guidance
flu_vaccinehistind	Numeric, categorical	Have you ever received a flu vaccination?	1, Yes 0, No 98, Do not remember	
flu_vaccine_season	Numeric, categorical	Have you received a flu vaccine this season (last 6 months)?	1, Yes 0, No 98, Do not remember	
covid_vaccine	Numeric, categorical	Have you received a COVID-19 vaccine?	1, Yes 0, No 98, Prefer not to answer 99, Don't know	

medical_history Table / Form Possible Additional Variables

Variable / Field Name	Data Format	RADx-UP CDCC Field Label	Response Options for categorical variables	Guidance
cc_imm	Numeric, categorical	Immunocompromised condition	1, Yes 0, No	
cc_autoimm	Numeric, categorical	Autoimmune disease	1, Yes 0, No	
cc_cvd	Numeric, categorical	Cardiovascular disease (CVD or heart disease)	1, Yes 0, No	
cc_clung	Numeric, categorical	Other chronic lung disease	1, Yes 0, No	
cc_sickle	Numeric, categorical	Sickle Cell Anemia	1, Yes 0, No	

cc_depression	Numeric, categorical	Depression	1, Yes 0, No	
cc_asud	Numeric, categorical	Alcohol or substance use disorder	1, Yes 0, No	
cc_intrav	Numeric, categorical	Intravenous drug use	1, Yes 0, No	
cc_othermh	Numeric, categorical	Other mental health disorder	1, Yes 0, No	
cc_otherchroniccond	Numeric, categorical	Other chronic condition	1, Yes 0, No	

covid_test Table / Form Possible Additional Variables

Variable / Field Name	Data Format	RADx-UP CDCC Field Label	Response Options for categorical variables	Guidance
covid_test_date_mdy	Text, MM/DD/YYYY	Date of COVID Test Information Collection		
covid_test_target_disease_status	Numeric, categorical	Participant Testing Disease Status	1, Asymptomatic 2, Pre-symptomatic illness 3, Mild/Moderate outpatient illness 4, Acute illness 5, Severe/Critical inpatient illness 6, Exposed 9, Convalescent illness	
covid_test_approval	Numeric, categorical	Quality and Regulatory	1, CLIA/CP certified 2, CLIA Waiver 3, FDA authorized (EUA)	

			4, FDA cleared 5, LDT 90, Other (specify)	
covid_test_approval_other	Text	Other approval		
covid_test_collection_setting	Numeric, categorical	Test Collection Setting	1, Clinic 2, Drive-through 3, Home 4, Mobile unit 5, Lab 6, Mail-in 7, Community location (e.g., church, school, community center, etc.) 90, Other, Specify	
covid_test_collection_setting_other	Text	Other setting		
covid_test_performed_location	Numeric, categorical	Test Performed Location	1, Clinic 2, Drive-through 3, Home 4, Mobile unit 5, Lab 6, Mail-in 7, Community location (e.g., church, school, community center, etc.) 90, Other, Specify	
covid_test_performed_location_other	Text	Other performed location		
covid_test_study_setting	Numeric, categorical	Study Setting	1, Community health center 2, Nursing home or long-term care facility 3, Prison or correctional facility 4, Public housing 5, Rural 6, Urban 7,	

			School 8, In-home 90, Other, Specify	
covid_test_study_setting_other	Text	Other study setting		
covid_test_specimen_collector	Numeric, categorical	Specimen Collector	1, Self-collect 2, Health Care Provider collected 90, Other, Specify	
covid_test_specimen_collector_other	Text	Other specimen collector		
covid_test_collect_datetime	Text, MM/DD/YYYY	Date and time specimen collected		
covid_test_result_datetime	Text, MM/DD/YYYY	Date and time result received		
covid_test_result_sent_datetime	Text, MM/DD/YYYY	Date and time result sent to participant		

health_status Table / Form

Variable / Field Name	Data Format	RADx-UP CDCC Field Label	Response Options for categorical variables	Guidance
self_reported_health_status_assessment	Numeric, categorical	Would you say your health in general is excellent, very good, good, fair, or poor?	1, Excellent 2, Very good 3, Good 4, Fair 5, Poor 99,	

			Prefer not to answer 98, Don't know	
self_reported_disability	Numeric, categorical	Do you have a disability that interferes with your ability to carry out daily activities? Examples of daily activities include walking, climbing stairs, shopping, balancing a checkbook, bathing or dressing.	1, Yes 0, No 98, Prefer not to answer	