

Centers for Disease Control and
Prevention (CDC)

National Center for Environmental Health
(NCEH)

Division of Laboratory Sciences (DLS)

**NEWBORN SCREENING AND
MOLECULAR BIOLOGY BRANCH
(NSMBB)**

**NEWBORN SCREENING QUALITY
ASSURANCE PROGRAM (NSQAP)
PORTAL**

**UDOT PROFICIENCY TESTING
PANEL USER GUIDE**

March 2022

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1. UDOT Introduction

The UDOT proficiency testing challenge is a unique component of the Newborn Screening Quality Assurance Program (NSQAP) utilizing a panel of dried blood spot (DBS) specimens that enter the testing scheme in a manner similar to actual newborn screening specimens. For each specimen, participating laboratories must assay all analytes on their chosen test panel. This user guide describes the steps to enter UDOT results. Only abnormal analytes should be reported for the corresponding specimen number.

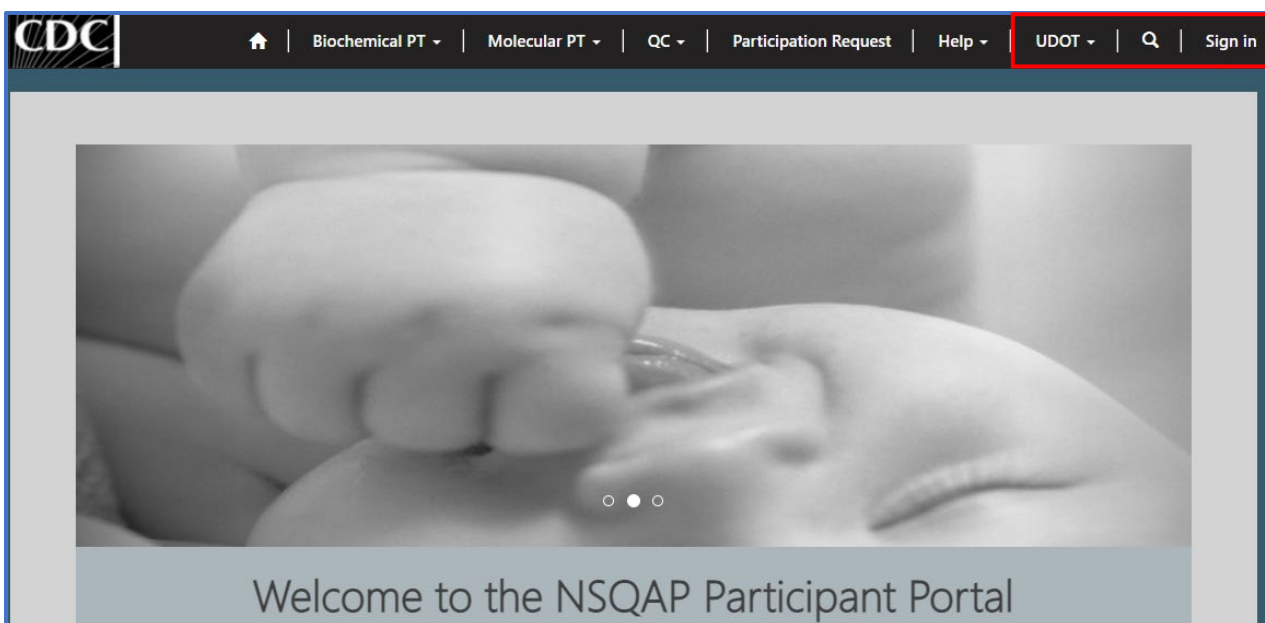
Laboratories are evaluated based on the analytes chosen for their test panel. An unacceptable result indicates a laboratory failed to identify an analyte as abnormal from their list of chosen analytes. A consensus of 80% (normal or abnormal) must be reached for a specimen to be evaluated.

UDOT results are also presented as Z-values, where the z-value is calculated by taking the difference between the laboratory result and the participants' overall mean, then dividing by the standard deviation observed for that specimen. Z-values are for information only and are not evaluated.

$$\text{Z-value} = \frac{\text{Participant Reported Value} - \text{Participant Overall Mean}}{\text{Overall Participant Standard Deviation}}$$

