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4

**Data
Dictionary – Data
Elements**



CHAPTER 4 – DATA DICTIONARY

The **Data Dictionary** module is used for defining data elements and form structures. Data Dictionary allows users to search, create and manage Common Data Elements (CDE) and Unique Data Elements (UDE), create and manage form structures (FS) and electronic forms (eFORMS).

The Data Dictionary module is closely related to the Data Repository module which provides long term repository for research data.

4.1 OBJECTIVE

This chapter provides information for users on how to:

- ❖ Browse existing Data Elements
 - ❖ Search Data Elements
 - ❖ Create Data Elements
 - ❖ Import Data Elements
 - ❖ Browse existing eForms
 - ❖ Search eForms
 - ❖ Create eForms
-

4.2 SYSTEM FUNCTIONS

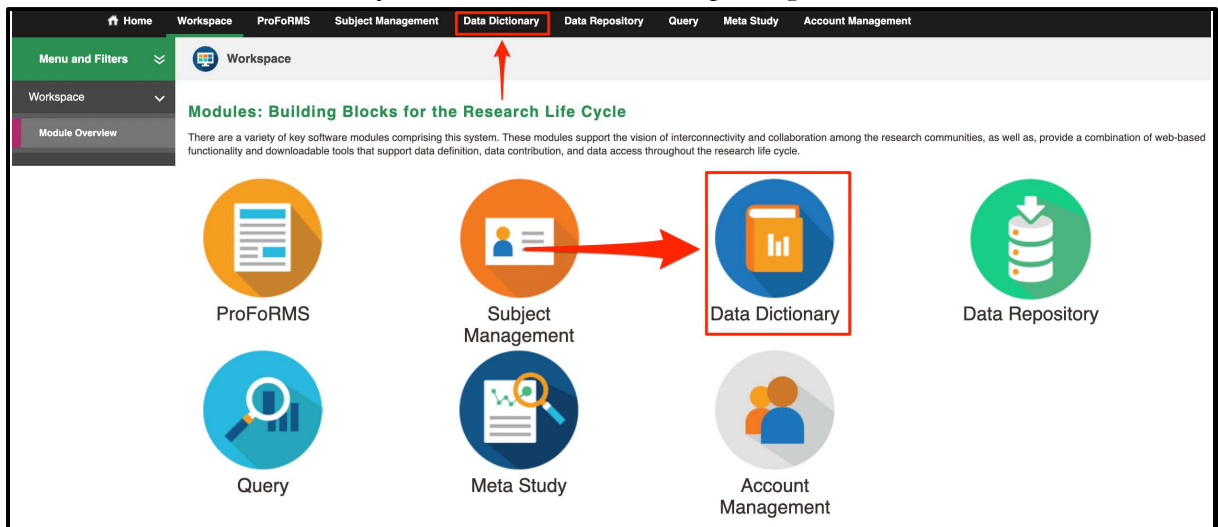
The Data Dictionary module provides the tools for defining the data you submit as well as provide alternate terms (aliasing) and translation rules for the same element. Importantly, the BRICS data dictionary provides those who have access to the data with clear and precise information about what it is they are accessing.

4.3 MODULE NAVIGATION

The **Data Dictionary** module (including sub-modules) is available within the BRICS Workspace.

To Access the Data Dictionary Module: Perform the following actions:

1. Login to the system.
2. Navigate to the Workspace landing page
3. Click the **Data Dictionary** module icon or on the top navigation bar.



4.4 DATA DICTIONARY MODULE FEATURES

The **Data Dictionary Module** provides useful features for:

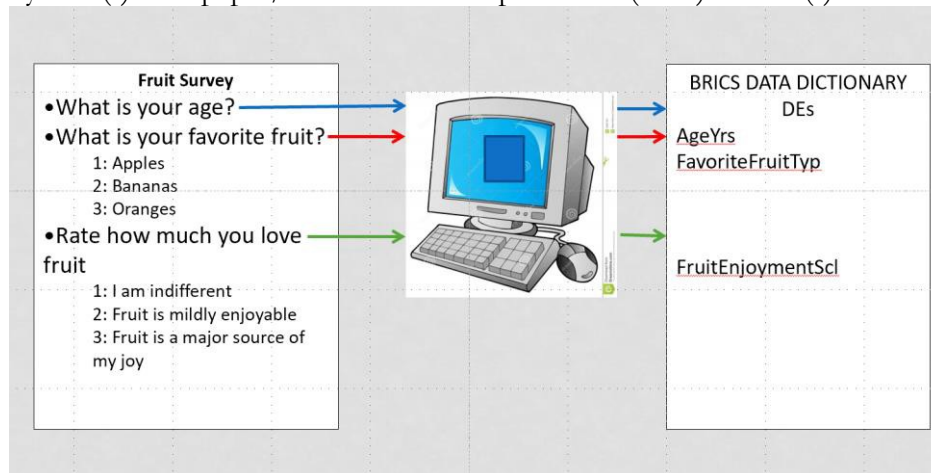
- ❖ Searching Data Elements
 - Downloading Data Elements Results to XML, CSV and ZIP output formats
- ❖ Creating Data Elements
- ❖ Importing Data Elements

DATA ELEMENTS

4.5 Data Element Definition

A simple definition of a data element:

A data element (DE) is a logical unit of data, pertaining to information of one kind. It has a name, precise definition, and a set of permissible values (if applicable). A DE occupies the space provided by field(s) on a paper/electronic case report form (CRF) or field(s) in a database record.



In more elaborated terms:

The data element is a key foundational concept in an [ISO/IEC 11179 metadata registry](#). The purpose of this registry is to maintain a semantically precise structure of data elements.

According to ISO/IEC 11179 metadata registry, each data element:

1. Should be registered according to the Registration guidelines (11179-6)
2. Is uniquely identified within the register (11179-5)
3. Named according to Naming and Identification Principles (11179-5) See data element name
4. Defined by the Formulation of Data Definitions rules (11179-4)
5. Classified in a Classification Scheme (11179-2) See classification scheme
6. Data elements that store "Codes" or enumerated values must also specify the semantics of each of the code values with precise definitions.

4.5.1 Types of Data Elements Used in BRICS

Common Data Elements (CDEs) – the data elements which are widely adopted by the community and used across multiple studies/projects. An example: [NINDS CDE project](#)

Unique Data Elements (UDEs) – the data elements which are study/project specific, and designed to accommodate a specific set of data. A UDE is typically created when a CDE does not exist to accommodate the data.

4.5.2 Some Important Features of a Data Element (DE) in BRICS

- ❖ **Variable Name** – a unique variable name/ID of the Data Element(DE).
- ❖ **Title** - a brief description for the Data Element; it should represent the essence of the question associated with the DE through discrete concepts.
- ❖ **Definition** - An explanation of the nature, scope, or meaning of the DE.
- ❖ **Guidelines**- Additional details about the DE beyond the definition. This may include instructions to the patient on how to respond to a question, instructions on how to conduct a laboratory test, etc.
- ❖ **Reference** - Information describing the history or origin of a DE, as well as its scientific validity. This can include references to journal articles, Vocabularies or Data Standards, review process, validation, owner or creator, or other information.
- ❖ **Permissible Values** - The set of possible values or responses. A Value Set often includes concepts from established Vocabularies or Data Standards. For laboratory tests, a value set may include a range of permissible values and indicate the required units. For a survey question, the value set may be a list of possible responses.