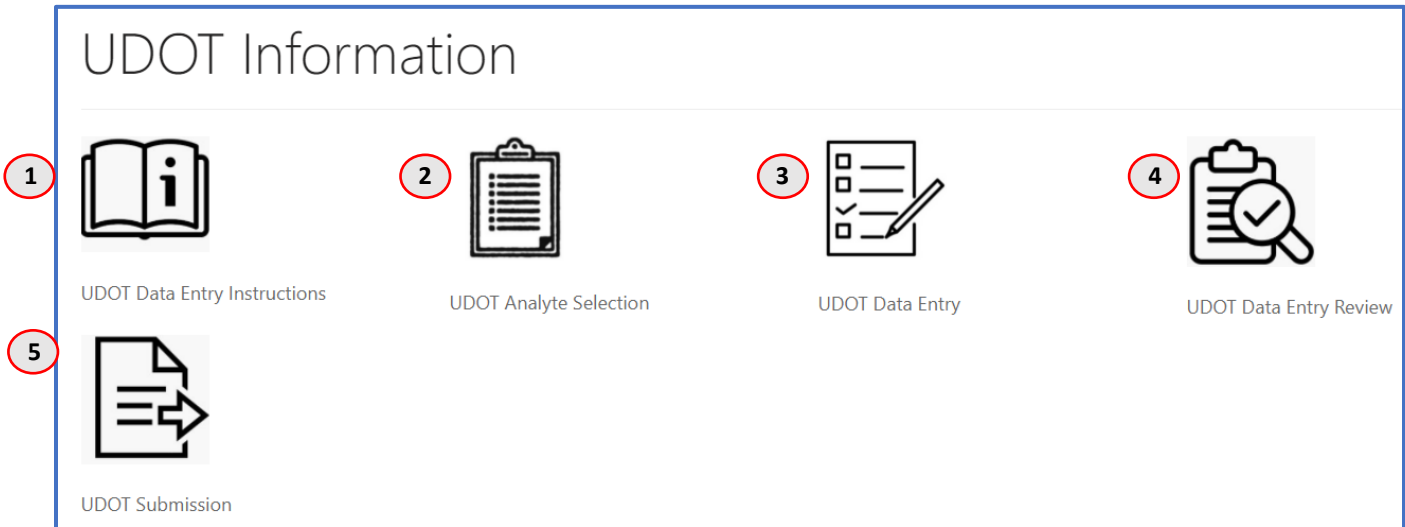
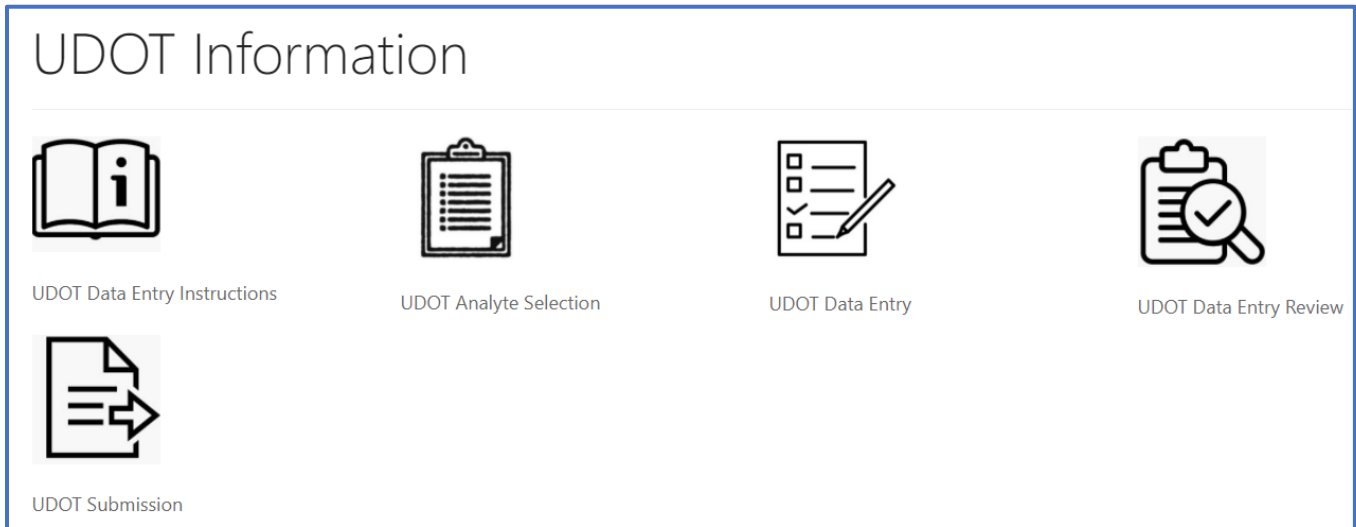
2. UDOT Program Navigation

The UDOT Program section of the NSQAP Portal can be accessed by clicking '**UDOT**' from the menu bar. Remember to sign in first.



2.1 UDOT Information Page

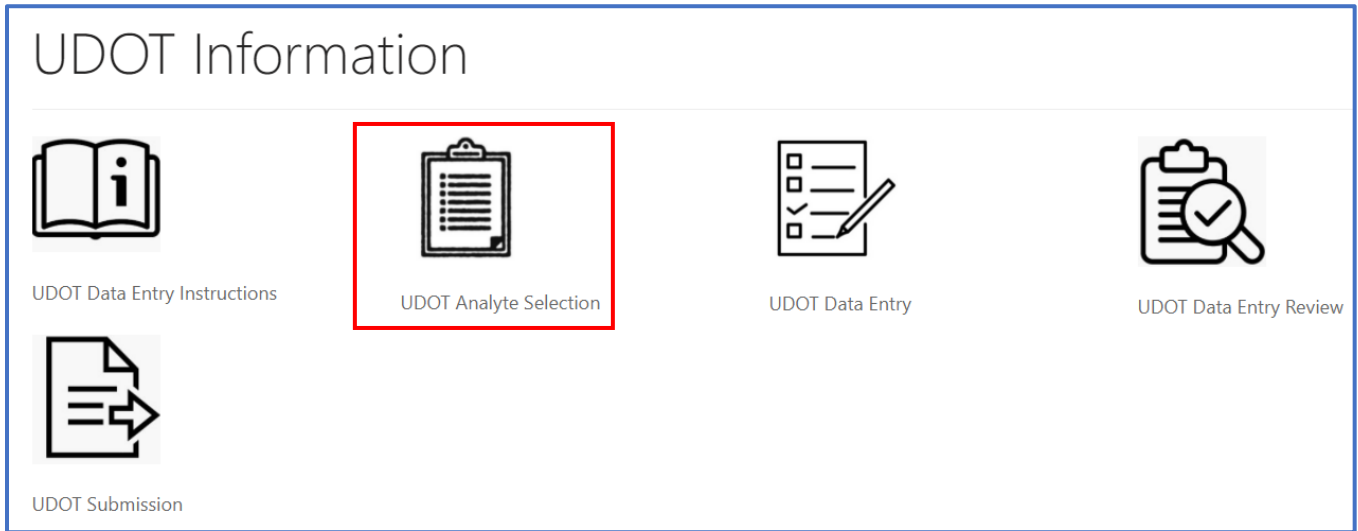
1. Clicking the 'UDOT' button at the top of the page on the toolbar will take you to the home page and resource for all UDOT PT related activities.



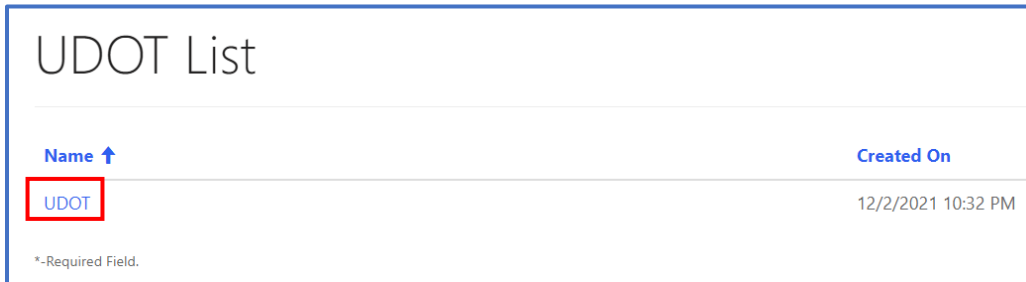
1. **UDOT Data Entry Instructions** – Downloadable instructions for completing UDOT PT data entry in the NSQAP Portal.
2. **UDOT Analyte Selection** – Page for setting up the portal for UDOT PT data entry.
3. **UDOT Data Entry** – Page for entering UDOT PT program data.
4. **UDOT Data Entry Review** – Page for reviewing UDOT PT program data.
5. **UDOT Submission** – Page for submitting UDOT PT program data.

2.2 UDOT Analyte Selection

1. Click on the 'UDOT Analyte Selection' button in the 'UDOT Information' page.



2. Click the 'UDOT' program hyperlink to begin analyte selection.







3. Use the large '+' buttons on the right side of the grid to expand analytes under each category.

Home > UDOT Analyte Selection

UDOT Analyte Selection

1. Choose Analytes for which your laboratory would like to be evaluated by checking the appropriate box under the Evaluated Analyte group.
2. Enter the Method for those analytes in the columns provided.
3. If there is no cutoff, leave the Cutoff Value field blank.

Endocrine and Other Analytes	
Amino Acids	
Acylcarnitines	
ALD	

[Save](#)

*-Required Field.

- Once expanded, the Analyte and Method Selection page will appear for all reportable analytes within the UDOT program. Select the analytes for which data will be reported. Click the check box next to the analyte(s). Repeat the same steps for all categories (Endocrine and Other Analytes, Amino Acids, Acylcarnitines, ALD).

UDOT Analyte Selection

1. Choose Analytes for which your laboratory would like to be evaluated by checking the appropriate box under the Evaluated Analyte group.
 2. Enter the Method for those analytes in the columns provided.
 3. If there is no cutoff, leave the Cutoff Value field blank.

Endocrine and Other Analytes -

<input type="checkbox"/> Thyroxine (T4)	Method <input style="width: 100%;" type="text"/>	Cutoff (µg/dL serum) <input style="width: 100%;" type="text"/>
<input type="checkbox"/> Thyroid-Stimulating Hormone (TSH)	Method <input style="width: 100%;" type="text"/>	Cutoff (µIU/mL serum) <input style="width: 100%;" type="text"/>
<input type="checkbox"/> 17α-Hydroxyprogesterone (17OHP)	Method <input style="width: 100%;" type="text"/>	Cutoff (ng/mL serum) <input style="width: 100%;" type="text"/>
<input type="checkbox"/> Total Galactose(TGal)	Method <input style="width: 100%;" type="text"/>	Cutoff (mg/dL blood) <input style="width: 100%;" type="text"/>
<input type="checkbox"/> Biotinidase Deficiency (BIOT)	Method <input style="width: 100%;" type="text"/>	Cutoff (see method) <input style="width: 100%;" type="text"/>
<input type="checkbox"/> Galactose-1-Phosphate Uridyltransferase Deficiency (GALT)	Method <input style="width: 100%;" type="text"/>	Cutoff (see method) <input style="width: 100%;" type="text"/>
<input type="checkbox"/> Immunoreactive Trypsinogen (IRT)	Method <input style="width: 100%;" type="text"/>	Cutoff (ng/mL blood) <input style="width: 100%;" type="text"/>

Amino Acids +

Acylcarnitines +

ALD +

Save

*-Required Field.