More in [Data Element Import Template Explained](#)

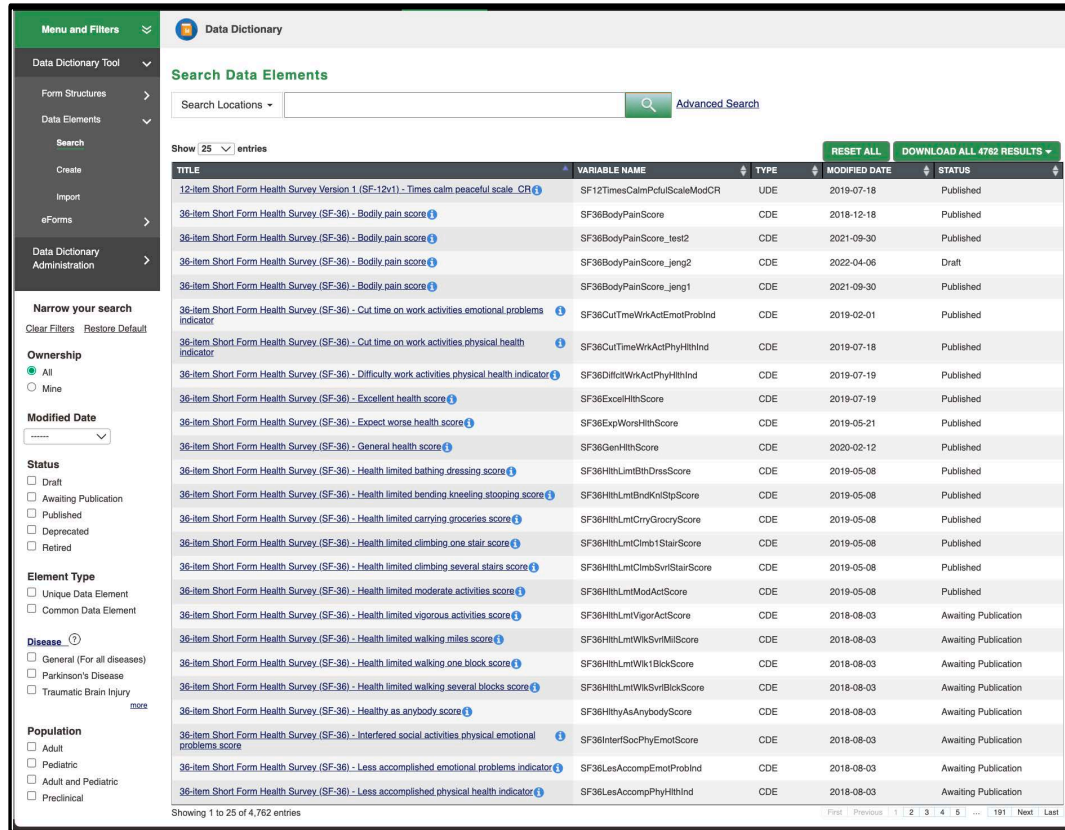
4.5.3 Life Cycle of Data Elements in BRICS

Type	Description	Visibility	Editable?	Data Validation?	Data Submission?
Draft	In a process of development	Required to log in into portal. Available for the owner, admin and to whom were given permissions only	Yes	Yes	No
Awaiting publication	A publication has been requested for this DE	All users, including the public site	Yes	Yes	No
Published	The DE which is complete and available for public use	All users, including the public site	Limited. Can edit Title, Description, add/remove documentation.	Yes	Yes

4.5.4 Browse Data Elements

You can browse data elements on BRICS public site data dictionary and portal (login required).

E.g. on FITBIR public site, the published and awaiting publication data elements are available via the following link (<https://fitbir.nih.gov/content/data-dictionary>)

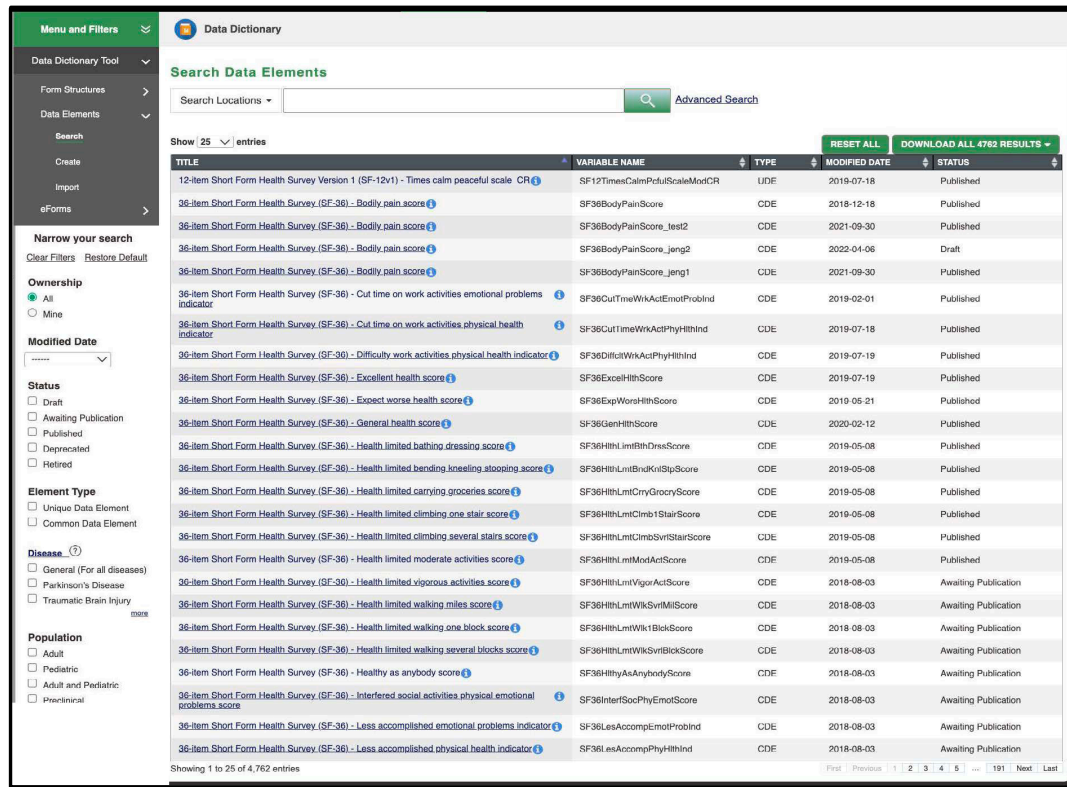


TITLE	VARIABLE NAME	TYPE	MODIFIED DATE	STATUS
12-Item Short Form Health Survey Version 1 (SF-12v1) - Times calm peaceful scale, CR	SF12TimesCalmPctuScaleModCR	UDE	2019-07-18	Published
36-Item Short Form Health Survey (SF-36) - Bodily pain score	SF36BodyPainScore	CDE	2018-12-18	Published
36-Item Short Form Health Survey (SF-36) - Bodily pain score	SF36BodyPainScore_test2	CDE	2021-09-30	Published
36-Item Short Form Health Survey (SF-36) - Bodily pain score	SF36BodyPainScore_jeng2	CDE	2022-04-06	Draft
36-Item Short Form Health Survey (SF-36) - Bodily pain score	SF36BodyPainScore_jeng1	CDE	2021-09-30	Published
36-Item Short Form Health Survey (SF-36) - Cut time on work activities emotional problems indicator	SF36CutTimeWkActEmotProbind	CDE	2019-02-01	Published
36-Item Short Form Health Survey (SF-36) - Cut time on work activities physical health indicator	SF36CutTimeWkActPhyHthInd	CDE	2019-07-18	Published
36-Item Short Form Health Survey (SF-36) - Difficulty work activities physical health indicator	SF36DiffWkActPhyHthInd	CDE	2019-07-19	Published
36-Item Short Form Health Survey (SF-36) - Excellent health score	SF36ExcelHthScore	CDE	2019-07-19	Published
36-Item Short Form Health Survey (SF-36) - Expect worse health score	SF36ExpWorstHthScore	CDE	2019-05-21	Published
36-Item Short Form Health Survey (SF-36) - General health score	SF36GenHthScore	CDE	2020-02-12	Published
36-Item Short Form Health Survey (SF-36) - Health limited bathing dressing score	SF36HthLmtBthDressScore	CDE	2019-05-08	Published
36-Item Short Form Health Survey (SF-36) - Health limited bending kneeling stooping score	SF36HthLmtBndKnlStpScore	CDE	2019-05-08	Published
36-Item Short Form Health Survey (SF-36) - Health limited carrying groceries score	SF36HthLmtCrryGrocyScore	CDE	2019-05-08	Published
36-Item Short Form Health Survey (SF-36) - Health limited climbing one stair score	SF36HthLmtClimb1StairScore	CDE	2019-05-08	Published
36-Item Short Form Health Survey (SF-36) - Health limited climbing several stairs score	SF36HthLmtClimbSvrStairScore	CDE	2019-05-08	Published
36-Item Short Form Health Survey (SF-36) - Health limited moderate activities score	SF36HthLmtModActScore	CDE	2019-05-08	Published
36-Item Short Form Health Survey (SF-36) - Health limited vigorous activities score	SF36HthLmtVigorActScore	CDE	2018-08-03	Awaiting Publication
36-Item Short Form Health Survey (SF-36) - Health limited walking miles score	SF36HthLmtWlkSvrMlScore	CDE	2018-08-03	Awaiting Publication
36-Item Short Form Health Survey (SF-36) - Health limited walking one block score	SF36HthLmtWlk1BlckScore	CDE	2018-08-03	Awaiting Publication
36-Item Short Form Health Survey (SF-36) - Health limited walking several blocks score	SF36HthLmtWlkSvrBlckScore	CDE	2018-08-03	Awaiting Publication
36-Item Short Form Health Survey (SF-36) - Healthy as anybody score	SF36HthAsAnybodyScore	CDE	2018-08-03	Awaiting Publication
36-Item Short Form Health Survey (SF-36) - Interfered social activities physical emotional problems score	SF36InterfSocPhyEmotScore	CDE	2018-08-03	Awaiting Publication
36-Item Short Form Health Survey (SF-36) - Less accomplished emotional problems indicator	SF36LesAccompEmotProbind	CDE	2018-08-03	Awaiting Publication
36-Item Short Form Health Survey (SF-36) - Less accomplished physical health indicator	SF36LesAccompPhyHthInd	CDE	2018-08-03	Awaiting Publication

On that page you can:

1. Browse data elements,
2. Search data elements,
3. Sort data elements by **Title**, **Variable Name**, **Type**, **Status**, and **Modified Date**.
4. Use the check boxes on the left side panel to filter data elements by **Status**, **Element Type**, **Disease category**, **Population**, etc.

The same actions could be performed when you log in into portal.



Data Dictionary

Search Data Elements

Search Locations

Show 25 entries

TITLE	VARIABLE NAME	TYPE	MODIFIED DATE	STATUS
12-Item Short Form Health Survey Version 1 (SF-12v1) - Times calm peaceful scale CR	SF12TimesCalmPctUScaleModCR	UDE	2018-07-18	Published
36-Item Short Form Health Survey (SF-36) - Bodily pain score	SF36BodyPainScore	CDE	2018-12-18	Published
36-Item Short Form Health Survey (SF-36) - Bodily pain score	SF36BodyPainScore_test2	CDE	2021-09-30	Published
36-Item Short Form Health Survey (SF-36) - Bodily pain score	SF36BodyPainScore_jeng2	CDE	2022-04-06	Draft
36-Item Short Form Health Survey (SF-36) - Bodily pain score	SF36BodyPainScore_jeng1	CDE	2021-09-30	Published
36-Item Short Form Health Survey (SF-36) - Cut time on work activities emotional problems indicator	SF36CutTimeWkActEmotProblnd	CDE	2019-02-01	Published
36-Item Short Form Health Survey (SF-36) - Cut time on work activities physical health indicator	SF36CutTimeWkActPhyHthInd	CDE	2019-07-18	Published
36-Item Short Form Health Survey (SF-36) - Difficulty work activities physical health indicator	SF36DiffctWkActPhyHthInd	CDE	2019-07-19	Published
36-Item Short Form Health Survey (SF-36) - Excellent health score	SF36ExcelHthScore	CDE	2019-07-19	Published
36-Item Short Form Health Survey (SF-36) - Expect worse health score	SF36ExpWorHthScore	CDE	2019-05-21	Published
36-Item Short Form Health Survey (SF-36) - General health score	SF36GenHthScore	CDE	2020-02-12	Published
36-Item Short Form Health Survey (SF-36) - Health limited bathing dressing score	SF36HthLmtBthDresScore	CDE	2019-05-08	Published
36-Item Short Form Health Survey (SF-36) - Health limited bending kneeling stooping score	SF36HthLmtBndKnlStpScore	CDE	2019-05-08	Published
36-Item Short Form Health Survey (SF-36) - Health limited carrying groceries score	SF36HthLmtCrryGroceryScore	CDE	2019-05-08	Published
36-Item Short Form Health Survey (SF-36) - Health limited climbing one stair score	SF36HthLmtClimb1StairScore	CDE	2019-05-08	Published
36-Item Short Form Health Survey (SF-36) - Health limited climbing several stairs score	SF36HthLmtClimbSvrtStairScore	CDE	2019-05-08	Published
36-Item Short Form Health Survey (SF-36) - Health limited moderate activities score	SF36HthLmtModActScore	CDE	2019-05-08	Published
36-Item Short Form Health Survey (SF-36) - Health limited vigorous activities score	SF36HthLmtVigorActScore	CDE	2018-08-03	Awaiting Publication
36-Item Short Form Health Survey (SF-36) - Health limited walking miles score	SF36HthLmtWlkMlsScore	CDE	2018-08-03	Awaiting Publication
36-Item Short Form Health Survey (SF-36) - Health limited walking one block score	SF36HthLmtWlk1BlckScore	CDE	2018-08-03	Awaiting Publication
36-Item Short Form Health Survey (SF-36) - Health limited walking several blocks score	SF36HthLmtWlkSvrtBlckScore	CDE	2018-08-03	Awaiting Publication
36-Item Short Form Health Survey (SF-36) - Healthy as anybody score	SF36HthAsAnybodyScore	CDE	2018-08-03	Awaiting Publication
36-Item Short Form Health Survey (SF-36) - Interfered social activities physical emotional problems score	SF36InterSocPhyEmotScore	CDE	2018-08-03	Awaiting Publication
36-Item Short Form Health Survey (SF-36) - Less accomplished emotional problems indicator	SF36LesAccompEmotProblnd	CDE	2018-08-03	Awaiting Publication
36-Item Short Form Health Survey (SF-36) - Less accomplished physical health indicator	SF36LesAccompPhyHthInd	CDE	2018-08-03	Awaiting Publication

Showing 1 to 25 of 4,762 entries

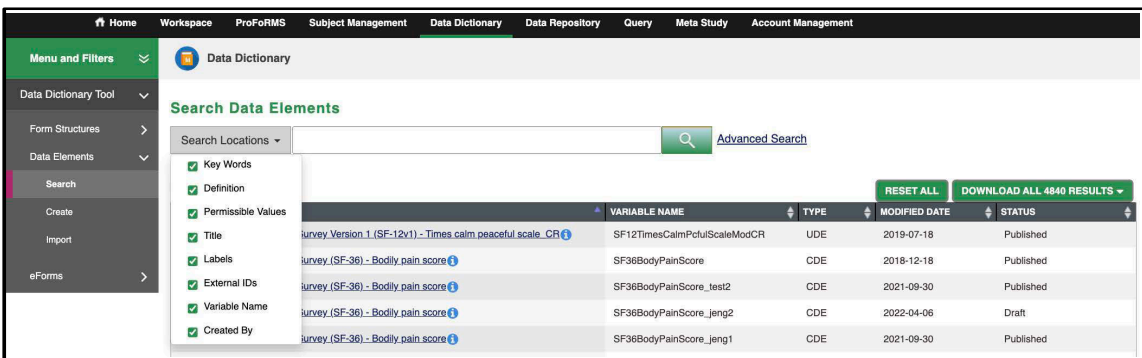
First Previous 1 2 3 4 5 ... 191 Next Last

4.5.5 Search Data Elements

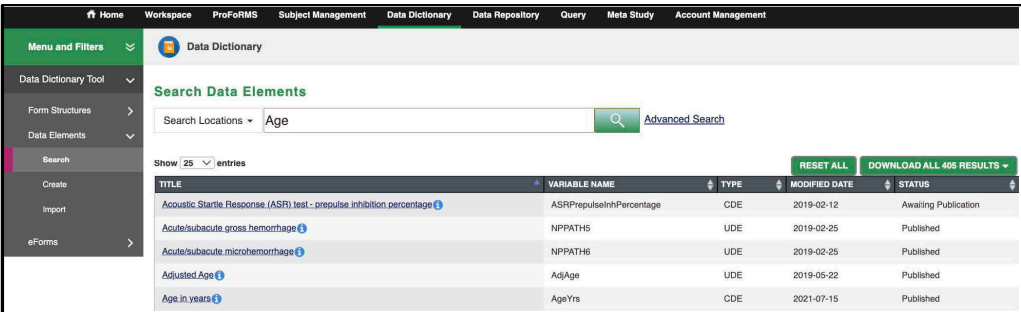
You can search for data elements using specified search terms on both BRICS public site and portal (login required).