Note: Method will be required once an analyte is selected by checking the box to the left of the analyte. A red asterisk (*) will appear next to the Method after its corresponding analyte is selected.

5. Select the method to be used for each analyte tested. Click the **'Magnifying Glass'** icon on the **'Method'** field for that specific analyte.

UDOT Analyte Selection

1. Choose Analytes for which your laboratory would like to be evaluated by checking the appropriate box under the Evaluated Analyte group.
 2. Enter the Method for those analytes in the columns provided.
 3. If there is no cutoff, leave the Cutoff Value field blank.

Endocrine and Other Analytes -

<input type="checkbox"/> Thyroxine (T4)	Method <input type="text"/> 	Cutoff (µg/dL serum) <input type="text"/>
<input type="checkbox"/> Thyroid-Stimulating Hormone (TSH)	Method <input type="text"/> 	Cutoff (µIU/mL serum) <input type="text"/>
<input type="checkbox"/> 17α-Hydroxyprogesterone (17OHP)	Method <input type="text"/> 	Cutoff (ng/mL serum) <input type="text"/>
<input type="checkbox"/> Total Galactose(TGal)	Method <input type="text"/> 	Cutoff (mg/dL blood) <input type="text"/>
<input type="checkbox"/> Biotinidase Deficiency (BIOT)	Method <input type="text"/> 	Cutoff (see method) <input type="text"/>
<input type="checkbox"/> Galactose-1-Phosphate Uridyltransferase Deficiency (GALT)	Method <input type="text"/> 	Cutoff (see method) <input type="text"/>
<input type="checkbox"/> Immunoreactive Trypsinogen (IRT)	Method <input type="text"/> 	Cutoff (ng/mL blood) <input type="text"/>

Amino Acids +

Acylcarnitines +

ALD +

*-Required Field.

Note: For Amino Acids and Acylcarnitines, the **'Select All'** button will automatically check all analytes and apply the selected method to the analyte group.

The screenshot shows the 'Endocrine and Other Analytes' section with a sub-section for 'Amino Acids'. A red box highlights the 'Select All' checkbox and the 'Select All Methods Below:' search field. Below this, there are two rows for 'Arginine (Arg)' and 'Citrulline (Cit)'. Each row has a 'Method' search field and a 'Cutoff (µmol/L)' input field.

- A new window will appear listing all methods for the analyte. To select a method, click on the method, and the row will highlight with a check mark on the left side. Click the **'Select'** button at the bottom of the window to select the method for the analyte.

The 'Lookup records' dialog box shows a search bar at the top. Below it is a list of methods with checkboxes. The method 'GSP® T4 Neonatal PerkinElmer' is selected, indicated by a checkmark and a red highlight box. At the bottom, there are three buttons: 'Select' (highlighted in red), 'Cancel', and 'Remove value'.

- If a method has been selected for an individual analyte, it will appear in the **'Method'** field for the selected analyte only.

The screenshot shows the 'Endocrine and Other Analytes' section with a sub-section for 'Thyroxine (T4)'. The 'Method' field for 'Thyroxine (T4)' now contains the text 'GSP® T4 Neonatal'. Below it are two rows for 'Thyroid-Stimulating Hormone (TSH)' and '17α-Hydroxyprogesterone (17OHP)', each with a 'Method' search field and a 'Cutoff' input field.

- If the method for testing is not shown in the provided list, click the **'Other'** option, then the **'Select'** button.

Lookup records

Search

Method Name ↑

- AutoDELFI[®] Neonatal T4 PerkinElmer
- DELFIA[®] Neonatal T4 PerkinElmer
- GSP[®] T4 Neonatal PerkinElmer
- NeoMAP[®] T4 Interscientifica
- Other

Select Cancel Remove value

- If **'Other'** method is selected, type the name of the **'Other'** Method in the field.

Endocrine and Other Analytes

Thyroxine (T4) Method * Cutoff (µg/dL serum) Other *

Other x Q

Thyroid-Stimulating Hormone (TSH) Method Cutoff (µIU/mL serum)

Method Q

17α-Hydroxyprogesterone (17OHP) Method Cutoff (ng/mL serum)

Method Q

10. Enter the cutoff value for each analyte in the 'Cutoff' field.

UDOT Analyte Selection

1. Choose Analytes for which your laboratory would like to be evaluated by checking the appropriate box under the Evaluated Analyte group.
 2. Enter the Method for those analytes in the columns provided.
 3. If there is no cutoff, leave the Cutoff Value field blank.