To Search Data Elements: Perform the following actions:

1. Log in into the system. Navigate to the Data Dictionary module.
2. Click the Data Dictionary module. The Search Form Structures page appears.
3. Click the **hamburger menu** the left-side tool bar.
4. The Data Dictionary Module menu opens and expands
5. Select **Search** under Data Elements from the left-hand drop-down menu.
6. Using the search text-box, enter the search keyword to search.
7. Keyword search will be performed within the form fields using the Search Locations (Keywords, Definition, Permissible Values, External IDs, Variable Name, Created Date).
8. You might want to limit your search options by using “Search Locations” options.

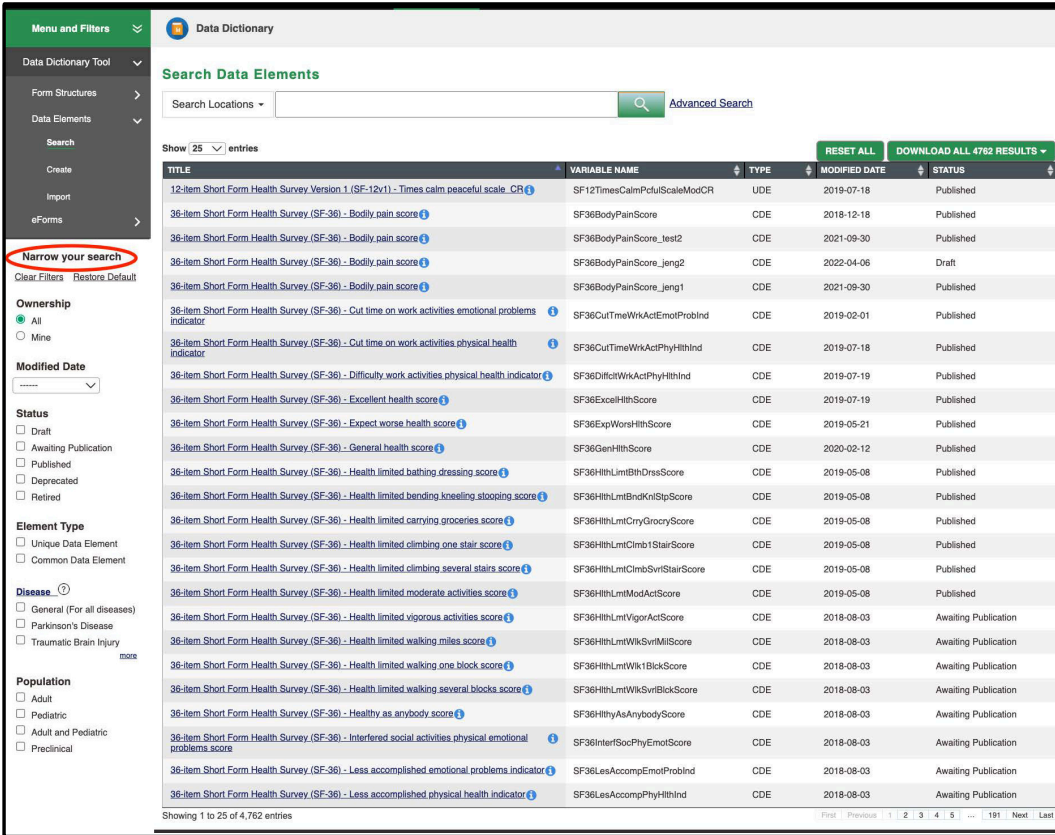


9. You may also narrow your search by selecting the check-box beside the criteria you wish to search (**Ownership, Status, Modified Date, Element Type, Form Types, Standardization, Diseases, Population, etc**).
10. Click the Search button to process your search results.
11. When search results appear in the data element table, you can review it in the table, or use the **DOWNLOAD ALL RESULTS** button at the top right of the table to download the search result.



4.5.6 To Narrow Your Search Results

If there are too many DEs found, use the controls on the left side panel, under “Narrow your search”:



Ownership - this option allows you to expand the search by selecting All DEs, or narrow your search by selecting only Des created by you – Mine.

Modified Date - see only DEs that were modified within a specified time range

Status - (refer to 4.5.3 for more information about DE status)

- Draft – only draft DE will be searched for
- Awaiting publication – limits to DEs in Awaiting Publication (AWP) state
- Published – only published DEs will be searched for

Element Type – limits the search by either Common or Unique data elements, or both when both check boxes are un-checked.

Disease (not a very useful option so far) – limits the search by DEs created for a specific disease. This option only works in those instances of BRICS which fully support disease categories in data elements.

Population – limits DE search by DEs of a specific population. Note that “Preclinical” population refers to DEs which were created for animal studies.

4.5.7 Downloading DE Search Results

To download data element search results, use the big **DOWNLOAD** button. Note that the **DOWNLOAD** button shows the number of DEs found.

It provides the following options:

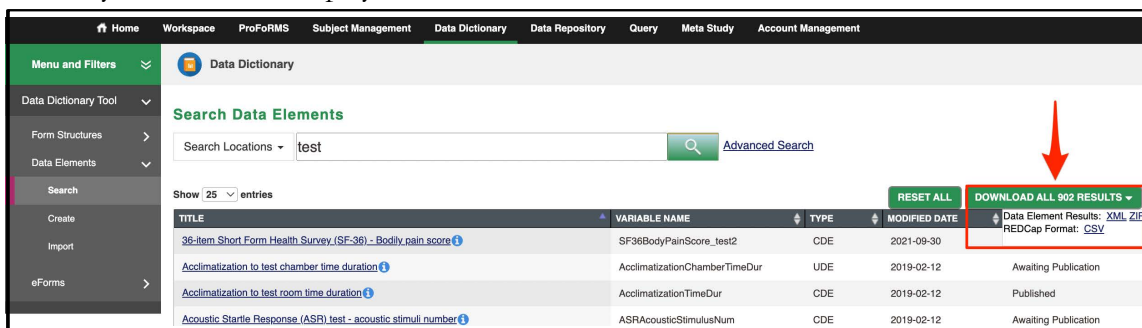
XML – downloads the list of DEs as an XNML file

ZIP – downloads the list of DEs as a ZIP file. That is the most used option. The ZIP file has the following name “dataElementDetailExport.zip” contains 2 files:

- “dataElementDetailExport.csv” with a list of all DEs found. That is the file you need to review DE search results.
- “ExternalIDMapping.csv” which contains mapping of DEs to external dictionaries.

REDCap Format (CSV) – provides the option to download search results in REDCap Format.

NOTE: The REDCap Data Element report guide is in 80% alignment with the REDCap standard. Please note that further refinement of the file is needed in order to upload correctly into the REDCap system.



The screenshot shows the BRICS Data Dictionary interface. A search for 'test' has been performed, resulting in a table of 25 entries. A red arrow points to the 'DOWNLOAD ALL 902 RESULTS' button, which has a dropdown menu showing options for 'Data Element Results: XML ZIP' and 'REDCap Format: CSV'.

TITLE	VARIABLE NAME	TYPE	MODIFIED DATE	
36-Item Short Form Health Survey (SF-36) - Bodily pain score	SF36BodyPainScore_test2	CDE	2021-09-30	
Acclimatization to test chamber time duration	AcclimatizationChamberTimeDur	UDE	2019-02-12	Awaiting Publication
Acclimatization to test room time duration	AcclimatizationTimeDur	CDE	2019-02-12	Published
Acoustic Startle Response (ASR) test - acoustic stimulli number	ASRAcousticStimulusNum	CDE	2019-02-12	Awaiting Publication

4.5.8 Creating/Editing Data Elements

Users of BRICS instance can create data elements (DEs or Unique Data Elements) if there is no Common Data Elements (CDEs) to accommodate users’ data.

DEs created by the users in the data dictionary have the "Unique Data Element" type. Unique Data Elements (UDEs) (unlike Common data elements) belong to a specific study/dataset (e.g. disease specific, form specific, media/modality specific, etc. UDEs are defined within a dataset to capture very specific data and do not have a life outside of that dataset, or outside of a very specific form (eCRF). To learn more about CDEs and UDEs refer to NINDS CDE project (<https://www.commondataelements.ninds.nih.gov/>)

A single DE can be created through BRICS web interface (refer to 4.5.13).

However, when creating multiple data elements, we strongly encourage using DE import template (refer to 4.5.14).

4.5.9 To Create Data Elements Using Web Interface

Perform the following actions:

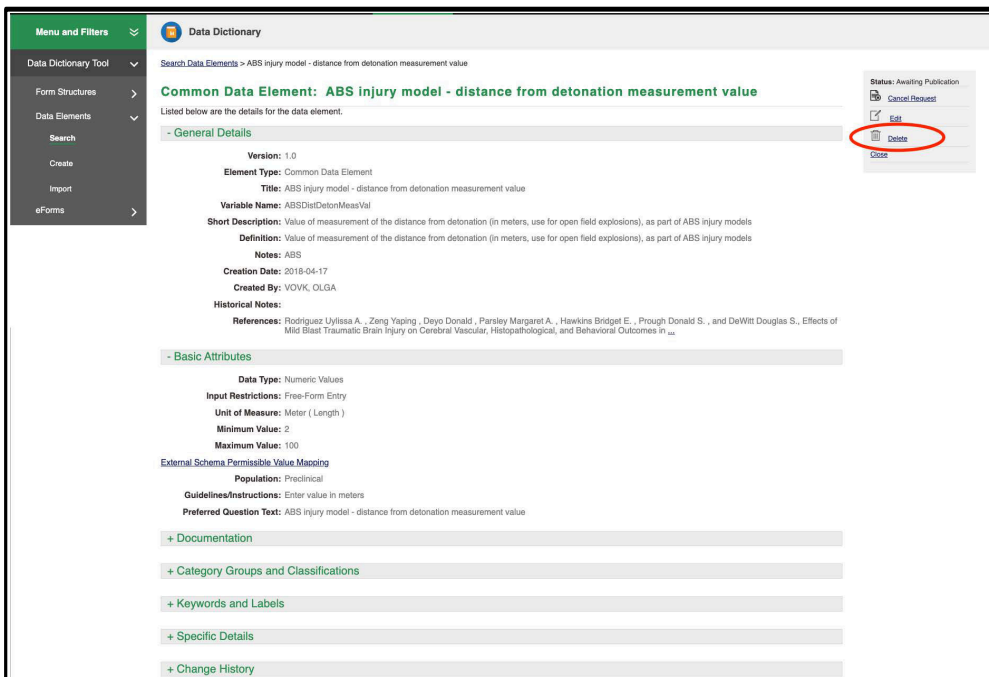
- Click the Data Dictionary module. The Search Form Structures page appears.
 - In the left hand menu click Data Elements then select Create from the menu.
 - Follow the process as it is defined by chevrons.
1. **Basic Information/General Details:** Fill out the details to create a data element. Fields marked with red asterisk (*) are required (**Element Type, Title, Variable Name**). Click Continue.
 2. **Add Documentation:** Add any supporting documentation and click continue.
 3. **Attributes:** In this form, you will be describing the data that will be entered for this Data Element. Fields marked with a * are required (*Permissible Value, Population, Use the diseases listed below to refine your search for domains and sub-domains, Data Restrictions*). Select a disease domain category.
 4. **Keywords and Labels:** Here you can associate keywords to the data element. This will help search for the data element in the future.
In the “**Filter Keywords**” textbox, enter your keyword and click the **Add Keyword** button. Click Continue.
 5. **Details:** Here you describe the details of the Data Element. Fields marked with a * are required (*Submitting Organization Name, Steward Organization Name*). Click the **Continue** button.
 6. **Review:** Review your Unique Data Element details. Click the **Save and Finish** button.
 7. **Data Element Confirmation:** The data element will be created and a confirmation page appears. The data element will be in a DRAFT state until you request for it to be published. Publication of data elements are subject to administrative review and approval. You may choose to publish a data element through two different methods:
 - 1) Requesting publication from the data element screen itself, or
 - 2) Published automatically when requesting the publication of a form structure with the draft data element attached.

4.5.10 Edit Data Elements

1. Search for Data Element (refer to 4.5.5).
2. Select “Edit” from the Menu on the right. Ten interface similar to Create Data Element appears.
3. Edit the details for your data element. Fields marked with a * are required. Follow the process defined by chevrons.
4. Please note that only DRAFT and AWAITING PUBLICATION DEs are fully editable. For PUBLISHED DE's you can only edit Title, Definition, Short Description, Guidelines, Notes, Keywords – the fields which comprise minor changes in a DE.
5. For a Published DE you cannot edit Variable Name, Permissible Values, min and max, Unit of Measure. The system will not let you. If you need to make changes in the above fields for published DE, please contact your BRICS operations team.

4.5.11 Deleting Data Elements

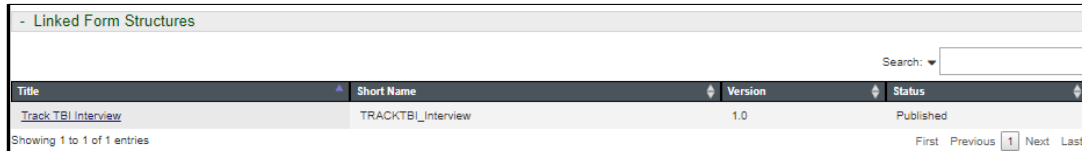
1. Search for the Data Element. Use Variable Name as a key.
2. Open the DE page.
3. If the DE is available for deletion, the “Delete” link will be available on the right side menu (see picture below). If the “Delete” link is not available, see next page for explanation on why you cannot delete it.



The screenshot displays the 'Data Dictionary' interface for a specific data element. On the left is a navigation menu with options like 'Menu and Filters', 'Data Dictionary Tool', 'Form Structures', 'Data Elements', 'Search', 'Create', 'Import', and 'eForms'. The main content area shows the details for the data element 'Common Data Element: ABS injury model - distance from detonation measurement value'. The status is 'Awaiting Publication'. A right-hand menu contains 'Cancel Request', 'Edit', 'Delete' (circled in red), and 'Close'. The details section includes 'General Details' (Version: 1.0, Element Type: Common Data Element, Title, Variable Name, Short Description, Definition, Notes, Creation Date, Created By, Historical Notes) and 'Basic Attributes' (Data Type, Input Restrictions, Unit of Measure, Minimum Value, Maximum Value, External Schema, Permissible Value, Mapping, Population, Guidelines/Instructions, Preferred Question Text). Below these are expandable sections for Documentation, Category Groups and Classifications, Keywords and Labels, Specific Details, and Change History.

You can only delete a DE which:

1. Does not belong to any form structure. To view the form structures to which a given DE belongs to, open the DE in web interface and look at the “**Linked Form Structures**” section. It shows all form structures that have the selected DE.



Title	Short Name	Version	Status
Track TBI Interview	TRACKTBI_Interview	1.0	Published

2. Does not have data submitted against it.

NOTE: You **cannot** delete a DE if delete option is not available. The delete option will only be available if #1 and #2 from above are true.

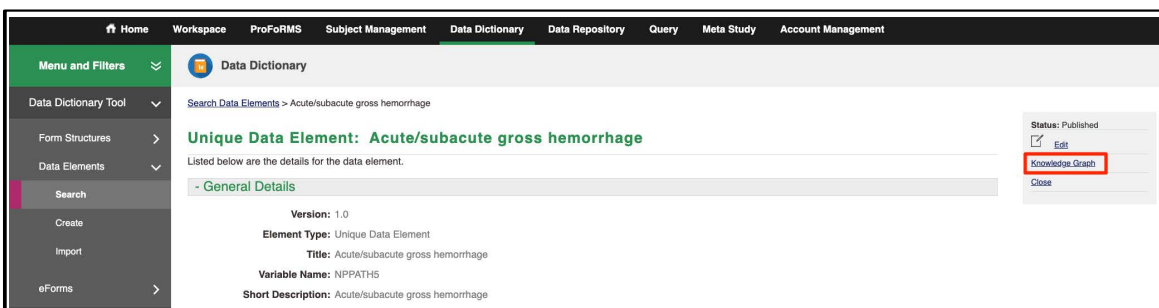
Because of those limitations, most of the deletable DEs will be those still in DRAFT status.