Endocrine and Other Analytes -

<input type="checkbox"/> Thyroxine (T4)	Method <input style="width: 100%;" type="text"/> <input type="button" value="Q"/>	Cutoff (µg/dL serum) <input style="width: 100%;" type="text"/>
<input type="checkbox"/> Thyroid-Stimulating Hormone (TSH)	Method <input style="width: 100%;" type="text"/> <input type="button" value="Q"/>	Cutoff (µIU/mL serum) <input style="width: 100%;" type="text"/>
<input type="checkbox"/> 17α-Hydroxyprogesterone (17OHP)	Method <input style="width: 100%;" type="text"/> <input type="button" value="Q"/>	Cutoff (ng/mL serum) <input style="width: 100%;" type="text"/>
<input type="checkbox"/> Total Galactose(TGal)	Method <input style="width: 100%;" type="text"/> <input type="button" value="Q"/>	Cutoff (mg/dL blood) <input style="width: 100%;" type="text"/>
<input type="checkbox"/> Biotinidase Deficiency (BIOT)	Method <input style="width: 100%;" type="text"/> <input type="button" value="Q"/>	Cutoff (see method) <input style="width: 100%;" type="text"/>
<input type="checkbox"/> Galactose-1-Phosphate Uridyltransferase Deficiency (GALT)	Method <input style="width: 100%;" type="text"/> <input type="button" value="Q"/>	Cutoff (see method) <input style="width: 100%;" type="text"/>
<input type="checkbox"/> Immunoreactive Trypsinogen (IRT)	Method <input style="width: 100%;" type="text"/> <input type="button" value="Q"/>	Cutoff (ng/mL blood) <input style="width: 100%;" type="text"/>

Amino Acids +

Acylcarnitines +

ALD +

*-Required Field.

11. Complete program setup for data entry by clicking the **'Save'** button at the bottom of the setup page.

UDOT Analyte Selection

1. Choose Analytes for which your laboratory would like to be evaluated by checking the appropriate box under the Evaluated Analyte group.
 2. Enter the Method for those analytes in the columns provided.
 3. If there is no cutoff, leave the Cutoff Value field blank.

Endocrine and Other Analytes -

<input type="checkbox"/> Thyroxine (T4)	Method <input style="width: 100%;" type="text"/>	Cutoff (µg/dL serum) <input style="width: 100%;" type="text"/>
<input type="checkbox"/> Thyroid-Stimulating Hormone (TSH)	Method <input style="width: 100%;" type="text"/>	Cutoff (µIU/mL serum) <input style="width: 100%;" type="text"/>
<input type="checkbox"/> 17α-Hydroxyprogesterone (17OHP)	Method <input style="width: 100%;" type="text"/>	Cutoff (ng/mL serum) <input style="width: 100%;" type="text"/>
<input type="checkbox"/> Total Galactose(TGal)	Method <input style="width: 100%;" type="text"/>	Cutoff (mg/dL blood) <input style="width: 100%;" type="text"/>
<input type="checkbox"/> Biotinidase Deficiency (BIOT)	Method <input style="width: 100%;" type="text"/>	Cutoff (see method) <input style="width: 100%;" type="text"/>
<input type="checkbox"/> Galactose-1-Phosphate Uridyltransferase Deficiency (GALT)	Method <input style="width: 100%;" type="text"/>	Cutoff (see method) <input style="width: 100%;" type="text"/>
<input type="checkbox"/> Immunoreactive Trypsinogen (IRT)	Method <input style="width: 100%;" type="text"/>	Cutoff (ng/mL blood) <input style="width: 100%;" type="text"/>

Amino Acids +

Acylcarnitines +

ALD +

Save

*-Required Field.


Note: If the **'Save'** button is not selected, data will not be retained.

3. UDOT Data Entry for Abnormal Analytes


3.1 UDOT Data Entry

1. To enter data for the UDOT program, click the **'UDOT'** button at the top of the page on the toolbar and click the **'UDOT Data Entry'** option. Only report analytes that are outside of normal limits. More than one analyte may be reported for a specimen.


UDOT Information




UDOT Data Entry Instructions




UDOT Analyte Selection



UDOT Data Entry



UDOT Data Entry Review



UDOT Submission

*-Required Field.

2. The specimen list page will appear.

Home > **UDOT Specimens**

UDOT Specimens

Select the specimen below to report "outside normal limits" results for analytes your laboratory evaluates

Name ↑	Created On
20222016001	11/16/2021 10:19 AM
20222016002	11/16/2021 10:19 AM
20222016003	11/16/2021 10:19 AM
20222016004	11/16/2021 10:19 AM
20222016005	11/16/2021 10:19 AM
20222016006	11/16/2021 10:19 AM
20222016007	11/16/2021 10:20 AM
20222016008	11/16/2021 10:20 AM
20222016009	11/16/2021 10:20 AM
20222016010	11/16/2021 10:20 AM

- To navigate to the specimen data entry page, click the **'Specimen Number'** hyperlink.

UDOT Specimens

Select the specimen below to report "outside normal limits" results for analytes your laboratory evaluates

Name ↑	Created On
20222016001	11/16/2021 10:19 AM
20222016002	11/16/2021 10:19 AM
20222016003	11/16/2021 10:19 AM
20222016004	11/16/2021 10:19 AM

- A pop-up will appear, click OK. Do not enter an analyte more than once for the same specimen number. Duplicate analytes will not be accepted.

Do not enter an analyte more than once for the same specimen number. Duplicate analytes will not be accepted

OK

- Add analytes to each specimen by clicking the **'Add Analyte'** button.

UDOT Data Entry

Quantitative analytes, enter numerical results
 Qualitative analytes, select "Abnormal" in the Other Result field
 For <LOD, select "<LOD" in the Other Result field

Specimen Number *
 20222016007

Add Analyte

Specimen ↑	Analyte	Result	Comments	Created On
There are no records to display.				

- A new window will appear to select an analyte. Search for analyte by clicking on the magnifying glass.

The screenshot shows a form with the following fields:

- Specimen#**: A text input field with a hyphen.
- Analyte**: A text input field with a magnifying glass icon, highlighted with a red box.
- Result**: A text input field.
- <LOD**: A dropdown menu currently set to "No".
- Comments**: A large text area for notes.
- Save**: A blue button at the bottom left.

- Click on the analyte and the row will highlight with a check mark on the left side. Click the **'Select'** button at the bottom of the window to select the analyte. To search for an analyte, click on the spyglass icon and type in the first few characters of the analyte name. Click the spyglass again to find and select the analyte

The screenshot shows a "Lookup records" window with a search bar and a table of results:

<input checked="" type="checkbox"/>	Name	Created On
<input type="checkbox"/>	17OHP	11/8/2021 11:21 AM
<input type="checkbox"/>	ARG	11/8/2021 11:21 AM
<input type="checkbox"/>	BIOT	11/8/2021 11:21 AM
<input type="checkbox"/>	C0(L)	11/8/2021 11:21 AM
<input checked="" type="checkbox"/>	C10	11/8/2021 11:22 AM
<input type="checkbox"/>	C10:1	11/8/2021 11:22 AM
<input type="checkbox"/>	C10:2	11/8/2021 11:22 AM
<input type="checkbox"/>

At the bottom of the window, there are three buttons: **Select** (highlighted with a red box), **Cancel**, and **Remove value**. A pagination control shows page 1 of 4.

- The selected analyte will now populate in the '**Analyte**' field. Enter either a quantitative result into the '**Result**' field or use the drop-down field to choose '**<LOD**'. <LOD refers to less than the limit of detection of the assay.

Note: For qualitative analytes, simply choosing the analyte for the specimen indicates it is abnormal. Comments can be added to the "Comments" box to further describe the qualitative result.

Specimen# —	Analyte C10 <input type="button" value="x"/> <input type="button" value="Q"/>
Result <input type="text"/>	<LOD No <input type="button" value="v"/>
Comments <input type="text"/>	
<input type="button" value="Save"/>	

9. Click the **'Save'** button at the bottom of the page to save results.

Specimen# 2021603	Analyte * C10 <input type="button" value="x"/> <input type="button" value="Q"/>
Result 1.57	<LOD No <input type="button" value="v"/>
Comments <input type="text"/>	
Delete? <input checked="" type="radio"/> No <input type="radio"/> Yes	
<input type="button" value="Save"/>	

10. When the analyte has been saved, the specimen list page will update with the analyte record and when it was last saved.

Specimen ↑	Analyte	LOD	Result	Comments	Created On
20222016001	C6	No	1.24		12/29/2021 4:10 PM
20222016001	C8	No	1.57		12/29/2021 4:35 PM
20222016001	C10	No	1.10		1/3/2022 7:33 PM
20222016001	C10:1	No	0.98		1/4/2022 12:05 PM

11. To edit or delete a record, click on the specimen number of the analyte to edit.

Specimen#
—

Analyte
C10 ✕ 🔍

Result

<LOD
No ▼

Comments

Delete?
 No Yes

Save

Note: Once 'Yes' is selected for the Delete Option and the 'Save' button is clicked, the analyte will be permanently deleted from the specimen number.

12. To return to the UDOT Specimen List Page to add/edit analytes for other specimens, click on the **'Return to UDOT Specimen List Page'** hyperlink above **'Specimen Number'**.