4.5.12 Knowledge Graph

The knowledge graph is available for those DEs, for which the DE linking information was added to the See Also column. It is available in the Data Dictionary and in the Query tool.

The knowledge graph shows connections between various DEs based on DE purpose, meaning, data collected.

Not all DEs have the knowledge graph feature available. If a DE has knowledge graph available, the corresponding link appears on the DE page.



Home Workspace ProFoRMS Subject Management **Data Dictionary** Data Repository Query Meta Study Account Management

Menu and Filters

- Data Dictionary Tool
- Form Structures
- Data Elements
- Search
- Create
- Import
- eForms

Data Dictionary

Search Data Elements > Acute/subacute gross hemorrhage

Unique Data Element: Acute/subacute gross hemorrhage

Listed below are the details for the data element.

General Details

Version: 1.0

Element Type: Unique Data Element

Title: Acute/subacute gross hemorrhage

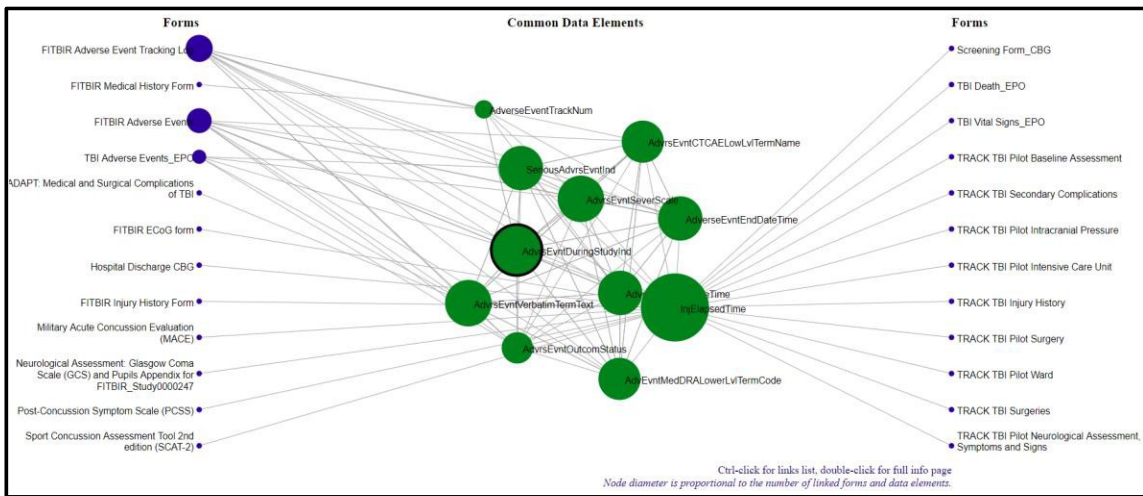
Variable Name: NPPATHS

Short Description: Acute/subacute gross hemorrhage

Status: Published

- Edit
- Knowledge Graph**
- Close

When you click on “Knowledge Graph” link, the graph appears in a separate tab,



On the knowledge graph, the DE for which the knowledge graph was built is highlighted by a bold border.

It is connected to other DEs, which were listed in “See also” field for the given DE.

On the left and right side of the graph, form structures are listed to which the given DE belongs to.

4.5.13 Importing (Multiple) DEs into BRICS

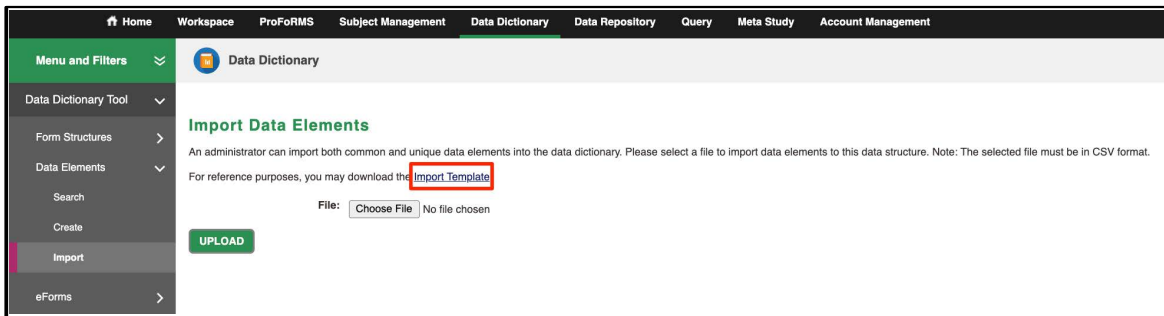
1. Use the Data Element Import Template, which is available as a CSV file via [Data Dictionary>Import Data Elements>Import Template](#) link.
 - a. **Note** (Optional) to save yourself some time, you can contact your BRICS operations team and ask them to provide you with the semi-automatic DE import template, which is a MS Excel macro available file (XLSM).
2. Open the downloaded template in MS Excel. You may populate it with multiple DEs (one per row.)
3. After creating and reviewing DE, when you are satisfied with the result, you may upload DE CSV file to the BRICS dictionary by using the Import Data Elements function.
4. The Import Data Elements function performs the validation of submitted data elements to conformance with BRICS rules. If it finds any errors, it provides you with the descriptive error/warning log and does not allow to import the “wrong” DEs into the data dictionary.
5. You must fix the errors first, and then re-upload fixed DEs.

Some tricks of the trade:

- It is a good practice to perform a throughout review of DEs before uploading them into BRICS. Every time you create a new set of DEs, we encourage you that you contact BRICS Operations and ask them to review you set of DEs.
- Before importing data elements into the BRICS dictionary, the import file **MUST BE CONVERTED** to CSV file type!
- You might find in convenient to work on the DEs in MS Excel and save then template as a MS Excel XLS file with color coding and additional columns for comments.
- However, when it is time to upload DEs into BRICS you need to convert it to a [CSV](#) file.

The following steps must be done before you can proceed with the Data Elements Import tool:

- I. Remove all additional columns you added while working on adding the data elements to the template. These include:
 - a. The column where you calculate the number of characters for the variable Name attribute and
 - b. The column for the Permissible Value Counter macro.
- II. Save the file in [CSV](#) format.
- III. Run the Data Elements Import tool.



4.5.14 Data Element Import Template Explained

All data elements must conform with the DE Import template and to the guidelines in this document or they will not be validated and accepted into the BRICS dictionary.

The [Data Element Import template](#) has 65 columns. Rather a big number.

In this section we are going to

- Explain each column,

- Highlight which columns are required and which can be left empty. However we strongly recommend for the sake of good quality of data elements, to fill out all columns.