UDOT Data Entry

For Quantitative analytes, enter numerical results
For Qualitative analytes, "Abnormal" will be displayed in the Qualitative Result field
For <LOD, select "Yes" in the <LOD field

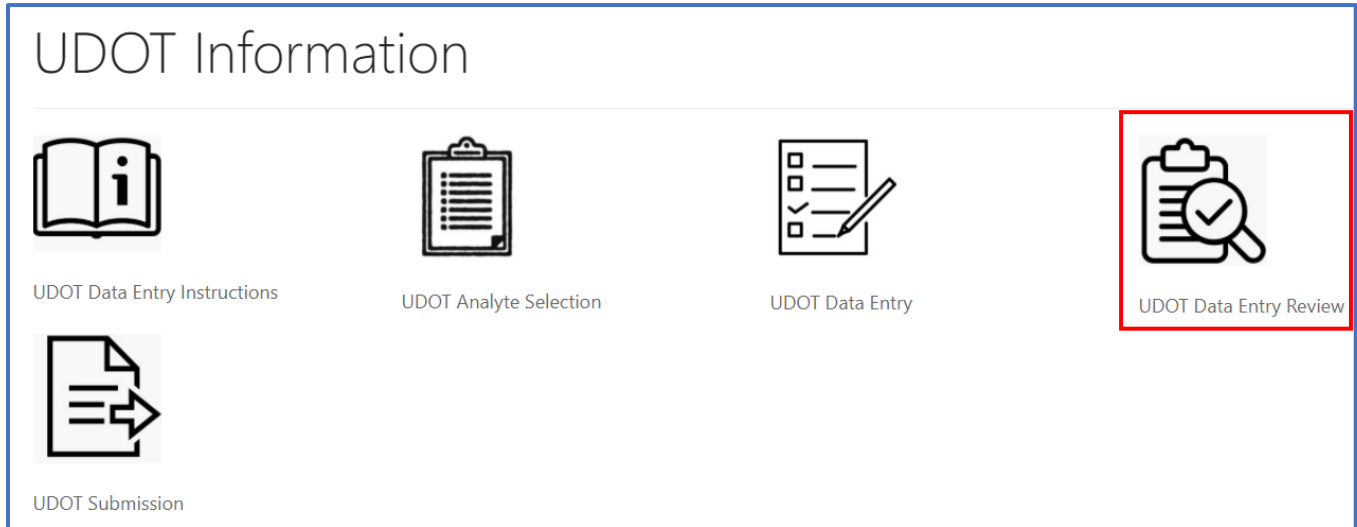
[Return to UDOT Specimen List Page](#)

Specimen Number *
20222016001

4. UDOT Data Entry Review and Submission

4.1 Data Entry Review

1. Click the **'UDOT'** button at the top of the page on the toolbar and click the **'UDOT Data Entry Review'** option.



2. The **'Summary of Reported UDOT Specimens'** will appear in an un-editable table. The summary can be downloaded to a MS Excel spreadsheet by clicking the **'Download'** button.

Summary of Reported UDOT Specimens

[Return to UDOT Specimen List Page](#)

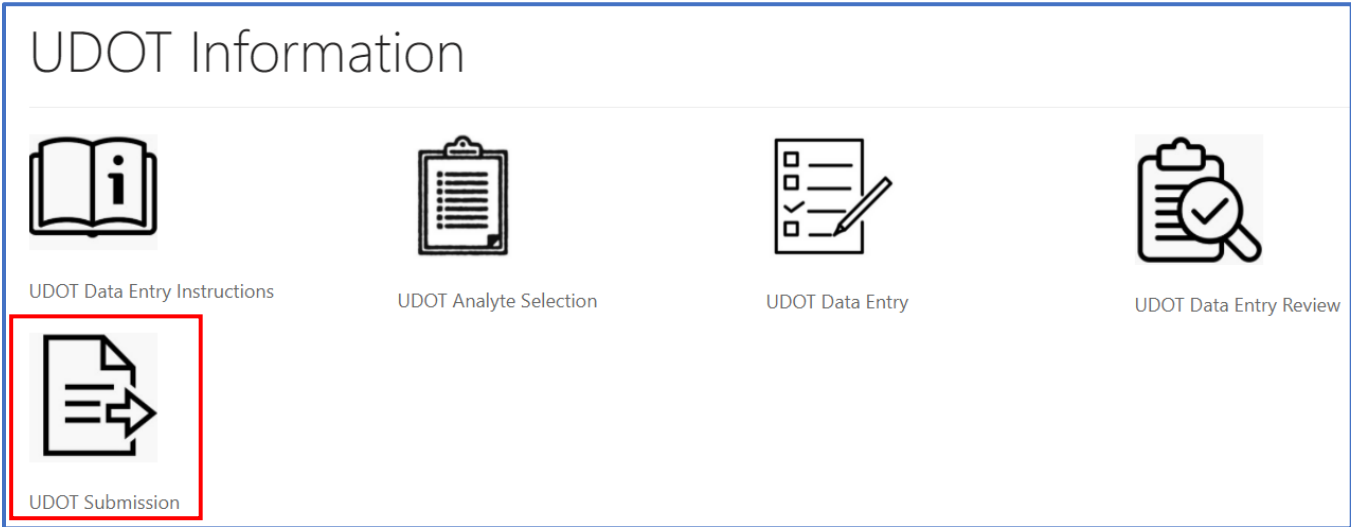
Search

Specimen ↑	Analyte	LOD	Result	Comments	Created On
20222016001	C6	No	1.24		12/29/2021 4:10 PM
20222016001	C8	No	1.57		12/29/2021 4:35 PM
20222016001	C10	No	1.10		1/3/2022 7:33 PM
20222016001	C10:1	No	0.98		1/4/2022 12:05 PM
20222016002	BIOT	Yes		Abnormal	1/5/2022 9:48 AM