I. Variable Name

1. The unique variable name of the Data Element within the BRICS dictionary.
2. Required for all Data Elements.
3. 30 character maximum.
4. The first character must be an alphabetical character a-z or A-Z.
5. Must contain only alphanumeric characters and the special character underscore (_).
6. Must be camel-cased, with the first letter of a word/abbreviation capitalized and all other letters lower case (i.e., TotalScore).
7. The Variable Name should match the Title.
8. Example: Title = Total Score, Variable name = TotalScore
9. For copyrighted materials, the Variable Name should follow the following format:
 - Assessment Acronym + Title
 - Example:
 - Assessment: Buss Perry Aggression Questionnaire (BPAQ)
 - Title: Buss Perry Aggression Questionnaire (BPAQ) - provoked hit scale
 - Variable Name: BPAQProvokedHitScl

10. Title

1. Title represents the essence of the question through discrete concepts, breaking down the question into “What is the primary topic (Object); what is being asked about the topic (Property); and what is the anticipated response or answer (Representation).” Refer to APPENDIX A: REPRESENTATION TERMS GUIDE for more information.
2. Required for all Data Elements.
3. 255 character maximum.
4. Capitalization – First word is capitalized; all others are lowercase except for proper names.
5. Title should be created as a combination of Object + Property Qualifier(s) + Property + Representation Qualifier (s) + Representation Term.
6. The FIRST word of the Title is the main concept. This first term is the most important conceptual idea for a Data Element (consistent with the Object class term which is the first fundamental part of data element as described by ISO-11179) Suggested words include terms like “diagnosis,” “adverse event,” “imaging,” “injury,” “medical history,” “symptoms,” or “treatment.” Words like “other” or “initial,” that are adjectives/modifiers.
7. Based on ISO-11179 standard for the formulation of metadata, the FINAL word of the Title (DE name) is a representation term and should refer to the data type (e.g., indicator (Boolean), type (alphanumeric), scale 9alphanumeric), score, (numeric) etc.).
8. Titles should be unique. No two Data Elements should have the same
9. For copyrighted instruments:
 - a) The full name of the form should be the first part of the Data Element name with the acronym in parentheses.

- b) Add a hyphen.
- c) Provide a description of the data/question from the instrument. Example: Berg Balance Scale (BBS) - stand one leg scale.

III. Element Type

1. A designation of the Data Element as a Common Data Element (CDE) or Unique Data Element (UDE). All DE are first created as Unique Data Element
2. Required for all Data Elements.
3. Designation cannot be abbreviated.
4. Must be one of the following: a) Common Data Element and b) Unique Data Element.
*All Data Elements created outside of NINDS working groups will be designated Unique Data Elements.
Users can ONLY select Unique Data Element in the template.

IV. Definition

1. The Definition should be a clear definition of the question preferably using the concepts in the Title.
2. The representation term, which is the FINAL work in Title, should be the FIRST word in Definition.
3. 4000 character maximum.
4. When a familiar acronym appears in the Data Element Title, the full name MUST be provided in the Definition field to ensure understanding.

V. Short Description

1. It is a concatenated version of the Definition field that is restricted to 255 characters. Use the Definition field as a starting point and reduce to 255 characters using abbreviations, where applicable.
2. Required for all Data Elements.
3. 255 character maximum

VI. Datatype

1. Datatype determines the type of data this Data Element will store. User can select between alphanumeric, numeric, date or data and time, GUIDs, file, biosample, thumbnail (image only files).

VII. Input Restriction

1. This field determines the type of input that will be accepted. Free-form elements allow for short paragraph answer input, and Pre-Defined Values force the user to select an input from the Permissible Values List.
2. Must be one of the following character strings:
 - Free-Form Entry.
 - Multiple Pre-Defined Values Selected.

- Single Pre-Defined Value Selected.
3. If an enumerated list of values contains only numbers (even if PV Descriptions are alphanumeric), the Datatype can be “Numeric Values,” with “Single Pre-Defined Value Selected” and a Minimum and Maximum value entered to define the range of acceptable answers.
 4. When a CDE collects a Numeric Value, and there is a unit of measure for routinely capturing the data, add the unit to the column Unit of Measure. Accepted measurement units are provided in Appendix C.
 5. If a permissible value of “Other, specify” is contained within an enumerated list for a given data element AND the Data Element is alphanumeric or numeric with an input restriction value of Single Pre-Defined or Multiple Pre-Defined, a corresponding “sister” data element is required to support the capture of the Other, specify information.

VIII. Common combinations of Datatype and Input Restrictions

1. For alphanumeric datatype, when input restrictions are set to “Free-Form Entry” then the column “Maximum Character Quantity” must also be also completed. Max=4000 characters.
2. For Numeric Values- datatype, when combined with “Free-Form Entry” input restrictions, the Minimum and Maximum values should be also completed.
3. For Date or Date & Time- datatype column Input Restrictions should be Free-Form; for all CDEs collecting Date, the data will be collected using the ISO-8601 standard.
4. For GUID datatype Input Restrictions should only be “Free-Form, Entry”.
5. For File- datatype Input Restrictions should only be “Free-Form Entry”.
6. For Thumbnail- datatype, Input Restrictions should only be “Free- Form Entry”.

IX. Maximum Character Quantity

1. The Maximum Character Quantity field determines the maximum number of characters a user may input into a Free-Form Entry, Alphanumeric Data Element. **Required field** for Data Elements with Datatype: Alphanumeric and Input Restrictions: Free-Form.
2. This field must be blank for other Datatypes or Input Restrictions.
3. This field must contain a numerical value between 1 and 4000. Be sure to set appropriate parameters (i.e., Social Security Number should have a size of 9).
4. Except: Bio-Sample Free-Form Entry, which currently cannot be greater than 100.

X. Minimum/Maximum Value

1. For a Free-Form, numerical Data Element, a user may specify a range of valid values by inputting a minimum and maximum value.
2. Only input data to these fields for Data Elements with Datatype: Numeric Values and Input Restrictions: Free-Form.
3. These fields must contain numbers.
4. The Minimum Value field must be less than the Maximum Value field.

XI. Permissible Values

1. A list of values that can be used as valid input for this Data Element.
2. Required field for Data Elements with Input Restrictions: Multiple Pre-Defined Values Selected or Single Pre-Defined Value Selected.
3. Must contain a semi-colon delimited list of all possible unique permissible values for the data element.
4. Maximum 200 characters per one PV
5. No spaces before or after any semi-colon in the list.
6. The data from the PV field should be copied into PV Descriptions (e.g., Yes; No; Unknown) unless specific PV Descriptions have been provided.
7. If a permissible value of “Other, specify” is contained within a Data Element, then a new Data Element must be created to support the other, specify text/data. The BRICS Input Restriction will be “Free- Form Entry” and provide a Size (up to 4000 characters, but most frequently limited to 255 characters.).
8. If a permissible value of “Other, specify” is contained within an enumerated list for a given Data Element AND the Data Element is alphanumeric or numeric with an input restriction value of Single Pre-Defined or Multiple Pre-Defined, a corresponding “sister” data element is required to support the capture of the Other, specify information.

XII. To create “Other, specify” sister DE for a corresponding DE with the list of permissible values:

1. Create a corresponding Data Element with an input restriction of “Free-Form Entry” to accept the free-form entry information. This Data Element will complement the “sister/parent” data element (that has an enumerated permissible value list that includes ‘Other, specify’).
2. Variable Name: Copy parent CDE/UDE and change name to end with OTH.
Ex. TherapuRehabSessDur (parent); TherpauRehabSessDurOTH (corresponding Data Element).
3. Title: Copy parent Title and add “other text” at the end of the title Ex. Therapy rehabilitation session duration (parent); Therapy rehabilitation session duration other text. Definition: Provide definition of element. Ex. The free-text field related to the duration of a therapeutic rehabilitation session; specifying other text.
4. Set Maximum Character Quantity to 4000 max characters.
5. Input Restrictions: to Free-Form Entry.

XIII. Permissible Value Descriptions

1. A list of descriptions that matches with the list of permissible values above
2. Mandatory field for Data Elements with Input Restrictions: Multiple Pre-Defined Values Selected or Single Pre-Defined Value Selected.
3. Must contain a semi-colon delimited list of permissible value descriptions. The semi-colon character cannot be used in descriptions.
4. No spaces should be before or after any semi-colon in the list.

5. The Permissible Value Descriptions list must have the same amount of descriptions as there are Permissible Values in the Permissible Value list.
6. The descriptions must match the order of the permissible value.
7. When PVs are a numeric scale or scoring system (e.g., 1;2;3;4;5) and the PV Descriptions include text reporting the meaning of values, the PV Descriptions should be provided. Where no specific meaning is given for some values in the range, additional semicolons may be needed to skip undefined values (e.g., on a scale of 1 to 10 where 1=Never and 10=All of the time, then the PV Description would show Never;;;;;;;;All of the time.

XIV. Permissible Value Output Codes

1. A list of numeric codes, corresponding to the list of permissible values.
2. Mandatory field for Data Elements with Input Restrictions: Multiple Pre-Defined Values Selected or Single Pre-Defined Value Selected.
3. Must contain a semi-colon delimited list of permissible value output unique codes.
4. No spaces should be before or after any semi-colon in the list.

XV. Population.All

1. The target population group for this data element
2. Required for all data elements
3. Must be one of the following character strings:
 - Adult
 - Pediatric
 - Adult; Pediatric
 - Preclinical – for animal studies

XVI. Unit of Measure

1. For any entry type that must be recorded as a specific unit of measurement, a measurement unit should be provided.
2. Only one measurement unit can be entered this column for each Data Element.
3. When a Data Element collects a Numeric Value or Alphanumeric, and there is a unit of measure for routinely capturing the data, add the units to the column Unit of Measurement.

XVII. Guidelines/Instructions

1. A required field for including information about administration or other details that may be pertinent.
2. Contains any information useful for data collection and properly gathering input for this Data Element.
3. 4000 character maximum
4. If this column includes a comment that refers to another CDE, make sure the CDE Title is given, not text like “question b” from the form on which they appear. Reference the CDE, not the form question.

XVIII. Notes

1. Any additional notes you would like others to be able to see when the element is published.
2. Any extra notes or messages related to this Data Element may be placed here.
3. 4000 character maximum.
4. If notes pertain to a specific disease type, be sure to indicate to which disease type the note refers.
5. For DEs which belong to a standardized instrument (CRF) we recommend that you include question number in Notes.
6. If the DE was imported from another dictionary, we recommend that you include that dictionary information in Notes.

XIX. Preferred Question Text

1. May contain one or more suggested questions a researcher may ask a patient or subject to get the proper input for this Data Element.
2. 4000 character maximum.
3. For a copyrighted instrument, the Question Text **MUST** match the instrument exactly. Or it should be left blank, if the instrument publisher insists of not providing the question text.
4. For all other forms, this field should contain the question(s) shown on the CRF, but it must be meaningful content (e.g., not “if yes, specify”). Where needed, the form should be updated to show new Question Text.

XX. Keywords

1. A list of keywords associated with this Data Element. Examples include assessment name, study title, battery name, etc. Whatever makes search for a given DE meaningful and easy.
2. 55 character maximum
3. Must begin with an alphabet character
4. List of keywords must be in a semi-colon delimited list.
5. Keywords cannot have a space, but an underscore can be used instead (i.e. Head Injury).

XXI. References

1. A required field to provide references to the sources which were used to create a given DE
2. For copyrighted instruments must contain the copyright information and a link to the publisher.
3. 4000 character maximum.
4. If references are disease specific, be sure to indicate to which disease-type they pertain to.

XXII. Historical Notes

1. Background information about the data element.
2. 4000 characters maximum.

XXIII. See Also

1. Contain a list of Variable names, divided by semicolon, of the data element

which are related to a given data element.

2. The information in this field is used to populate Knowledge Graph.
3. 4000 characters maximum.

XXIV. Effective Date

1. Identifies the date that an item became or will become available.
2. ISO Format: YYYY-MM-DD

XXV. Until Date

1. Identifies the date that an item is or will no longer be effective.
2. ISO Format: YYYY-MM-DD

XXVI. Submitting Organization Name

1. The team, organization or unit within an organization that has submitted a given data element into the data dictionary. This information is important, because it allows to direct questions related to the DE to the team who created it.
2. It also gives a credit to the team who contributed DEs to the BRICS data dictionary.
3. Required for all Data Elements.
4. 255 characters maximum.

XXVII. Steward Organization Name

1. The organization that maintains the data dictionary and provides the quality control for its data elements. For the BRICS data dictionary, Steward Organization is NIH/CIT/BRICS.
2. Required for all Data Elements.
3. 255 characters maximum.

XXVIII. Domain and Classification info (columns Y to BG) Domain/Sub-domain

1. The Domain (and Sub-Domain) of a Data Element defines the use of the DE within a given project, disease category, study domain. More information can be found on the NINDS CDE project site - <https://www.commondataelements.ninds.nih.gov/>
2. Required for all Data Elements.
3. For a list of valid Domains and Sub-Domains used in BRICS and relevant to your project, please contact BRICS Operations team.

Format:

- Input must be in Domain.Sub-Domain format. For example, under the column heading Domain.Stroke, the value entered could be Outcomes and End Points.Quality of Life.
- Note: Each Domain has one or more sub-domains.
- A data element can have one or more Domain.SubDomain(s) per disease. If there is more than one Domain.SubDomain, please use a semi colon delimited list.

XXIX. Classification

1. The classification of a given disease category. More in <https://www.commondataelements.ninds.nih.gov/glossary>
2. There are 4 classification categories designated for NINDS data elements: Core, Basic, Supplemental, Exploratory. Where Core DEs is data element that collects essential information applicable to any study, including either those which span across all disease and therapeutic areas or those that are specific to one disease area.
3. A classification is required for every disease category where a Domain.Subdomain is listed.
4. There can only be one Classification per disease (or sub-disease if present).
5. For all Unique Data Elements, the classification will ALWAYS be Supplemental.

4.5.16 APPENDIX A: REPRESENTATION TERMS GUIDE

Representation Term	NINDS Data Type	Definition	Abbreviation for Variable Name
Anatomic Site	Alphanumeric	the named location of, or within, the body of a living being	AnatSite
Category	Alphanumeric	the descriptive identification representing a level of intensity, defined meaning, or subjective measurement	Cat
Code	Alphanumeric OR Numeric Values	the selection from a system of defined categories for representation of data, often defined using stratification or hierarchical organization; data may have either a numeric or alphanumeric system assigned for coding	Code
Count	Numeric Values	the quantity of the specified item	Ct
Date	Date or Date & Time	the date on which an event was observed or occurred	Date
Date/Time	Date or Date & Time	the date and time when an event was observed or occurred	DateTime
Dose	Numeric Values	the quantity of an agent (such as drug, substance or energy) administered, taken, or absorbed at one time	Dose
Duration	Numeric Values	the value measuring a quantity or period of time during which an event or observation occurs	Dur
Frequency	Numeric Values	the number of occurrences counted for an event within a given time period	Freq

Representation Term	NINDS Data Type	Definition	Abbreviation for Variable Name
Grade	Alphanumeric OR Numeric Values	the position on a scale of intensity or amount or quality, of or relating to histology; data may have either a numeric or	Grade

Indicator	Alphanumeric	the response for yes/no/unknown/NA)	Ind
Integer	Numeric Values	a concept of quantity using only whole numbers greater than zero	Intg
Interval	Numeric Values	the period of time or the distance separating occurrences	Intrvl
Location	Alphanumeric	the field to describe the geographic area (not anatomic)	Loc
Measurement	Numeric Values	the size or magnitude of the specified item	Mearsr
Name	Alphanumeric	the words or language units by which an object is known	Name
Number	Numeric Values	a concept of quantity derived from zero and units or a numeral or string of numerals used for identification	Num
Range	Numeric Values	the value chosen from the limits or scale of variation for an event or the difference between the lowest and highest numerical values	Rng
Rate	Alphanumeric OR Numeric Values	the measurement of degree, speed, or frequency relative to time with regard to an observation or event; data may be a numeric quantity or may be reported by enumerated values with grouped ranges of values	Rt
Reason	Alphanumeric	the explanation of the cause of some phenomenon or action	Rsn
Scale	Numeric Values	Representins the position in a range of numeric values for level of intensity	Scl
Score	Numeric Values	Used in calculation for the position in a range of numeric values representing level of intensity,	Score

Representation Term	NINDS Data Type	Definition	Abbreviation for Variable Name
		defined meaning or subjective measurement	
Site	Alphanumeric	the field to describe the area (not anatomic)	Site
Source	Alphanumeric	the text describing where something is available or referenced	Source
Status	Alphanumeric	the condition or state at a particular time	Stat or Status
Text	Alphanumeric	the undefined field to capture descriptive information related to an item	Txt
Time	Date or Date & Time	the time at which an event was observed or occurred	Time
Type	Alphanumeric	the enumerate descriptive information to identify an item	Typ
Unit of Measure	Alphanumeric	the name of a reference standard used for measurement when determining a quantity	UoM
Value	Numeric Values	the numeric quantity measured, assigned or computed	Val

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