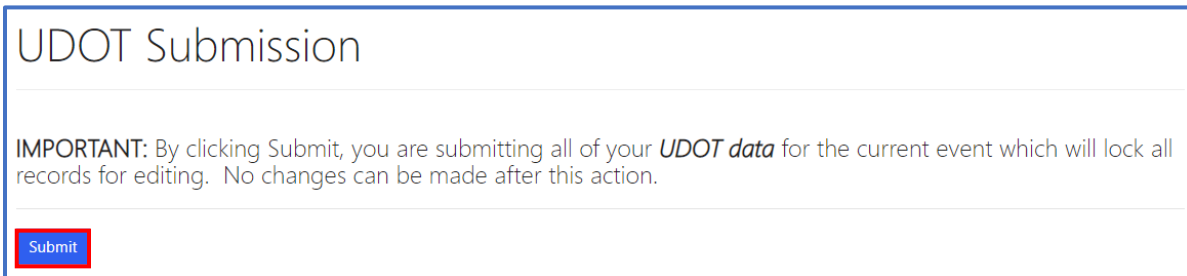
Note: Click on the **'Return to UDOT Specimen List Page'** hyperlink to return to the UDOT Data Entry page to make changes.

4.2 Data Submission

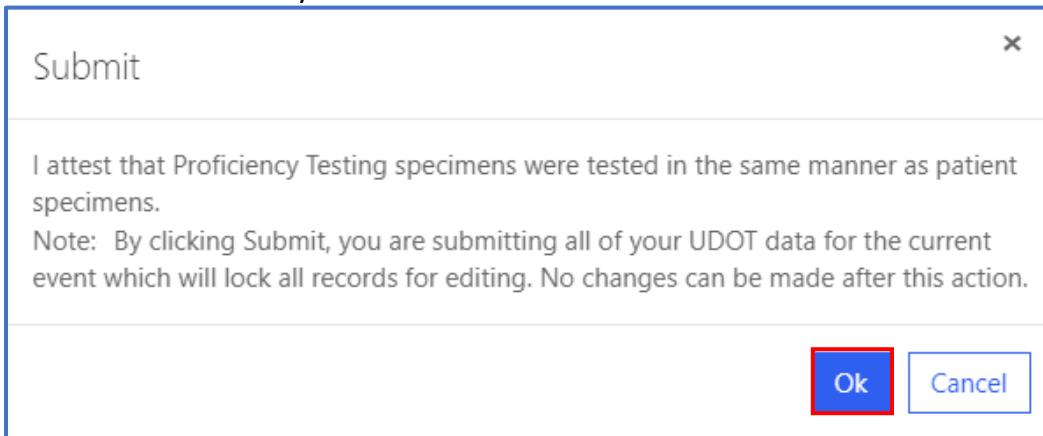
1. Click on the **'UDOT'** button at the top of the page on the toolbar and click on the **'UDOT Submission'** option.



2. To submit data for the program, click on the **'Submit'** button at the bottom of the page.

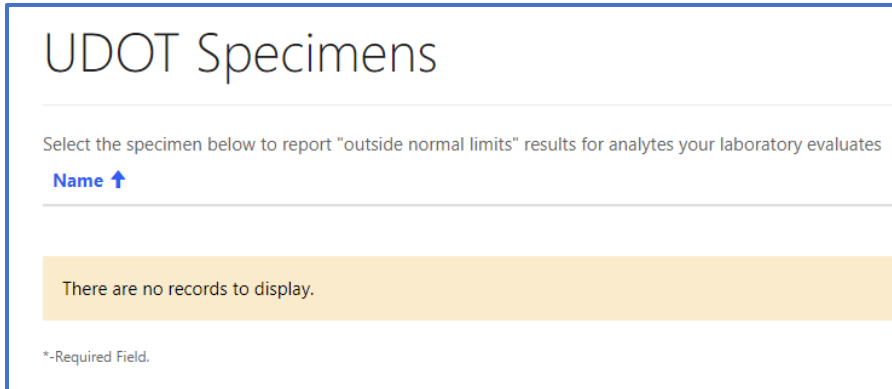


3. Click the **'Ok'** button on the submission prompt. To capture the attestation statement, take a screenshot and save it for your records.



4. The user will receive an email from NSQAPDMT stating that the UDOT results have been submitted and they are no longer able to edit or submit additional UDOT results for the event.

Note: After submission, the **UDOT Specimens** page will show 'There are no records to display.'



The screenshot shows a web interface for 'UDOT Specimens'. At the top, the title 'UDOT Specimens' is displayed. Below the title, there is a horizontal line and a sub-header: 'Select the specimen below to report "outside normal limits" results for analytes your laboratory evaluates'. Underneath this is a column header 'Name ↑'. A large yellow banner spans the width of the page with the text 'There are no records to display.'. At the bottom left of the page, there is a small asterisk and the text '*-Required Field.'